



What to do when you're expecting, (a fire)

Steve Buckley
National Park Service
California Invasive Plant Management Team

With contributions from:
Cedar Drake (NPS), Eamon Engber (NPS), Patty Johnson (NPS), Jen
Gibson (NPS), Nelson Siefkin (NPS), Matt Brooks (USGS)

Cal-IPC Symposium, October 25, 2023



California Invasive Plant Management Team

SF Bay Area Network

Point Reyes National Seashore (PORE)
Golden Gate National Parks (GOGA, MUWO, FOPO, PRES)
John Muir National Historic Site (JOMU)
Pinnacles National Park (PINN)

Mediterranean Network

Cabrillo National Monument (CABR)
Channel Islands National Park (CHIS)
Santa Monica Mountains National Recreation Area (SAMO)

Klamath Network

Crater Lake National Park (CRLA)
Lassen Volcanic National Park (LAVO)
Lava Beds National Monument (LAVE)
Oregon Caves National Monument (ORCA)
Redwood National Park (REDW)
Whiskeytown National Recreation Area (WHIS)

Sierra Nevada Network

Devil's Postpile National Monument (DEPO)
Sequoia and Kings Canyon National Park (SEKI)
Yosemite National Park (YOSE)





Dixie Fire, Lassen Volcanic NP, August 2021

Natural resource managers can guide and influence firefighting activity in ways that greatly reduce the risk of invasive plant spread. Doing so effectively, however, requires effective preparation.



Map for Today's workshop

- **Introduction**
- Fire Operations 101
 - Anthony Sandrini, FMO for Santa Monica Mountains NRA
- Pre-planning for Invasive Plants: Resource Advising
 - Cedar Drake, Ecologist, Pacific West Region READ Coordinator
- Break
- The Risk Informed Decision and the Wildland Fire Decision Support System (WFDSS)
 - Eamon Engber, Pacific West Region Fire planner
- Your unit is on Fire, now what?
- Q&A



Cal-IPC & NPS Collaboration

Originated in a survey of 13 NPS units across California that led to 2 workshops in 2023, supporting NPS Resource Managers

January 2023: [\(workshop link\)](#)

- Focused on preparedness, role and relevance of Resource Advising (READ)

March 2023: [\(workshop link\)](#)

- Focused on what happens during fire operations and then post-fire with suppression repair and burned area rehabilitation

NATIONAL PARK SERVICE
WEED CONTROL DURING WILDFIRE RESPONSE

Survey Results

Submitted to:
Steve Buckley, PhD

By:
California Invasive Plant Council
Jutta C. Burger, PhD
Doug Johnson



Cal-IPC & NPS Collaboration

Preparing for Wildland Fire: A Step-by-Step Guide for NPS Invasive Plant Managers

Preparing for Wildland Fire:

A Step-by-Step Guide for NPS Invasive Plant Managers



Wildfires – and wildfire response – present a significant risk for the spread of invasive plants. In addition to spreading invasives already on site, firefighting personnel and equipment may introduce new invasive species. Natural resource managers can guide and influence firefighting activity in ways that greatly reduce the risk of invasive plant spread. Doing so effectively, however, requires effective preparation. This guide describes steps that can be taken by National Park Service (NPS) natural resource managers to avoid, minimize, or mitigate the introduction and spread of invasive species before and during wildland fire incidents.

Although some protocols are specific to the NPS, the overall approach is generally transferable to other organizations.

When a fire starts, critical information regarding sensitive park resources must be readily available and organized in a manner which can be efficiently shared with fire operations personnel. Considerable impact often occurs within the first operational periods of wildfire response, and typically little time is available to gather plant distribution information, produce maps, procure weed wash equipment, and provide training. Such resource protection measures need to be accomplished in advance of an emergency.



Woolsey Fire, Paramount Ranch. Photo courtesy National Park Service.



National Invasive Species Council (NISC)/Wildland Fire Leadership Council (WFLC) developed a collaborative partnership in 2020:

1. Identify goals and opportunities for coordination
2. Leverage federal actions across and between the wildland fire and invasive species communities
3. Build collaboration and engagement with non-federal partners



What are NISC and WFLC?

The National Invasive Species Council was established by Executive Order 13112 in 1999.

The purpose of NISC is to provide the vision and leadership to coordinate, sustain, and expand federal efforts to safeguard the interests of the United States from the negative impacts of invasive species.

NISC is co-chaired by the Departments of Agriculture, Commerce, and Interior, and includes representation from nine other Federal Departments and four White House offices.



What are NISC and WFLC?

The Wildland Fire Leadership Council was established by an MOU of the Secretaries of the Departments of Agriculture, Defense, Homeland Security, and the Interior in 2002.

The purpose of WFLC is to provide strategic recommendations to ensure policy coordination, accountability, and effective implementation of Federal Wildland Fire Management Policy and related long-term strategies to ensure effective and efficient wildland fire management, promote fire-adapted communities, and create resilient landscapes.

WFLC has 19 members representing Federal departments and agencies as well as elected state, Tribal Nation, and local governments.



National Invasive Species Council (NISC)/Wildland Fire Leadership Council (WFLC) Co-chairs Departmental Memo (Oct. 2022):

Integrating and Coordinating Wildland Fire and Invasive Species Management Efforts

<https://www.doi.gov/sites/doi.gov/files/nisc-wflcmemo-final-10-12-2022.pdf>




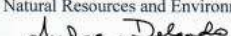
Memorandum


October 12, 2022

To: Assistant Secretaries, Heads of Agencies and Offices

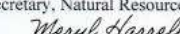
From: National Invasive Species Council Co-Chairs:


Janet Coit, Acting Assistant Secretary for Oceans and Atmosphere
and Assistant Administrator for Fisheries, NOAA
U.S. Department of Commerce 

Andrea Delgado, Chief of Staff, Natural Resources and Environment
U.S. Department of Agriculture 

Eric Werwa, Deputy Assistant Secretary, Policy and Environmental
Management
U.S. Department of the Interior 

Wildland Fire Leadership Council Co-Chairs:

Meryl Harrell, Deputy Under Secretary, Natural Resources and Environment
U.S. Department of Agriculture 

Joan Mooney, Principal Deputy Assistant Secretary, Policy, Management
and Budget
Exercising the Delegated Authority of the Assistant Secretary,
Policy, Management and Budget
U.S. Department of the Interior 

Subject: Integrating and Coordinating Wildland Fire and Invasive Species Management Efforts

I. Purpose

This memorandum provides direction for the Departments' Agencies and Offices to provide appropriate support and resources to the integration and coordination of wildland fire and invasive species management efforts.

