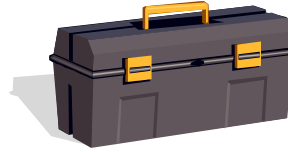


The Toolbox



Welcome to the Toolbox section for the Wildland Fire Lessons Learned Center's Information Collection Team report on the 2005 Comb Complex Wildland Fire Use (WFU) event at Sequoia and Kings Canyon National Parks (SEKI). In an effort to support the shift in national fire policy toward hazardous fuel reduction and WFU's increasing role as a fuel management technique, this collection of tools is offered to fire management professionals in hopes that it will help to simplify at least one aspect of the complex task ahead.

The Comb Complex was considered a typical WFU event. A Lessons Learned Information Collection Team (ICT) went to the event to interview the participating staff and observe the incident. The published report is available on the Lessons Learned Center Website and the toolbox offered here is the second phase of the report. It is designed to support the narrative with shareable, interactive templates.

The Comb Complex WFU report and this toolbox are organized into three sections:

- A) Prioritizing **Planning**. In this stage, SEKI fire managers:
 1. Update a 5-year burn plan
 2. Prioritize burns based upon the landscape treatment analysis
 3. Review agreements with cooperators
 4. Outline education and communication plans
 5. Consider methods of managing smoke

- B) Prepare for **Opportunities** by:
 1. Risk Assessment through use of the WFIP
 2. Educating staff to speak knowledgeably about wildland fire
 3. Preparing a plan to educate external audiences prior to and during a WFU event

- C) Prepare to **Respond** appropriately when opportunities arrive by:
 1. Using a Fire Monitoring Kit to track and evaluate a WFU event's progress
 2. Using Electronic Beta Attenuation Mass Monitors
 3. Gathering Lessons Learned and processing them through the system so that all fire staff members have opportunities to benefit

The tools were collected from SEKI staff members who readily shared models they had built themselves, from national standardized forms, and from units where WFU is not an uncommon event. They are organized according to the role they play in either planning, opportunity or response, but you may want to organize them differently depending on how your local unit functions. All of the tools included should be considered templates ready to make them appropriate to your local unit.

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Planning



Pre-season WFU and year-round “big picture” planning efforts are two approaches that fire staff members at Sequoia and Kings Canyon National Parks (SEKI) use to optimize the management of the parks lands. Their futuristic planning for resource benefits results in a staff produced 5-year-plan that is updated annually. Included in that overall plan is the staff’s focus on wildland fire use events and the seasonal opportunities they may be given. Two tools are critical for solid planning: a long-term fuels treatment plan and landscape mapping products.

1. [5 - Year Fuels Treatment Plan](#). (122 KB) This document provides a synthesis of the projects that have been prioritized by staff members at the local unit. Included in the plan are each project’s name, the type of treatment slated and the acreage that will be included. Best of all (from an information sharing viewpoint), is the notes section where treatments are separated by the kinds of burning projects such as maintenance or restoration and the reason the project is listed. For example, in some cases pile burning is the objective of the project, and in others a maintenance burn is explained by its additional description of “annual.” Especially important are the notes that delineate when a project is being conducted to protect infrastructure or wildland urban interface and when they are being conducted around significant cultural resources. These distinctions ratchet up the consequences and should therefore increase everyone’s alertness level on the significance of the project. The treatment plan can be such a significant tool to keep all home unit staff informed, it may be a product that fire staff would consider filing in an easily accessible location so that any time local unit staff members are approached for information on a fire event, they can retrieve it quickly.
2. Landscape Mapping Products. A [Landscape Analysis Poster](#) (5.2 MB PDF Printer Friendly Version) and the PowerPoint presentation [Landscape Treatment Priority Analysis](#) (4.6 MB,) that walks the viewer through the poster’s processes, work together to illustrate the power of fire people working with geographic information system (GIS) specialists to create long-range and immediate planning tools. “Many organizations don’t know that they have an opportunity to create good data from “crosswalk” conversations between knowledgeable fire people and their GIS folks. Most fire people have only seen GIS map products when they work on incidents. Briefing maps, or an incident action-plan series of pocket maps, are examples of incident GIS maps. The real power of GIS lies in its analysis capabilities. Good decision support products depend upon good data layers (i.e. vegetation/fuel types, firefighter safety hazards and ignition risks) derived from these people continually communicating. Reclassification and landscape analysis of data layers from those crosswalks is the best way to end up with good decisions.” David Bartlett, District FMO

Opportunity



A lightning started fire is a necessary but not sufficient condition for a WFU event. At Sequoia and Kings Canyon National Parks (SEKI), the option to permit a WFU fire is weighed carefully based on a multitude of factors, not the least of which is how the new fire fits within what was planned. Two of the staff's most useful tools for completing this evaluation are the 5-year-burn plan and the Wildland Fire Use Implementation Plan Reference Guide. A copy of each document is included here. Additionally, a WFU opportunity is quickly assessed for its impact on the park's resources and the staff's ability to support a long-term event.

