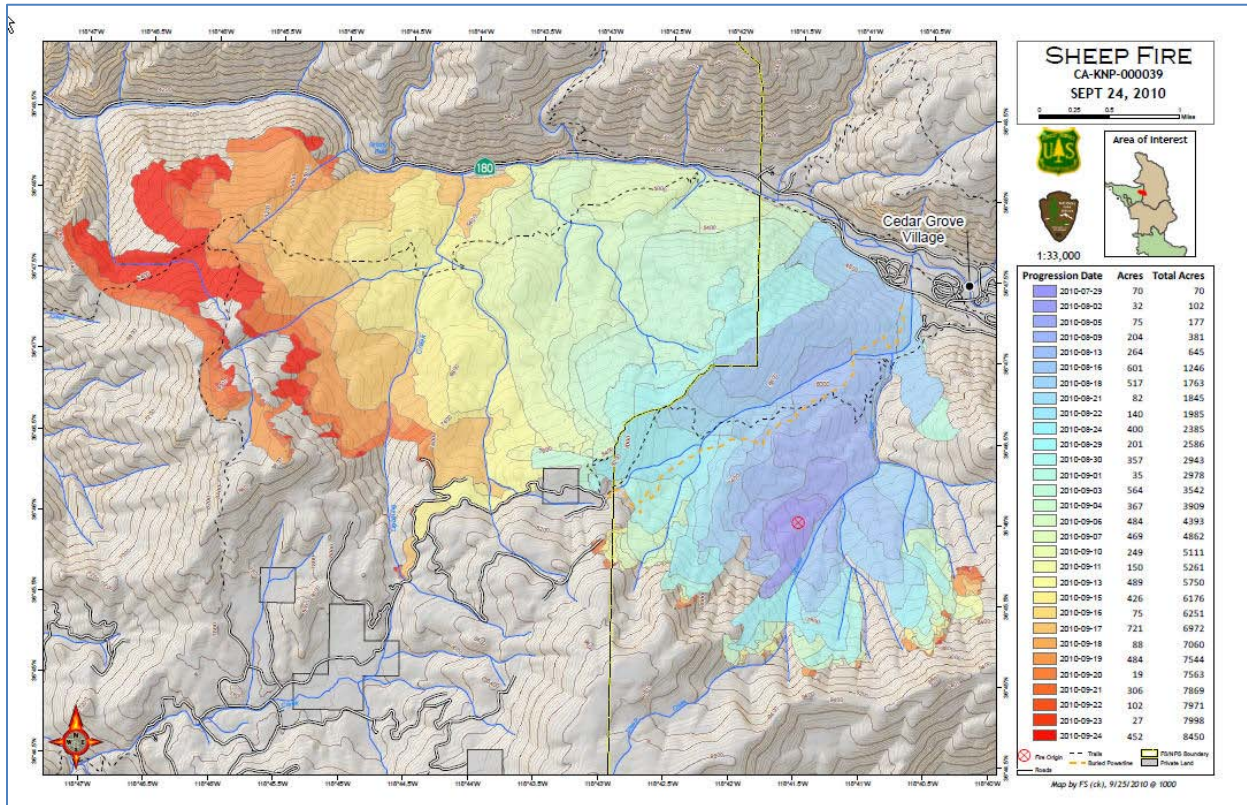


# Sheep Complex, 2010 – Lessons Learned

## Sequoia and Kings Canyon National Park/ Sequoia National Forest and Giant Sequoia National Monument.



**In brief.** On July 16, 2010 lightning ignited a single snag in the backcountry above Cedar Grove Village in the Kings Canyon area of Sequoia and Kings Canyon National Parks (SEKI). By July 29<sup>th</sup>, the fire was 70 acres. Surface fire backed slowly downhill until a thunderstorm pushed it rapidly towards Cedar Grove. Suppression activities successfully prevented the fire from entering the village. At the same time, the fire continued to move surprisingly quickly towards the Sequoia National Forest and Giant Sequoia National Monument (SQF) boundary. Joint planning discussions with Line Officers and Fire leadership developed a series of management action points, and began building a long-term strategy in the Wildland Fire Decision Support System (WFSS) that included managing the incident on the National Monument. MAPs were designed to slow or possibly halt westward progression at the Forest Boundary, protect a private in-holding and cultural resources, and trigger smoke management actions. The fire management organization was nominally a Type 3 incident, managed by a fully integrated team leader with local National Park Service (NPS) and USFS National Forest Service (NFS) staff. The Incident Command Team (ICT) included a full Command and General Staff (C&G), with 2 additional field Public Information Officers (PIOs), fully qualified Division Supervisors (DIVS), Air Operations, and an Operations (Ops) experienced in long-duration fires. Eastward progression within the park was halted by recent fire history (2008 prescribed fire and a 2006 Wildland Fire Use) fire in the Park. Southern progress was arrested by lack of fuels and high fuel moisture content at higher elevations and strategic line operations. Fire moved onto the Monument on August 15. Holding operations on the administrative boundary, having slowed fire progression for probably 2 weeks, were halted. Indirect line on the ridge between Boulder Cr/Lightning Cr was begun on 9/10. Firing operations began on 9/20 and were

complete by 9/23. Ground operations were assisted by aerial ignitions to deepen line, which burned slowly but reluctantly. High pressure, increased temperatures and decreased RH and overnight recovery set in on 9/24. The burn out and main fire met overnight on 9/25.