II. Background

The interaction between invasive species, particularly invasive plants, and wildfire is presenting increased risks to the integrity of natural ecosystems, human safety, and rural economies in areas



Integrating and Coordinating Wildland Fire and Invasive Species Management Efforts

1. Facilitate coordination and communication at national and regional levels
2. Crosswalk with agency geographic prioritization efforts
3. Develop science support for implementation
4. Identify emerging needs related to memo priorities with our partners and targeted audiences
5. Develop a "Framework" to facilitate implementation and collaboration across federal agencies and non-federal partners



Becoming Literate in Fire Terminology

Abbreviations

Note: More information on abbreviations can be found on the [NWCG Glossary of Wildland Fire](#).

AAR	After Action Review	LOGS	Logistics Section
AIS	Aquatic Invasive Species	LURG	Local Unit READ Guide
BAR	Burned Area Rehabilitation	MIST	Minimum Impact Strategies & Tactics
BAER	Burned Area Emergency Response	MR	Management Requirement (WFDSS)
BMPs	Best Management Practices	NRSS	Natural Resource Stewardship & Science Directorate
ES	Emergency Stabilization	OPSC	Operation Section Chief
GISS	Geographic Information System Specialist	READ	Resource Advisor
IAP	Incident Action Plan	REAF	Fireline Resource Advisor
ICP	Incident Command Post	RPM	Resource Protection Measure
IMT	Incident Management Team	WFDSS	Wildland Fire Decision Support System
IPMT	Invasive Plant Management Team	WMA	Weed Management Area
IR	Incident Requirement (WFDSS)		



Resource Advisor (READ)

- Mission: The Resource Advisor provides professional knowledge and expertise for the protection of natural, cultural, and other resources within an emergency incident environment
- Strategic priorities:
 - Provide for safety first
 - Provide management recommendations to protect and serve natural, cultural, and other resources
 - Be sensitive to the objectives of managing the incident



nwcg.gov/sites/default/files/publications/pms313.pdf



What is Resource Advising?

Prevention, minimization, or mitigation of impacts to:

- sensitive natural & cultural resources
- specially designated areas
- infrastructure and utilities



NORTH CASCAI NATIONAL PARK CO Resource Advisor G

updated September 9, 2022



RAINBOW BRIDGE FIRE 2010



© Camilo Fernandez

Helicopter Dip Lakes

Lassen Volcanic National Park



■ No Dip

■ Need Approval of Duty Officer

■ OK to Dip

■ Undetermined

■ Lassen Volcanic Wilderness

— NPS Boundary

Criteria for No Dip lakes:

- Listed/rare species present,
- Sensitive ecological or geological resources,
- Shallow lake depth (max depth < 10 ft), OR
- Preferred water source nearby (only applied around Butte, Cluster & Lower Twin)

File: N:\GIS_Projects\047_Division\LA\VO-DiveFire_NoDipLakes\DipLakes_AMS.mxd

Produced by Lassen Volcanic National Park GIS 8/8/2021



Fire Operations 101



Tony Sandrini, Fire Management Officer
Serving Cabrillo NM, Channel Islands National Park, and
Santa Monica Mountains National Recreation Area



Map for Today's workshop

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- Your unit is on Fire, now what?
- Q&A





Pre-Planning for Invasives: Resource Advising

Cedar Drake

PWR FAM Resource Advisor Coordinator
cedar_drake@nps.gov
360.630.3231



Cedar Drake: NPS P...



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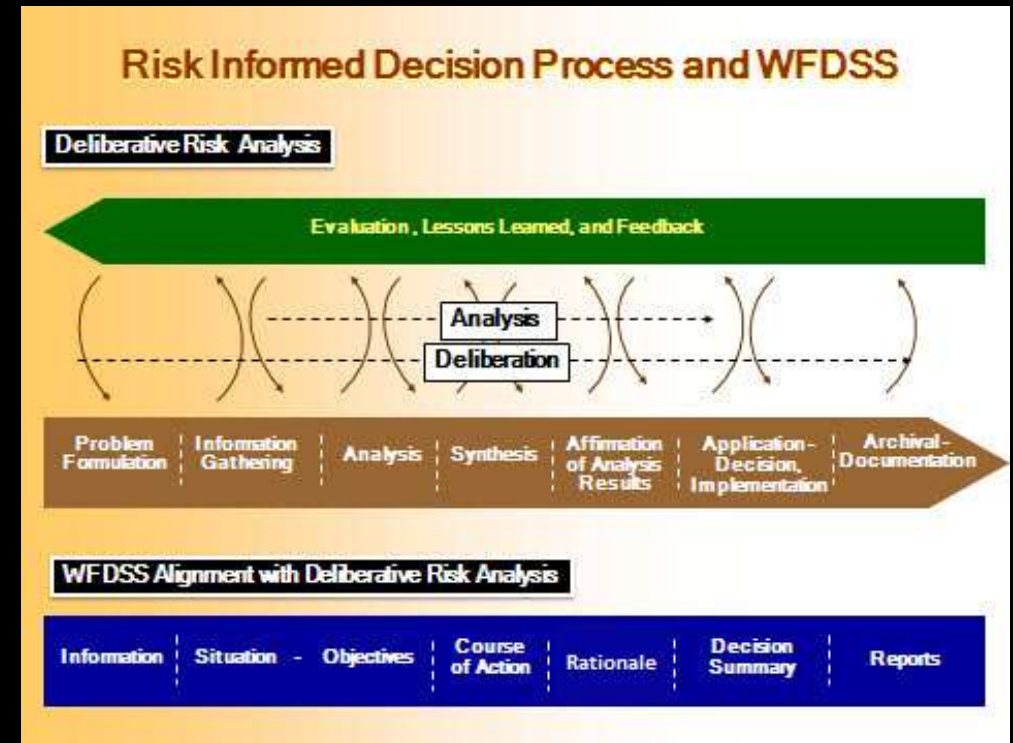
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Wildland Fire Decision Support System (WFDSS)

