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Wildfire Risk Reduction, Fuels Treatment, and Federal Land Management Planning: Incorporating Risk Analysis into Landscape- and Project-level Planning

Presentation to the Wildland Fire Leadership Council
Reno, Nevada, July 21, 2010
by
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OVERVIEW

The Wildland Fire Leadership Council (WFLC) is currently developing a Cohesive Wildfire Management Strategy.* The Cohesive Strategy will update and revise wildland fire policy for all U.S. lands, and is a requirement of the Federal Land Assistance, Management and Enhancement (FLAME) Act of 2009. During several previous WFLC meetings the Western Governors' Association Forest Health Advisory Committee (WGA-FHAC) provided stakeholder input on wildland fire issues. For its July 2010 meeting, WFLC suggested that WGA-FHAC members provide feedback on their experiences with the Cohesive Strategy Forums that were conducted for invited stakeholders between April 20 and June 4, 2010.

Jay O'Laughlin has been a member of the WGA-FHAC since its inception in 2004, and asked for the opportunity to describe his experience during one of the two Cohesive Strategy Net Forums conducted on June 2, 2010. He provided oral and written information on building risk analysis into federal land management planning and decision-making processes. This document is a slightly revised version of the handout he spoke to at the WFLC meeting on July 21, 2010.

*For information on WFLC see http://www.forestsandrangelands.gov/leadership/index.shtml; for the Cohesive Strategy see http://www.forestsandrangelands.gov/strategy/index.shtml.

Wildland Fire Leadership Council
Reno, Nevada, July 21, 2010
Meeting Handout (Revised)*

Jay O'Laughlin, Professor of Forestry & Policy Sciences, University of Idaho, has been a member of the Western Governors' Association Forest Health Advisory Committee (WGA-FHAC) since its inception in 2004. He participated in the Cohesive Strategy Net Forum on June 2, 2010, and focused on incorporating risk analysis into land and resource management planning. There are two reasons to do this: 1) to identify priority areas for fuel treatments that can improve ecosystem resilience to wildfire, and 2) help to move fuel treatment projects through the National Environmental Policy Act (NEPA) process. NEPA analysis should answer a simple question: will fuel treatment make environmental conditions better or worse? Two points are emphasized:

- To be effective, risk analysis needs to be fully integrated into decision-making processes rather than treated as an additional add-on activity for land managers. This is consistent with the following principle expressed in Federal Fire Policy (2010): "Sound risk management is the foundation for all fire management activities."
- Fire management planning needs to be fully integrated with land and resource management planning.

During the Net Forum discussion, two points pertinent to risk analysis were raised by others:

- Risk analysis terminology can be a communication barrier (see O'Laughlin 2010 for suggested definitions consistent with ecological risk assessment literature).
- Striking a balance between an overly simplified and overly complicated approach to risk assessment is worthy of attention. Risk management cannot be effective without risk assessment, and that depends on a risk assessment model (Haimes 2004). The choice of a model is driven by the purpose of risk management and that should be grounded in a thorough risk-oriented problem analysis (Clark 2002, O'Laughlin 2010).

Jay O'Laughlin co-chairs the Woody Biomass Utilization and Bioenergy Production Subcommittee for the WGA-FHAC. The subcommittee's top priority action items are:

1. Support increased removal of merchantable timber from federal lands. This is one way to overcome the economic barrier of planning and implementing fuels treatment to reduce risks associated with uncharacteristic wildfires.
2. Develop a biomass utilization communications plan, identifying what to communicate, to whom, and how. This plan is currently under development.

The attached outline (plus references) identifies several planning tools managers could use to identify priority areas for fuel treatment and to improve communications between risk assessors, risk managers, and interested stakeholders as they engage in collaborative processes.

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*Revisions are modest, and reflect the actual order of content presentation on July 21 and also some additional information that was presented but not included on the July 21 handout.

Introduction. The Quadrennial Fire Review (QFR 2009) points out that biomass accumulation is one of the driving forces affecting wildfire, which is outpacing planned fuel treatments and underscoring the need to place fuels treatments strategically in conjunction with fire activity. The QFR's Integrated Fuels Portfolio in Support of Land Management Objectives and its four driving factors are appropriate.* However, project-level analyses and interactions with stakeholders consistent with the National Environmental Policy Act (NEPA) are a prerequisite for biomass removal. Furthermore, in response to GAO (2004) comments, risk assessment can be built into land and resource management planning at the landscape- and project levels.

Planning Tools. The tools identified in the following outline can help support landscape- and project-level plans for reducing wildfire risks.† Emphasis is on enhancing communications among risk assessors, managers, and stakeholders via increased transparency that risk analysis can provide (O'Laughlin 2010). The main points are to include risk analysis throughout the planning and decision-making process, and not treat it as something optional that could be added on.

A. Land/Resource Management Plan (L/RMP): National Forest Management Act of 1976 (NFMA) or Federal Lands Policy Management Act of 1976 (FLPMA)

1. Determine desired future forest (or rangeland) condition via interaction with stakeholders, especially via Community Wildfire Protection Plans (see CWPP 2010; also see JFSP 2009a; SAF 2008, point 3).