**On becoming a learning organization.** The Sheep fire is described locally as Iteration 3, the third such event in 5 years. Through each incident the players learned various techniques they used in the next iteration. During the Sheep incident, both Forest Service and Park Service players expressed interest in formally capturing their evolutions in thinking and lessons learned. This document is one result and is intended to be used to stimulate thinking and assist both the primary units and others so they can be successful in future events. Five disciplines help organizations move from the idea of learning to the reality of changing behavior. These are: systems thinking, personal mastery, mental models, building shared vision and team learning. In the words of Peter Senge, *“Building shared vision fosters a commitment to the long term. Mental models focus on the openness needed to unearth shortcomings in our present ways of seeing the world. Team learning develops the skills of groups of people to look for the larger picture that lies beyond individual perspectives. And personal mastery fosters the personal motivation to continually learn how our actions affect our world... Lastly, systems thinking makes understandable the subtlest aspect of the learning organization – the new ways individuals perceive themselves and their world. At the heart of a learning organization is a shift of mind – from seeing ourselves as separate from the world to connected to the world, from seeing problems as caused by someone “out there” to seeing how our own actions create the problems we experience. A learning organization is a place where people are continually discovering how they create their reality. And how they can change it.”* (Source: p 490, *The Fifth Discipline* 1990 by Peter Senge. Doubleday, New York, NY.)

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What to expect if you're thinking of managing a long-duration fire locally (ie. as a Type 3)

- **Prior to the season.** Consider:
  - developing a portable cache that'll keep a fire running with durables for 3-4 days, including such things as pumps, hose, etc.
  - additional training or briefings to build capacity and relationships.
    - Develop and run internal and cooperative simulations, sand tables to check for gaps in current processes and dry-run situations. Include all pieces of the puzzle.
    - Adding modules on 'working with the public', 'fire monitoring', 'linking fire to land management', and/or discussions about the role and task of fire monitoring tasks to spring trainings, refreshers and All Hands Day meetings.
  - cross-training and burning with your partners and adjacent land managers.
  - developing formal or informal 'memorandums of understanding' with adjacent landowners over criteria for what sorts of fires might be acceptable to share, send, or receive, in order to understand the degree of support among Line Officers and Fire Staff.
  - discussing public information in your Fire Management Plan, outlining what role PIOs play during fire (see SEKI for example).
  