- Replaced the Wildland Fire Situation Analysis (WFSA) in 2007
- USGS system, undergoing revision presently (NextGen WFDSS)
- Supports Agency Administrators (AA) in their decision-making process
- Pre-loads local information, fire behavior analysis, long-term analysis



What WFDSS is and is not

- Is: a risk informed decision tool for federal Agency Administrators (AA)
- Is not: applicable to state and local incidents
- Is: powerful tool to have important resource information available to Incident Command early in extended attack
- Is not: available immediately (yet) in a real-time initial attack

Wildland Fire Decision Support System National Preparedness Level: 1 Incident: Lost

My Home Incidents Incident Groups Analyses Intelligence Data Management

Information Situation Assessment Objectives Course of Action Cost Decisions Periodic Assessment Reports

The Incident Information section of this page is controlled by CANCIC - North Coast Interagency Communication Center. Please contact them at [Save]

Incident Information

*Incident Name: Lost FireCode: QJ5R P-Code: []

*Point of Origin Latitude: Deg: 41 Min: 18 Sec: 49.8 or *Point of Origin Longitude: Deg: 123 Min: 58 Sec: 7.7
Example: 39.527 Example: 105.3108

*Unique Fire Identifier: 2023 - CARWP - 000959
Calendar Year Unit ID Local Number

*Incident Size (acres): 739.82 Latest WFDSS Perimeter Size (acres): 722

Responsible Unit Name: Redwood National and State Parks
Geographic Area (prep level): Northern California (2) Owner: Multiple

Incident Cause: Undetermined Natural Human

Incident Type: Wildfire Prescribed Other

Incident Dates

*Discovery Date	*Discovery Time	Containment Date	Containment Time
08/15/2023	13:21	09/10/2023	18:00
Controlled Date	Controlled Time	Out Date	Out Time

Other Information

*Jurisdictional Agency(s): Bureau of Indian Affairs/Tribal Bureau of Land Management Bureau of Reclamation Fish and Wildlife Service National Park Service USDA Forest Service

Jurisdictional Agency Unit at Point of Origin: CARWP - Redwood National and State Parks

IRWIN Information: IRWIN GUID: 7625C990-74F8-4D67-AE6A-604064972AA9 [View IRWIN JSON](#)
[Compare WFDSS and IRWIN Attributes](#)





2022 WFDSS Refresher

Eamon Engber – PWR Fire Planner
Patty Johnson – PWR Fire Planner



My Park is On Fire! What now?



DON'T FREAK OUT



My Park is On Fire! What now?



Gather Information



Share Information



Implement Resource
Protection Measures (RPMs)



Document Impacts

My Park is On Fire! What now?



Gather Information



Share Information



Implement Resource
Protection Measures (RPMs)