SEKI further prepares for its opportunities with a two-pronged fire education effort that includes both internal and external audiences. Staff here has learned that agency employees must be well prepared to accept and support WFU events. The Fire Prevention and Education personnel have developed several tools they have found useful in building a knowledgeable fire staff.

Fire staff also knows first hand that WFU can be occurring in a politically charged atmosphere. Educating the public about WFU events has become a year-round effort that includes a multitude of media and is continually supported by all levels of national parks' staff.

Educating Internal Audiences



Objective: A well-informed and articulate fire staff.

Why Is This Important? Educating internal audiences, including firefighters and monitors, about the benefits of wildland fire use reflects the home unit's core values. Since the social component of a wildland fire must be as well managed as the physical fire, it is essential for the home unit's credibility that fire staff be **knowledgeable, invested and engaged**. It seems apparent that many people engage more fully in their role if they understand the part they play in the "big picture." Some of the components that will help this become real are included here.

Three easy tools to educate internal audiences are included in this section of the toolbox. These components are designed to strengthen the unit's delivery of solid fire science messages to staff and empower individual staff members to engage the public and each other in continuing discussions about wildland fire.

- 1) [The Naturalist's Notebook](#) (522 KB) is a subject-matter training guide given to all park interpreters at SEKI. The fire management chapter is updated every year with specific information about upcoming projects, science and research and is attached here. This tool should be tailored by someone on your unit to fit the local ecological context. In SEKI's version of this notebook, topics such as burning or logging, planned projects, current fire research and a summary of the unit's fuels management program are covered. Also included is a list of fuels management personnel and facts about the local vegetation and how it responds to fire.
- 2) [The Natural History of Fire](#) (2838 KB) PowerPoint presentation and written support material. This presentation is given several times a year at SEKI for seasonal interpreters as they arrive. This program is designed to focus only on fire as an ecosystem process and chronicle its effects on plants, animals, soil and water. An outline that explains the PowerPoint is also attached.
- 3) The [Map Mania](#) (292 KB) activity is used with fire crews and other park employee work units including interpretation and rangers. At SEKI, the fire education specialist has people work in groups with a list of questions and the corresponding GIS maps. The groups work through each map and discuss the questions with help from a facilitator as needed. Attached are two sample maps. Map Mania is a highly versatile exercise and works well in a variety of audiences. External audiences may equally appreciate its content.

Top-level administrators and fire managers are also internal audiences who should be open and receptive to knowledge and decision-making support material. The S-580 course, Advanced Fire Use Applications, is considered highly beneficial in meeting this need, but since opportunities for managers to obtain it are limited, those tasked with internal audience education should consider the information needs of these personnel.

Educating External Audiences



Objective: Proactively provide accurate information to communities and emphasize the home unit's commitment to interactive community relations.

Why is this important? People have a basic need for information about their immediate surroundings and how wildland fire events may change (temporarily or permanently) their relationship with them. Sociologists note that fires and other incidents evoke Prolonged Intense Emotional Response from communities. What we do during an incident sets the base for what happens in affected communities during the next couple of years. Communicating effectively will build trust and credibility for the home unit. Trust and credibility levels, according to the Center for Risk Management, are determined by three elements either present or absent in our communication with the public. These three elements are: **knowledge and expertise, openness and honesty, concern and care.**

The attached tools are designed to support a unit's planning and initiation of a comprehensive message delivery system to the general public.