- **Size up (or setting the stage).** At the first indication that this fire might be a long-duration fire:
  - Stop thinking about this as a typical Type 3 and start thinking Type 3 ++ or Type 2 -. Key is long-term, strategic thinking and planning. You'll probably not want or need a full Type 2, but you'll want a substantially beefed up organization. Think resiliency for quick ramp up if needed.
  - Establish a central Incident command Post (ICP) and think about your Incident Command and General staff needs. Think through IT needs, phone lines and dedicated extensions, fax and copy facilities.
  - Team configuration and Expertise: Communications and Logistics are critical.
    - Always assign a logistics lead, possibly with a second or trainee. Logistics can really kill you. If you can order Wildland Fire Modules who are self-sufficient, this will lessen impact on you and logistics.
    - Think about ordering a PIO. If there are political or complex agency issues, order at least a Type 2 qualified PIO who can develop a plan to fully inform the public, identify and provide information boards for the public where smoke and/or flames are visible. You may need several PIOs in the field and one attached to C&G at the ICP.
    - Order a Long Term Fire Behavior Analyst (LTAN) and someone to manage WFDSS (either a Strategic Operational Planner (SOPL) or Plans Chief). As Incident Commander (IC), expect to work with the local fire staff, the LTAN, and Agency Administrators to develop the plan.
    - Consider whether a deputy IC might be needed to help handle the politics, relationships and the 'perceived fire'.
  - Be aware that communications will become more and more important when multiple agencies get involved. This refers to more than the traditional functional area of communications and focuses on talking about information exchange and listening.

When you've got multiple bosses (different agencies) and 2 sets of fire staff (Fire Management Officers (FMOs) to coordinate and communicate with, it gets complicated.

- Create a communications list for agency administrators, cooperators and others who will want information updates. Daily emails with photos are a great way to keep these internal audiences apprised. Remember, when there's silence, others will start creating their own stories.
  - Think about requesting a dedicated Command frequency and repeaters from the National Interagency Fire Center (NIFC). They may need extra background on your incident. Remember...it's a wildland fire.
  - Consider setting up portable Webcams to help build external situational awareness (SA) regarding the fire (GACC, Regional, Air Quality, public).
  - Start thinking far ahead and penciling in Management Action Points (MAPs). Think about MAPs for fire behavior, timing, fire effects, smoke, ordering resources, as well as smoke and political concerns.
  - Establish one ordering point and one fire code at the beginning to be carried throughout the incident.
  - Set MAP for unified command.
- **Vision and Expectations (or mental models).**
    - Pin down Agency Administrator expectations, including what's acceptable and what's not with respect to fire effects, political, smoke and other issues on their agendas.
    - Discuss and decide upon incident governance and how you will update – one or two delegations if multiple units/agencies involved, one or more agency reps, plans for coordination meetings with principles and cooperators.
    - When one of these long duration fires begins, it's all about patience. Focus on MAPs, identifying potential holding areas, prepping roads, monitoring and contingency plans. (Risk Management? Probabilities of success?)
    - It's a wildfire. But it's easy to fall back on previous experience, whether that's full suppression, wilderness WildFireUse (WFU) or the thought that the only incidents needing off-unit resources are traditional Type 1 and Type 2 teams.
- **Prepare to fall into and bounce back from Decision Traps**
    - Framing.
      - Is the fire in your head the same as the fire on the ground? If not, update. Update your image and your plans.
      - Is the fire in your head the same as that shared by your management team (Team, Line, Fire Staff)? Establish processes to check and re-gain alignment.
      - Use your slides as a place to begin, not as a template to replicate exactly. For instance – we started with the best model built during the 2008 Tehipite fire, but realized that didn't work for this one, so we adapted and adjusted.
      - Are you treating the fire as an unplanned ignition with multiple objectives or as a "second class fire"? This fire taught us a lot about how we think about and handle a fire that includes resource benefits as an objective. We caught ourselves and others treating it as a "second class fire", that is of less

importance than other unplanned ignitions. We realized that when we say “its an unplanned ignition”, it’s important to remind ourselves to “treat it with the same respect”.