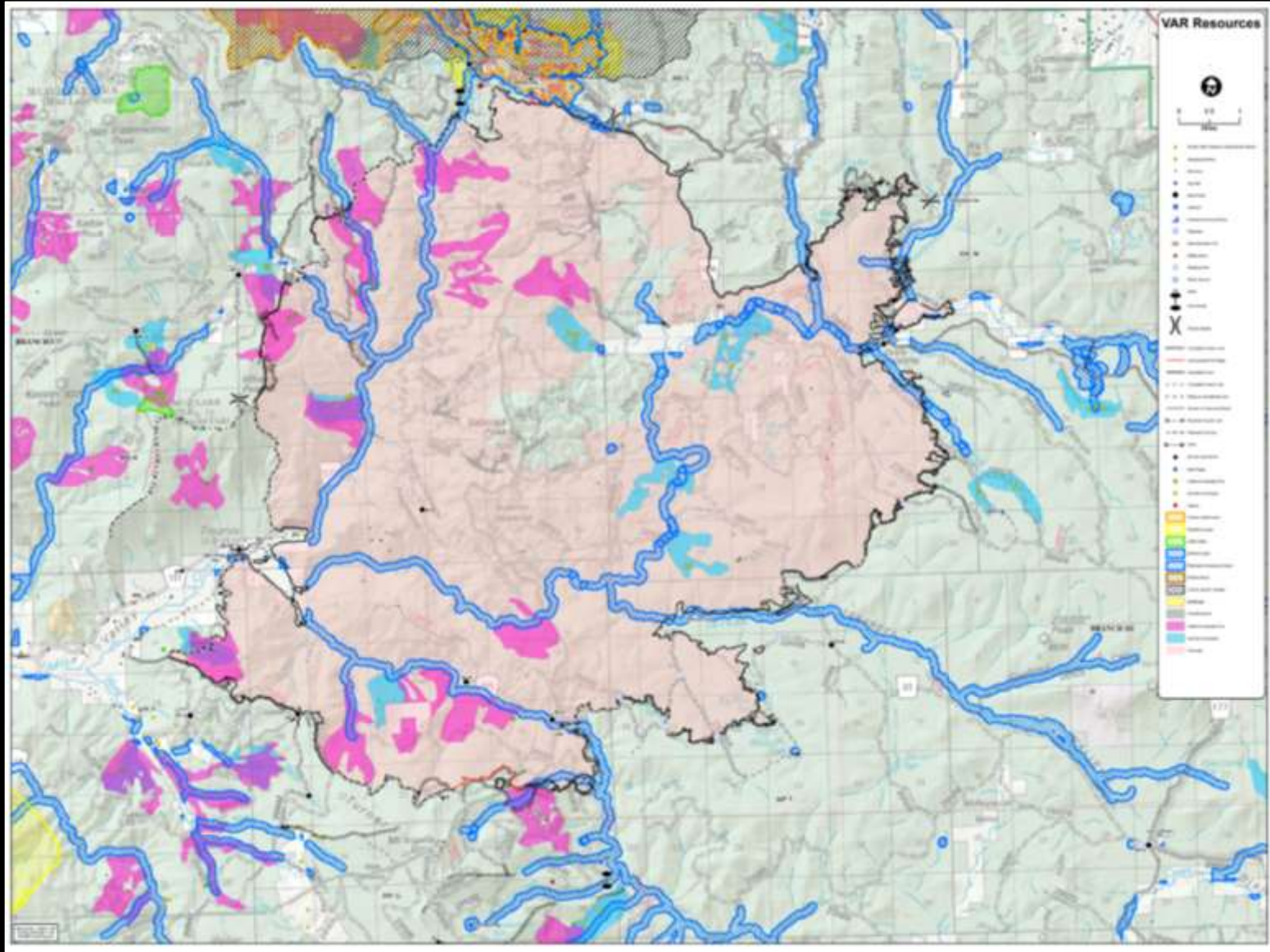
Document Impacts

Step 1: Gather Information



1. **What** are the pre-existing invasive species in and adjacent to your unit?
2. **Where** are these populations located and how critical is it that these species do not spread?
3. What are your **Resource Protection Measures** (MIST) for avoiding the establishment or spread of invasives and how will you communicate these effectively?
4. What **pre-planning measures** need to be in place in advance of fire season?