Pre-event actions:

1. [5-Year Plan](#) & list of [Current Events](#). (47 KB) The 5-year-plan (introduced in the planning section) is a valuable product for communicating with local officials such as city or town council members or other local governing bodies. The Current Events list would accompany the plan simply because it focuses attention on up-coming events. Both of these items could be included in information packets for local managing and elected officials, along with a map product. Additionally, local officials could be invited to a scheduled showing of the Fire History PowerPoint presentation (introduced in the Educating Internal Audiences section) and should be invited to one or more wildland fire planning meetings. Inviting them does not guarantee they will attend, but the home unit's invitation will send a powerful message about their level of respect for the community.
2. [Public Service Announcements](#). (25 KB) Radio spots are an effective tool supporting full disclosure to the community although they will not always be initiated pre-event. Radio spots should be limited to 15 seconds – about four sentences – and include a source such as a website or a telephone number where more information can be easily obtained.

During-and-after-event actions:

3. [Trap Line List](#) (20 KB) and [WFU Poster](#) (7606 KB). Trap lines consist of a number of locations where wildland fire use information is posted for the general public. Trap line locations are chosen for their access, high volume pedestrian traffic patterns and proximity to an area where smoke is easily seen. Establishing a trap line where fire information will be posted regularly is a helpful visual in community relations. Even if most community members do not stop to view the material, they still know it is available if they want it. Staffing some trap line locations, such as a road closure spot or a helicopter dip site near a road, with fire information officers for a few hours a day will emphasize the home unit's commitment to solicit community interaction. At a minimum, trap line locations should include written (a fire update) and visual (a map) products

showing the public how the incident is progressing. For special locations, such as a public library and agency office foyers, more elaborate illustrations such as full-color fire progression maps and posters depicting the benefits of fire could be posted. Included for this purpose, is a sample of a poster used on a recent WFU event and a trap line list indicating that the event was supported at several locations.

4. [Home Unit Website Support](#). Website information enables fire managers to easily reach out to those in the community who may be unable to access physical locations where incident information is posted or who may be unable to attend public meetings. Among the best locations for a link about WFU or prescribed fire events is the home unit's Home Page. One example is the Coronado National Forest's website link: "Prescribed Fire: Latest information about planned or ongoing Rx burns." The link can be accessed at <http://www.fs.fed.us/r3/coronado/forest/fire/prescribed-fire/prescribed-fire.shtml>
5. [Fire Brochures](#) (318 KB). Included here is a Fire Information 2006 brochure produced by Sequoia and Kings Canyon National Parks. A four-page, full-color pamphlet can be an expensive product to mass distribution to the public, but a variation on this same theme could be completed on a smaller budget. For example, an 11x17 inch color production could include key messaging on one side and a map on the other. The bottom line is that key messages and maps are well received by the public and the brochures are a product that is widely distributable. The brochures contain the event's location, how many acres it will impact, specific purposes for the planned burn and a comprehensive unit map with color-coded areas where the planned fires will burn. The Wasatch-Cache National Forest has taken the brochure theme one step further and produced a collection of Fire Interpretation brochures called the East Fork Fire Interpretive Trail.

These brochures are:

- [Vicinity Map](#) (63 KB)
- [Overview, Trailhead](#) (225 KB)
- [Recovery Begins](#) (104 KB)
- [Aspen, Lodgepole Pine, and Fire](#) (141 KB)
- [Fire on the Landscape](#) (137KB)
- [Fire Severity/Fire Effects](#) (125 KB)
- [Streams and Wetlands](#) (140 KB)
- [Soil Erosion and Recovery](#) (143 KB)

The pdf files are linked to the titles above and can also be accessed at <http://www.fs.fed.us/r4/wcnf/maps/maps.shtml#saltlake>

Measuring success in the community

In the final analysis, it is not enough to have just delivered key messages to the public about how important fire is to the ecology and to have gained their acceptance of its role. With the information provided by home units, communities should have the opportunities to frame wildland fuels issues within the larger context of their community's needs and values.

If we are willing to accept that community-defined success should be a priority even as it affects how we conduct WFU events, the next logical step will be to begin measuring the successes and failures in our message delivery system about all wildland fire events. In order to meet communities' information needs (how they view fire, how it will affect their families), we should be measuring the impacts of our how our messages are heard, how they are interpreted, and what the community does with that information.

Several sociologists are eager to lend their experience and insight into measuring what would seem to be, at first glance, unquantifiable. However, a new document posted in the fire- research category defines some parameters by which we can accomplish this. ["An Event-Based Approach for Examining the Efforts of Wildland Fire Decisions on Communities."](#) poses that our understanding of the consequences of wildland fire management decisions remains limited. And that this limited knowledge base is of particular importance given that 11,000 communities have been identified by the federal government as "at risk from wildland fire."