- Group-think.
  - What friendships, rivalries or politics may inhibit straight talk? Which ones facilitate it? Be aware, build in and build around. These will exist. The key is to be aware and upfront so that you can be resilient.
  - Fatigue management can be your friend. These returning folks will have somewhat fresh eyes. Ask them ‘what’s the same and what’s different.’
- Sunk costs.
  - Periodically step back to re-evaluate your plan, the actual fire, and long-term objectives. What and where are your real risks and opportunities? Update when necessary. Engineer in tactical pauses.
- **Lessons Learned on the Sheep**
  - I need to remind myself this is a wildfire in which all values are weighed equally. It’s not like a WFU in which natural processes are the sole objective (outside of safety). I need to ask ‘can I do this given the full suite of opportunities and considerations? I need to consider the probability of having a future ignition to work with ... if so, is this the year? If not, maybe this is the year, or are there opportunities to accomplish objectives with a prescribed fire?’
  - It’s ok to stop. If you don’t have time to plan, you’re probably already going down the wrong road. Whether it’s for a ‘tactical pause’, a ‘safety standown’, a ‘During incident Review’, a ‘planning meeting’ – stepping back to regain the full picture is critical.
- **Planning.** WFDSS can be a really good tool to keep you on the plan, but you (as IC) need to be part of creating the Management Action Points so that you understand what’s behind them and why the MAP is as it is. If you’re inheriting MAPs, schedule time to sit with the MAP developer(s) to gain a similar understanding.
  - Document your thought processes well – in Course of Action, Rationale, in MAPs, consider using the Key Decision Log to assist with documenting decisions, rationale, context and impact.
  - Use WFDSS as the forum for conversation, not to take the place of conversation and discussion.
  - Include key cooperators in planning MAPs. For instance, on the Sheep, we included the Air Quality District and established 3 MAPs specifically for air quality.
  - Consider whether to establish photo points or pre-fire data would be useful for areas likely to burn.
- **Documentation.** A lot of people will be interested in this incident (Geographic Area Coordination Center (GACC), Regional Offices (RO), Line, Air Quality District and/or State Air Quality Board, etc). It pays to have a solid system of documentation and importantly to be as detailed in decisions, courses of action and rationale as possible.

- Provide sufficient background on each MAP (purpose and thinking) so that the next IC and Ops can understand and use.
- Consider setting up an electronic filing structure for keeping track of documents (see example in Appendix 1 )
- It's important to document your thinking about how you complete the Complexity analysis. Do so on the form, and particularly when in transition.
  
- **Finance and Tracking.** You may not need a full time Finance Unit Leader, but it pays to get a system in place early that someone local can handle. With a long duration incident, the Line Officer will want pretty accurate cost figures. Set up ISUITE or use an Excel spreadsheet (Appendix 2).
  
- **Expanded Dispatch.** You'll be using this a lot. It's nice to be able to talk directly with them on the radio, since that will also let them hear what's going on. Particularly if your fire is likely to be inter-agency or inter-unit, work with Expanded so that your expectations and processes are clear and in alignment.
  
- **Operations.**
  - **Crews.** Choose your crews to ensure you have the background experience and expectations (philosophy, if you will) to conduct your planned actions. Often, patience, experience and interest in back firing slowly to attain fire effects to meet resource objectives is necessary.
  - **Briefings.** Are there opportunities for face-to-face education and training.
    - For crews, continually focus on the objectives, which in most cases will be something other than minimizing acres. Re-iterate Line Officer intent, land management objectives, and a focus on the acres that are burning and where they are going. They will likely be asked to complete tasks that are very different from what they signed up for. Need to reinforce the value provided by those waiting and watching. The upcoming generation often wants to know more of the big picture.
    - You may well have multiple remote locations. Radio briefings work quite well for back and forth, but also plan to have face-to-face with ICP Ops heading out and Line Ops heading in periodically to keep SA up regarding both environments and challenges.
    - Multi-day Incident Action Plans (IAPs) can work well as long as the fire is pretty static, but when the fire requires more operational attention, need to update the 204s and get that out to the line.
    - Remember that if you're not submitting a daily 209, a lot of off-site support (Dispatch, Region, GACC, NIFC) may lose sight of your incident.
    - GoToMeeting provides a great tool for giving briefs to off-site partners.
  - Communicate with your GACC to help them understand what the objectives and desired end state is for the fire and how you see this unfolding (timing of resource needs, etc). Establish a process for notification of resources needed that works for them (may be a combination of their accessing MAPs in WFDSS and periodic updates in addition to