Step 1: Gather Information



Step 1: Gather Information

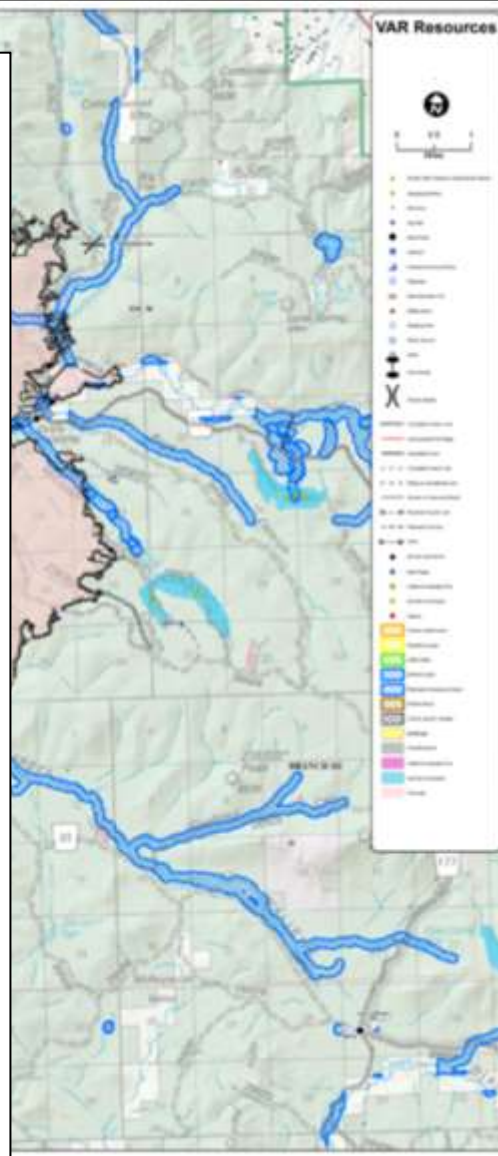


NORTH CASCADES NATIONAL PARK COMPLEX Resource Advisor Guide

updated September 9, 2022



RAINBOW BRIDGE FIRE 2010



Step 1: Gather Information

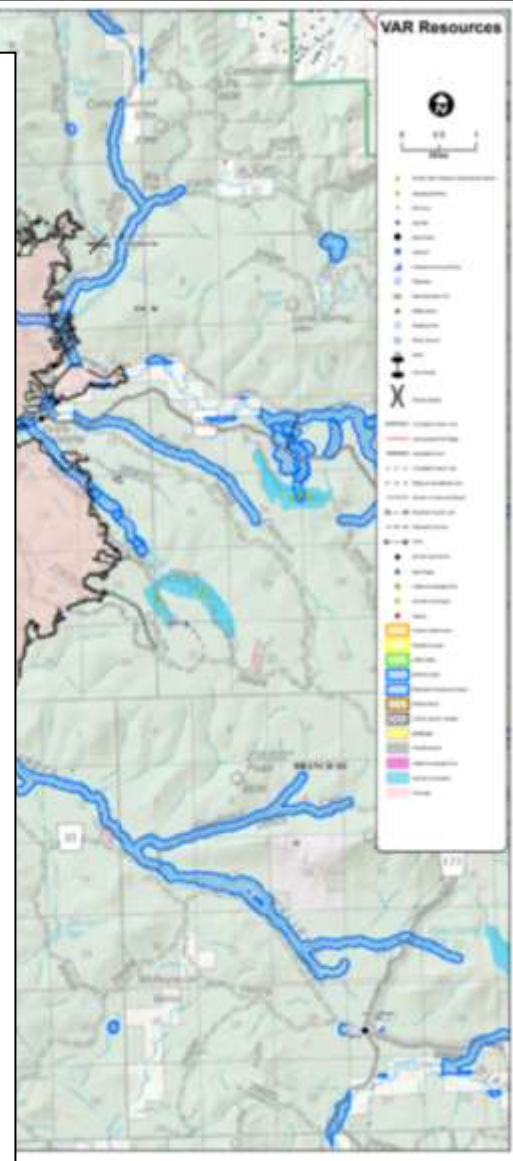


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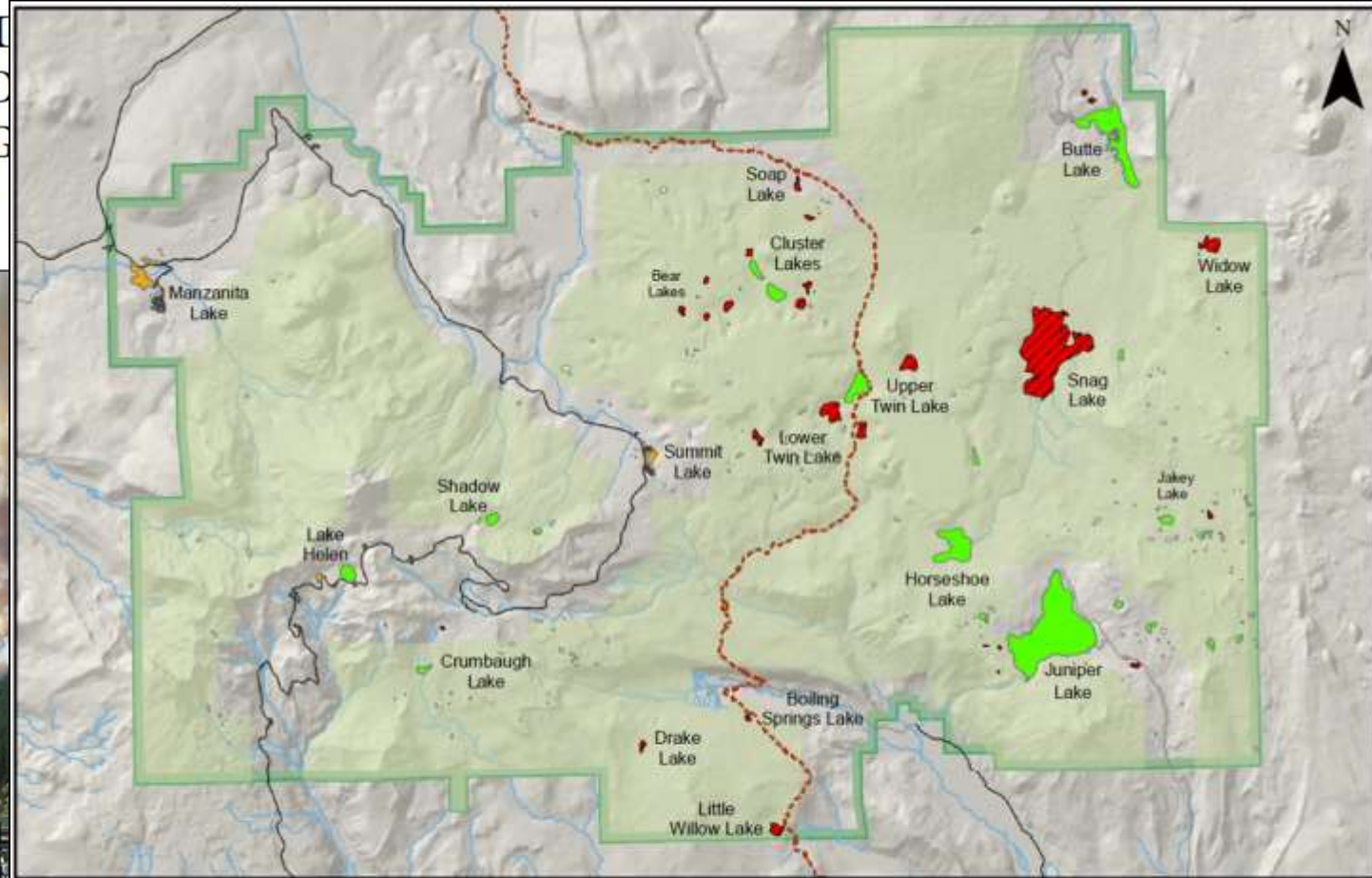


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updated September 9, 2022

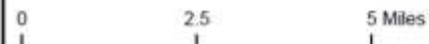


RAINBOW BRIDGE FIRE 2010



Helicopter Dip Lakes

Lassen Volcanic National Park



- No Dip
- Need Approval of Duty Officer

- OK to Dip
- Undetermined
- Lassen Volcanic Wilderness
- NPS Boundary

Criteria for No Dip lakes:

- Listed/rare species present,
- Sensitive ecological or geological resources,
- Shallow lake depth (max depth < 10 ft), OR
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Step 1: Gather Information



NORTH CASCAI NATIONAL PARK CO Resource Advisor G

updated September 9, 2022



RAINBOW BRIDGE FIRE 2010



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Helicopter Dip Lakes

Lassen Volcanic National Park

0 2.5 5 Miles

No Dip

Need Approval of Duty Officer

OK to Dip

Undetermined

Lassen Volcanic Wilderness

NPS Boundary

Criteria for No Dip lakes:

- Listed/rare species present,
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- Shallow lake depth (max depth < 10 ft), OR
- Preferred water source nearby
(only applied around Butte, Cluster & Lower Twin)

Step 2: Share Information



Step 2: Share Information



What Operations Wants to Know About Resources of Concern (e.g. invasives)

- What is the issue?
- Why is this important? (keep it brief)
- Where is the issue located?
- What do they need to do to avoid, minimize, or mitigate?
- How important of an issue is this? (prioritization)



Woodward Fire Incident READ Guide

Prepared by LREAD Cedar Drake
ver. 8/30/20

- DEMOB:** As a requirement for demob, all fireline personnel must:
 - Disinfect (via spray bottle) the following with a 70% isopropyl alcohol solution:
 - Saws
 - Hand tools
 - Fire boots
 - NOTE: READs will staff disinfection station.
 - As a requirement for demob, all vehicles and heavy equipment must pass through the incident weed wash station.
 - Incident Weedwash/SOD Decontamination Station is located at the Point Reyes Seashore Bear Valley VC (1 Bear Valley Rd, Olema, CA)
 - Hours of Operation: 0630 - 2130