Although no tool surfaced for measuring a community's response to a WFU event during the Comb Complex, clearly we should be looking for one, developing one, experimenting with surveys and reporting the results up the ladder so that as this next level of research on how wildland fires impact communities gains momentum we will have at least some preliminary ideas on how to approach it.

Response



The roots that an appropriate response has in planning cannot be overemphasized. Yet, it is our ability to imagine possible outcomes that remains one of our most crucial skills in approaching each wildland fire as a one-of-a-kind event.

Staff at the Sequoia and Kings Canyon National Parks, now in their fourth decade of WFU, place several tools before us, much in the way we would expect surgeons to do things right before their full attention turns to the patient on the table. They rely on the skilled observations and expectations of experienced fire monitors; they look for and experiment with new technology, and they take advantage of the free lessons handed out during each incident by incorporating what is learned into training.

To complete these tasks, SEKI staff has made liberal use of the [Fire Use Module Field Guide](#) (122 KB), currently published in its 2005 edition. This tool is included in this kit along with easy access provided for each of the reproducible forms published in the guide including “Fire Behavior Observations,” “Fuel Moisture Sampling Sheet,” “Photograph Log Sheet,” “Smoke Observation Sheet,” and the “Fire Weather Special Forecast Request.”

In addition, this section contains a one-sheet summary on the [Environmental Beta Attenuation Mass Monitors](#) (EBAM) (36 KB) and SEKI’s experience with this newer technology.

The tool kit concludes with the simple and comprehensive approach SEKI staff developed in gathering and reviewing lessons learned and incorporating these lessons into methods of operation and training.

Lessons Learned Development Process



Objective: To implement a simple and effective procedure for incorporating lessons learned into your unit's planning and staff education processes.

Why is this important? Being mindful of the lessons that replicate our successes and reduce our tendencies to error, results in a continual learning environment.

Staff at SEKI have implanted an easy four-step lessons learned process that collects lessons from the field, sends them up the ladder to a fire management safety committee who prioritizes them for incorporation into refresher training sessions and then introduces the appropriate changes into standard operating procedures and job hazard analyses. This is their process:

1. Supervisors/Firefighters conduct After Action Reviews, review Lessons Learned and record significant issues.
2. Crew representatives "Roll-Up" the significant Lessons Learned to the Fire Management Safety Committee.
3. The committee reviews the submitted Lessons Learned and decides what changes will best benefit the safety of the Fire Management Staff either through Standard Operating Procedure (SOP) alterations or implementation into current Job Hazard Analysis (JHA) forms.
4. The committee disseminates the SOP changes, updated JHAs, and Lessons Learned at the annual fire refresher and Operations meetings.

Oversight provided by the Fire Management Safety Committee assists the fire and aviation management program in the development, implementation, critique and review of the fire and aviation safety program. The committee does not manage fire operations; it advises on fire and aviation safety.

To better enable other units to use the elements of the lessons learned procedures developed here, the tools are introduced in the following order. All of them are provided as examples that can be easily changed to fit your local unit.

1. [Fire Management and Safety Committee Charter](#) (37 KB). In step one, SEKI staff developed this charter to define the scope and mission of this group. This sample should be considered an editable template for your unit.
2. [After Action Review Roll-up](#) (26 KB). Step two supports the AAR process. This is a sample of an After Action Review roll-up turned in to the Fire Management Safety Committee for review. Roll-ups can take several forms. Please see more samples in the Lessons Learned Center library for ideas on how versatile this tool is.
3. [Safety Committee Analysis](#) (46 KB). Step three presents a compilation of Lessons Learned selected by the Fire Management Safety Committee from among the roll-ups turned in for review. In this example, the committee selected several lessons for incorporation into refresher training.

4. [AAR PowerPoint for Refresher](#) (1904 KB). Step four is a presentation developed by SEKI staff that very simply and visually introduces the After Action Review process.
5. [Lessons Learned PowerPoint for Refresher](#) (2861 KB). Step five includes this presentation developed from a Safety Committee Analysis that recommended several lessons gathered from the field be reviewed during refresher training.
6. [High Winds Video for Refresher](#). ([Broadband Version](#)) (4363 KB) ([Dial-Up Version](#)) (126 KB). Additional material for step five in the process, is this video taken from the vantage point of a safety zone. The video graphically illustrates what happens when high winds hit the fire line. The video clearly demonstrates the value of the safety zone and just how significantly the fire was being impacted by the high winds.