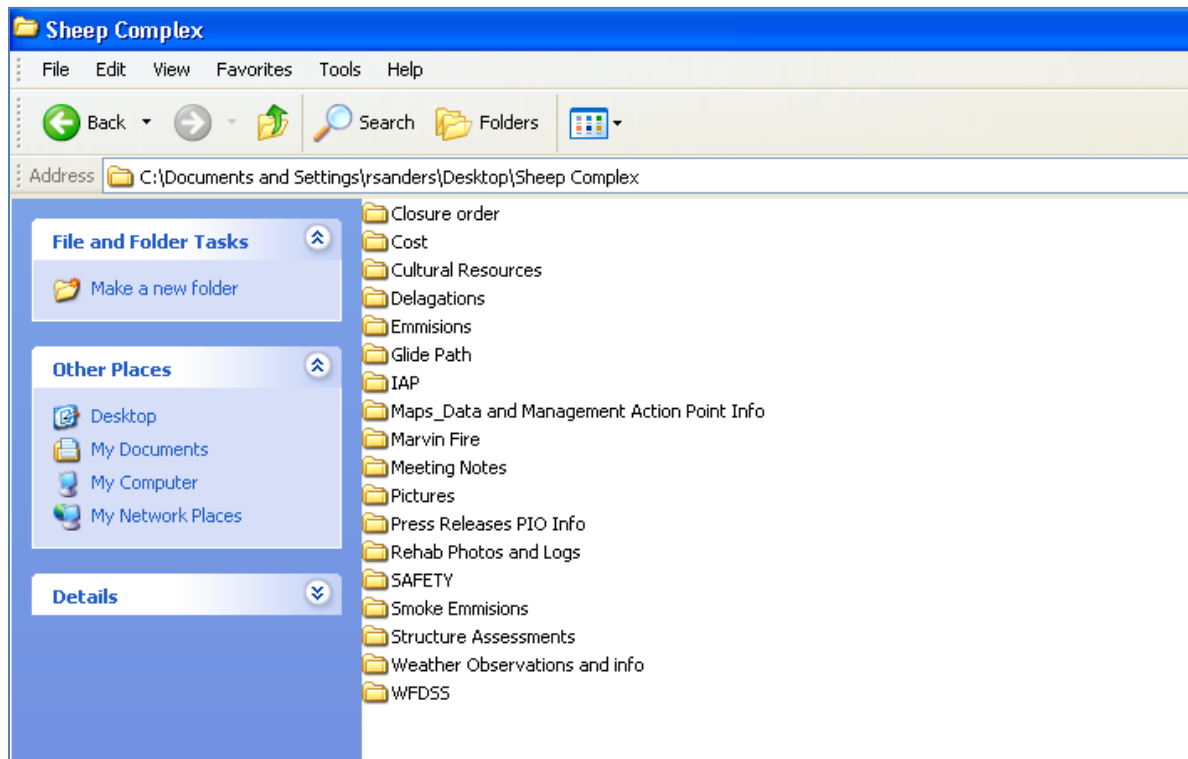
phone calls to give them a heads up regarding planned actions several days prior to the actual order). They will likely need/want more than what is included in daily briefings for Line Officers. Remember, they're tracking Type 1 and Type 2 incidents and for them, often Type 3 incidents are 'local' and may not be on their radar screen.