Invasive Plants

Local contacts: Lorraine Parsons & Ellen Hamingson

Areas of Concern

- Giant plumeless thistle**
 - Known from Home Ranch & Mt Vision north of current footprint
 - Fairly low abundance but problematic A-rated weed.
 - May have expanded post-Vision fire.
- Jubata grass**
 - Likely significant post-fire re-invasion will occur especially if post-fire landslides occur.
- Scotch broom**
 - Invaded 1995 dozer line; still present there. Most likely source is now in current fire footprint is Divide Meadow. Monitor any new dozer areas especially around Meadow trail.
- French broom**
- Cape-ivy**
 - Fastest-spreading invasive. at PORE. Not currently in fire footprint. Closest infestations are Muddy Hollow Creek, Lagunitas Creek, and Hwy 1 creeks. Could invade if water is taken from Lake Ranch ponds.
- Veldt grass**
 - Very widespread especially on the north and east sides (Sky Camp/Sky Trail). Has been found far off-trail especially in areas probably disturbed by grow operations.
- MANY others including:**
 - European beachgrass** (Limantour Beach/Dunes)
 - Iceplant** (Limantour Beach/Dunes)

Woodward Fire Incident READ Guide

Prepared by LREAD Cedar Drake
ver. 8/30/20

- Rosy crocus**
 - In grasslands around Home Ranch.
- New Zealand nightshade**
 - Isolated occurrences adjacent near Limantour Rd especially following fuel reduction. Could expand in any nearby cleared areas.
- Ox-eye daisy**
 - Isolated infestations on BV Trail, Coast Camp, and Coast Trail but spreading rapidly in last 5-10 years; especially in the Estero region.

Resource Protection Measures

- Utilize incident Weed Wash Station**
 - Clean incident vehicles and heavy equipment thoroughly (soil, vegetation, and seeds) upon arrival to and departure from incident.
 - Contain weed output from weed wash and GPS site for subsequent monitoring and treatment
- Identify invasive plant populations of concern and flag for avoidance**
- Survey proposed disturbance areas for invasives** (e.g., firelines, helispots, and spike camps)
 - Conduct pre and post assessments in disturbed areas (photos and GPS points)
- Stage fire management operations away from known noxious weed infestations to the greatest extent possible**
 - Consult with Resource Advisors to avoid fireline construction in known weed patches when possible
- Consult READs before transporting slash material** which may contain invasive plant and/or pathogenic materials.
- Supply crews with boot brushes, weed ID checklists, and appropriate protocols**

Aquatic Invasive Organisms (AIS)

Local contacts: Lorraine Parsons & Ellen Hamingson

Areas of Concern

- New Zealand mud snail** = Lagunitas Creek
- Invasive tunicate** = Drake's Estero

Resource Protection Measures

Step 2: Share Information



Resource Advisor (READ) message Ferguson Fire 2018

For the Sierra National Forest, Stanislaus National Forest & Yosemite National Park

Please help protect sensitive areas -- protect Wilderness values and valuable cultural areas -- Ask a READ questions. Please use Minimum Impact Suppression Tactics (MIST).

Archaeological Sites:

- Fire and fire suppression activities can damage or destroy irreplaceable cultural resources. Fireline REAF's should assist in locating hand and dozer lines to help avoid damage.

Streams, Creeks, Rivers, Wetlands:

- Avoid meadows, riparian areas and wetlands when constructing line.
- Use fish screens on all drafting pumps -- Ask a REAF if you need one.
- All retardant/ foam drops or applications must be at least 300' from water courses. Use spill kits.
- Report misapplications in any body of water to a REAF or the Agency Administrator rep.
- The main stem of the Merced River and South Fork Merced are Wild and Scenic Rivers (WSR) -- please consult an Agency Administrator rep with any WSR issues.

Historic Resources:

- Historic mining and logging in and around El Portal, Hites Cove & elsewhere -- **WATCH OUT** for adits or mine shafts, especially at Hites Cove.
- Protect historic structures, e.g. in Wawona, Badger Pass & El Portal.

Vegetation:

- *Stop the spread of Invasive plants* -- please **Weed Wash** vehicles regularly and brush-off boots, tools and clothing to remove noxious seeds. Ahwahnee ICP has star thistle and Drew Camp has medusa head grass that could spread over the entire fire area.

- **Wet meadows** are important habitat and are home to many sensitive species of plants and animals. Avoid trampling and stay on trails and roads. ICP is surrounded by wet meadow.
- Only cut live trees to clear for spike camps or landings after consulting with a REAF.

Wildlife:

- Protect the bears by storing your food properly --> "A fed bear is a dead bear". Use food storage lockers, patrol eating areas, backhaul or secure trash in animal-proof dumpsters.
- Firefighter safety comes first -- but remember that snags in all stages of decay are important wildlife habitat that should be retained whenever possible.
- Minimize helicopter overflights of meadows over 10 acres, for benefit of the Great Gray Owl. Retain snags within 500 m of surrounding meadows.

THANK YOU!

Daily READ Message: Incident Action Plan (IAP)

Step 2: Share Information



Division/Group Assignment List (ICS 204 WF)

1. Incident Name: THOMAS

2. Operational Period: 12/20/2017 0700 TUE to 12/26/2017 1800 TUE

4. Operations Personnel:

OPERATIONS CHIEF	PATRICK RUSSELL	PLANNING OPS	MIKE APPLING
BRANCH DIRECTOR	RICHARD HERRERA	DIVISION/GROUP SUPERVISOR	TOMAS C GONZALEZ
SAFETY	JOHN STROCKLAND	AIR ATTACK SUPERVISOR	MARK BABERACKI