2. Within large landscapes, identify and prioritize sub-watersheds (~20,000 acres) for management, using LANDFIRE data in a logic framework and decision model. The application of such a model to a 4.8 million acre landscape in Utah provides a transparent multi-factor risk assessment prioritization method that could feed directly into management planning (see Hessburg et al. 2007‡; also see USDA Forest Service, Northern Region 2008; SAF 2008, point 4).

3. Use forest inventory and analysis (FIA) or other inventory data for priority areas with appropriate forest growth model(s) to project future forest inventory with several management scenarios.

4. Identify forest growing stock volume "gap" between current conditions and desired future conditions on priority areas.

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*Four factors are driving future fuels management programs: strategic placement of treatments, leveraging funds, supporting biomass industries, and utilizing wildfire occurrence opportunities (QFR 2009, p.25). Regarding support of biomass industries, a GAO (2005) report identifies the lack of reliable supplies of biomass as a major challenge to new industry establishments.

†This outline originally was prepared shortly after a conversation in May 2006 with former Oregon/ Washington BLM Director Elaine Marcus Brong in May 2006. She opined that although an array of planning tools exists for helping federal land managers reduce wildfire risks, no one had yet put all the pieces together. I accepted the challenge to assemble the tools in a management planning and decision-making context consistent with policy requirements. The document sicne has been revised several times.

‡The four attributes of the Hessburg et al. (2007) risk assessment model that are compared across sub-watershed units are fire vulnerability, fire severity, ignition risk, and the wildland-urban situation.

5. Identify and describe “gaps” for overstocked stands in terms of a schedule for timber and/or forest biomass to be removed.

6. Using CROP data (Coordinated Resource Offering Protocol; see CROP 2010), estimate and “levelize” the amount of timber and/or forest biomass that will be made available over the 10-15 year life of the plan to help private contractors and entrepreneurs develop and finance plans for resource utilization.*

7. Amend Land/Resource Management Plan (L/RMP) to reflect results from this analysis.

B. Fire Management Plan

1. Based on L/RMP analysis, amend the fire management plan (FMP) by identifying areas where managing wildfires as an ecosystem process (formerly termed wildland fire use or prescribed natural fire; Harbour 2010, Lasko 2010) may be an appropriate management response. Interaction with stakeholders is highly desirable (see SAF 2008, point 5).

C. National Environmental Policy Act of 1969 (NEPA)

1. Engage stakeholders early and often in planning fuel treatment projects; a SPOTS or SPLATS approach may enhance communications (strategic placement of fuel or landscape treatments; see SPOTS (2010) website and SPLATS description at JFSP (2009 d)).

2. Design fuel treatment projects to attain desired forest condition by removing vegetation (timber and/or forest biomass).

3. “Levelize” the amount of timber and/or forest biomass removals planned over time using site-specific project-level analysis to refine CROP (2010) estimates to project-level scale.

4. Describe project objectives in terms of end results desired.

5. Use fire return interval as the minimum planning horizon (makes it certain that a fire will occur and precludes the need to develop fire probability scenarios; see O’Laughlin 2010).

6. If fish species protected by the Endangered Species Act are present, a minimum 100-year planning horizon is needed to ensure that decisions supported by short-term considerations do not result in long-term problems (Rieman et al. 2003).

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*CROP data for Idaho and Montana National Forest System lands became available in July 2009. These data indicate that if all projects planned over the next five years are funded and move successfully through the NEPA process (two big ifs), biomass and timber removals will be the equivalent of approximately five percent of the gross annual growth increment. With this level of activity, biomass accumulation will continue to increase, while tree mortality is at recorded highs. In 2007 these two states had 10 billion cubic feet of sound dead timber, or half of the dead timber in the U.S., and more than twice as much as in the previous 1997 inventory (Smith et al. 2001, 2009). More than 90% of this dead timber in Idaho and Montana is on National Forest System lands.

7. To improve communication with stakeholders, develop risk assessment diagrams (see O'Laughlin 2010), maps (see Ager et al. 2007, JFSP 2009e), and other communication devices that display projected pre- and post-wildfire conditions with and without proposed management action (see JFSP 2009c, 2009f; McDaniel 2009; SPOTS 2010).

8. Interact with stakeholders to determine resources at risk; i.e., what do people care about?
   - Describe risks under current conditions, using either quantitative data and models or qualitative expert-based approach
   - Describe additional risks posed by management actions
   - Describe risk reduction benefits from proposed management actions

9. As may be appropriate, use Healthy Forest Restoration Act of 2003 (HFRA) and other Healthy Forest Initiative (HFI) tools (see Healthy Forests Field Guide 2004).

10. As may be appropriate, develop stewardship contract to attain end results (see Stewardship Contracting 2010).
    - Use 10-year planning horizon to help contractors and entrepreneurs secure financing to remove hazardous fuels and utilize biomass (see Woody Biomass 2010; also JFSP 2009b). The Lakeview Federal Stewardship Unit of the Fremont-Winema National Forest (2010) in Oregon has the only 10-year contract in the Pacific Northwest and it could be renewed via a 20-year Memorandum of Understanding parties signed in 2007.

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