- **Fire behavior/fire activity.** Believe in probabilities, even if small. Build scenarios even if the probability is small. "Rare events" do happen.
- **Working with the public.**
  - **Messaging.** It's a more nuanced message. As Tim Sexton (USFS Fire Use Program Manager suggests, 'rather than categorizing wildfires, we should explain what our objectives are and specifically what it is that we are doing to provide for firefighter and public safety as well as ensuring other objectives are met. Instead of stating that we are "managing a WFU" we should state (for example) that we are "constructing hand containment lines on the south and west flanks to keep the fire from burning towards private property, while carefully monitoring fire behavior on the north and east flanks, (and weather forecasts) and have developed plans (and have resources available) to keep it within a specific area. We are allowing portions of it to burn because the fire is burning under favorable conditions, rejuvenating shrubs which enhances big game habitat (or whatever the specific resource benefit objective might be); while also reducing hazardous fuels ( which might burn very intensely under more severe weather at some point in the future)." While the above example requires more time to communicate to the public, cooperators or our own personnel, it gives a more accurate mental image to the listener of what it is that we are actually doing.
  - Ensure partners are on the same page with respect to the message. Different units may have different needs and different objectives.
  - **Presence.** On a typical Type 1 or Type 2 incident, ICP is often located near the fire and the locals and the firefighters eat smoke equally and the IC is the face of the effort through town meetings. On these types of events, it is often the PIO who is the face of the fire.

**About this document:** This document was developed from interviews of key incident personnel (line, overhead, operations) by Anne Black (Rocky Mountain Research Station (RMRS) at the request of the SEKI and SQF fire leadership. It is intended to capture the incident and management personnel's key 'lessons learned', 'best practices' and evolutions in thinking and managing a multiple objective fire, particularly one with multiple administrative units. Date: Sept. 25, 2010.

APPENDIX 1

Example of a file structure that assists in organizing information and documentation for a long-duration, locally managed fire. Courtesy of Robert Sanders.



APPENDIX 2

Screen capture (and copy) of an Excel Spreadsheet that calculates and reports running costs for an incident. This is particularly useful in the absence of ISUITE. This spreadsheet keeps a running total of costs by basic cost center category, by day, by current 10-day block, and for the incident. Each sheet contains a 10-day block. Costs for each block (example only in this illustration) are reported under 'Total this period', and show up as 'Previous Costs' on the next Sheet, which is used to track costs for the following 10-day block. For a copy of the template, click on the link at the bottom of the page, then 'Save As'. Program courtesy of Robert Sanders.

XXXXX Fire Costs				CA-SQF-XXXX			
10/14/08	Crews	250		10/19/08	Crews	250	
	Aircraft	2			Aircraft	0	
	Overhead	3			Overhead	0	
	Supplies	43			Supplies	0	
	Total	298			Total	250	
10/15/08	Crews	0		10/20/08	Crews	0	
	Aircraft	0			Aircraft	0	
	Overhead	0			Overhead	0	
	Supplies	0			Supplies	0	
	Total	0			Total	0	
10/16/08	Crews	0		10/21/08	Crews	0	
	Aircraft	0			Aircraft	0	
	Overhead	100			Overhead	0	
	Supplies	0			Supplies	0	
	Total	100			Total	0	
10/17/08	Crews	0		10/22/08	Crews	0	
	Aircraft	0			Aircraft	0	
	Overhead	0			Overhead	0	
	Supplies	0			Supplies	0	
	Total	0			Total	0	
10/18/08	Crews	0		10/23/08	Crews	0	
	Aircraft	0			Aircraft	0	
	Overhead	0			Overhead	0	
	Supplies	0			Supplies	0	
	Total	0			Total	0	
					<b>Total this period</b>	648	
					<b>Previous Costs</b>		
					<b>Grand Total</b>	648	

[http://wildfirelessons.net/documents/fire\\_cost\\_tracking\\_spreadsheet.xls](http://wildfirelessons.net/documents/fire_cost_tracking_spreadsheet.xls)