5. Resources Assigned this Period:

Strike Team / Task Force / Resource Designator	LWD	Leader	Number Persons	Drop Off PT./Time	Pick Up PT./Time
REAF O-25230	01/04	JUSTIN R ROBBINS	1	DP 12/0800	ICP1900
REAF O-25214	01/01	TAMMY WHITLEY	1	DP 12/0800	ICP1900
CLUB O-25295	01/05	NELSON PALATO	1	DP 12/0800	ICP1900
ARCH O-25161	12/08	BRET T GIUSTO	1	DP 12/0800	ICP1900
ARCH O-25185	12/09	MOLLY A RAY	1	DP 12/0800	ICP1900
REMS SOLIS O-10920	12/26	PAUL SOLIS	2	DP 12/0800	ICP1900
FEMP O-10507	12/09	BRANDON BODE	1	DP 12/0800	ICP1900
FEMT O-10510	12/09	DILLON WRIGHT	1	DP 12/0800	ICP1900
FEMT O-10164	12/27	LANCE MORTON	1	DP 12/0800	ICP1900
SMTF O-428	12/00	JOSH BENNETT-SNOW	1	DP 12/0800	ICP1900

6. Control Operations/Work Assignments:

-Patrol, hold and mop-up to extent necessary to minimize the likelihood of escape

7. Special Instructions:

-Avoid sensitive resource areas flagged in orange and white striped flagging
 -Report any findings of potential of cultural resource sites to Resource Advisor.
 -Do not remove any pink polka dot flagging.

***Note there is a Santa Barbara Conant Plan (SBC) and a Ventura (VNC) Conant Plan. Reference the map to know which zone you are in and which plan to use.

8. Division/Group Communication Summary:

Function	Channel	RX Frequency NW	RX Tone/NAC	TX Frequency NW	TX Tone/NAC	Mode
COMMAND	2	158.1000		170.4500	146.2	
TACTICAL	9	154.2675	156.7	154.2675	150.7	
AIR TO GROUND	14	150.3450	152.8	158.3450	152.8	
MEDICAL	15	156.0750	156.7	156.0750	156.7	
EMERGENCY	16	158.6250		158.6250	110.9	

9. Prepared By (Resource Unit Leader): JENNY KRUGER

Approved By (Planning Section Chief): CARRIE DENNETT

Date: 12/25/2017

Time: 2100

ICS 204 WF (1/14) FINAL Page 2 of 2



IAPs

7. Special Instructions:

- Avoid sensitive resource areas flagged in orange and white striped flagging.
- Report any findings of potential of cultural resource sites to Resource Advisor.
- Do not remove any pink polka dot flagging.

Special Assignments: Division/Group Assignment List: IAP

Step 2: Share Information



Lead READ Message During Morning Briefing

Step 2: Share Information



Incident Planning Meeting

Step 3: Implementation of RPMs



RPMs = MIST (Minimum Impact Strategies & Tactics)



REAF = Fireline Resource Advisor



“READs Advise and Ops Decides.”

Step 3: Implementation of RPMs: Avoidance



Step 3: Implementation of RPMs: Avoidance



Step 3: Implementation of RPMs: Avoidance



Be Proactive! Overlay known invasives populations over potential suppression impacts and advise on impacts before decisions are made.



Determination of Potential Operational Delineations (PODs)

READs referring to invasives maps

Step 3: Implementation of RPMs: Minimization



Minimization Measures

- Temporary Avoidance
- Mowing
- Disposal
- Grading
- Mulching

Step 3: Implementation of RPMs: Minimization



Minimization Measures

- Crew Invasives ID and reporting
- Propagule removal



Step 3: Implementation of RPMs: Minimization



Step 3: Implementation of RPMs: Weed Wash



Step 3: Implementation of RPMs: Weed Wash



Step 3: Implementation of RPMs: Weed Wash



Step 3: Implementation of RPMs: Weed Wash

Secondary and Mobile Weed Wash Stations



Step 3: Implementation of RPMs: AIS



A publication of the
National Wildfire
Coordinating Group



Guide to Preventing Aquatic Invasive Species Transport by Wildland Fire Operations

PMS 444

JANUARY 2017



DECONTAMINATING FIREFIGHTING EQUIPMENT TO REDUCE THE SPREAD OF AQUATIC INVASIVE SPECIES

HOW TO GUIDE

OVERVIEW

This template protocol/How-To Guide serves as supplement to the National Wildfire Coordinating Group's Guide to Preventing AIS Transport by Wildfire Operations (PMS 444, January 2017).

June 2022

Step 3: Implementation of RPMs



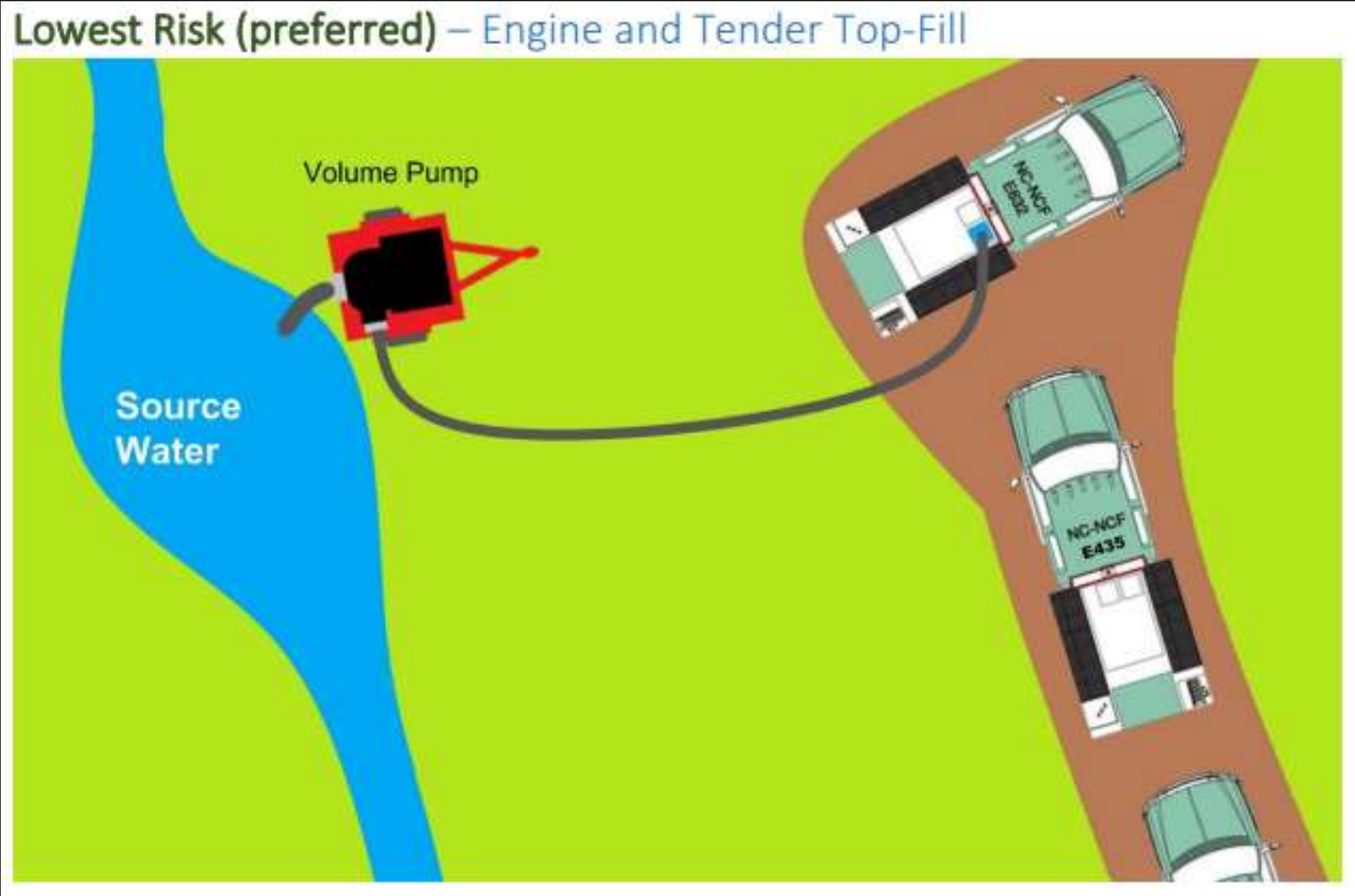
- Avoiding water transfer from known AIS-infected waterbodies
- Decontamination of terrestrial and aviation-based with chemical disinfectants, heated pressure washers, or complete air drying.
- Usage of municipal water sources whenever possible
- Avoiding transfer of water between watersheds.
- Avoiding the delivery of water directly into waterbodies.
- Disinfecting water conveyance systems prior to drafting/dipping in other watersheds.
- Avoiding the sucking of organic and bottom material when drafting in shallow water.
- Dipping and drafting from deeper “bluewater” sources.
- Utilizing screens to on water intakes to filter out AIS.
- Conducting periodic inspection and removal of all plant parts and mud.



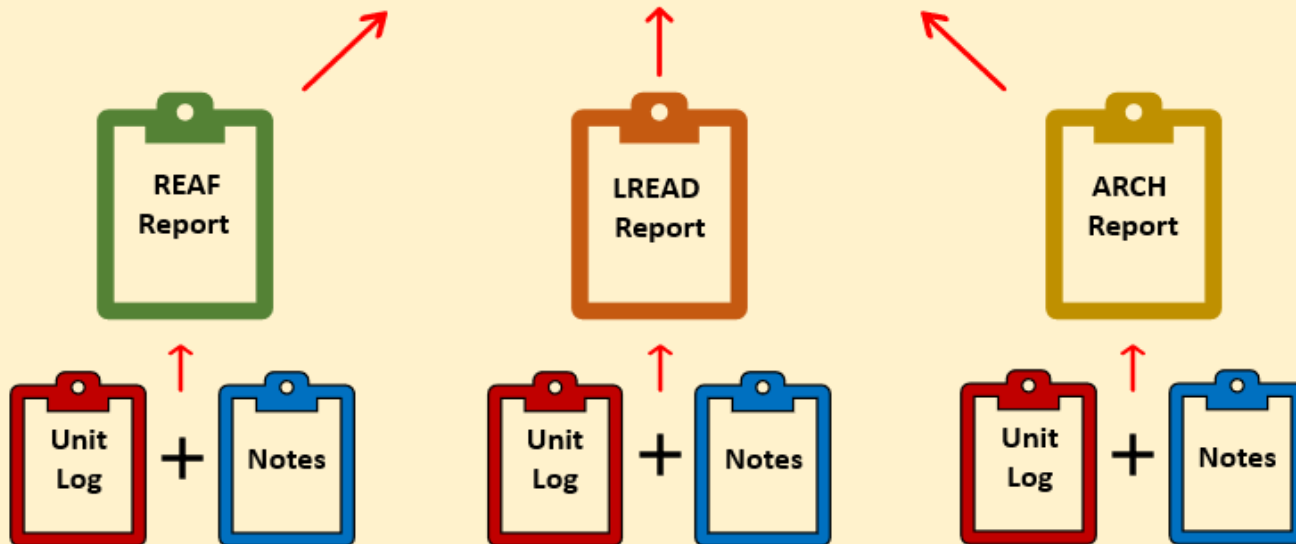
Step 3: Implementation of RPMs: AIS



DECONTAMINATING
FIREFIGHTING
EQUIPMENT TO
REDUCE THE
SPREAD OF
AQUATIC INVASIVE
SPECIES
HOW TO GUIDE



Step 4: Documentation



Document

- Areas in which known “infected” equipment operated
- Waterbodies in which AIS may have been introduced
- Newly discovered infestations
- Weed wash/disinfection stations locations
- Staging Areas



Yellow star thistle growing on fireline

Reducing the Risk of Invasive Species: Before and During Wildland Fire Incidents

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& Preserve
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<https://vimeo.com/manage/videos/701737832>



What to do when you're expecting, (a fire)

Steve Buckley
National Park Service
California Invasive Plant Management Team

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