



Research Brief for Resource Managers

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Principles of Effective Federal Fire Management Plans

Meyer, M. D., Roberts, S. L., Wills, R., Brooks, M., & Winford, E. M.. 2015. Principles of effective USA federal fire management plans. Fire Ecology 11(2): 59–83. doi: 10.4996/fireecology.1102059.

Federal fire management plans are essential implementation guides for the management of wildland fire on federal lands. However, recent changes in federal fire policy implementation guidance and fire science information suggest the need for substantial changes in federal fire management plans of the United States. A 2015 study by Meyer and others found that federal fire management plans in the southern Sierra Nevada could increase their effectiveness by incorporating key principles in the areas of collaboration, spatial and temporal scalability, integration of new science information, and other areas.

The authors examined seven federal fire management plans in the southern Sierra Nevada to determine their consistency with the six key principles derived from federal policy and fire science information. Their qualitative assessment of fire management plans in the southern Sierra Nevada represented a case study with broader implications for other regions in the United States. Their assessment focused on whether key fire management principles were evident in the goals (i.e., broad statements of intent), objectives (specific statement of progress toward desired conditions), tools (strategic approaches that support achievement of goals or objectives), and other elements of fire management plans.

Management Implications

- Effective federal fire management plans have the following key features:
 - ✓ consistent and compatible
 - ✓ collaborative
 - ✓ clear and comprehensive
 - ✓ spatially and temporally scalable
 - ✓ informed by the best available science
 - ✓ flexible and adaptive
- Incorporation of an array of planning, communication, science integration, and other fire management tools can substantially improve the effectiveness of current fire management plans within a region.



Effective federal fire management plans are crucial in the successful management of wildfires for positive outcomes, especially in large and complex landscapes such as the 2010 Sheep Fire that burned across federal administrative boundaries in the southern Sierra Nevada. *Image Credit: Inciweb*

The authors described several strategic guides or “tools” that enhance core fire management principles and benefit future fire management plans. These tools are focused in the areas of planning and prioritization, science integration, climate change adaptation, partnerships, monitoring, education and communication, and applied fire management. For example, flexibility and science consistency in fire management plans could be enhanced using regular plan updates, greater incorporation of research and monitoring information, and the development and integration of climate adaptation strategies focused on fire and resource management.

Other examples of tools that enhanced fire management plans included spatial wildfire risk assessments that helped prioritize strategic areas for fuels treatment and identify opportunities and constraints in the use of wildland fire (i.e., prescribed fire, wildfire) across large landscapes. Formation of partnerships, such as interagency, science-management, and stakeholder collaborations, increased the degree of science integration and trust building that supported the overarching goals and objectives of fire management plans.

The authors suggest that future fire management plans both inside and outside the southern Sierra Nevada will greatly benefit from the integration of several key principles and tools that substantially improve plan effectiveness. However, close coordination and consistency in fire management plans within a region will be needed to ensure successful management of wildland fire within and across jurisdictional boundaries in the 21st century.

Additional references for this topic:

Stephens, S.L., C.I. Millar, and B.M. Collins. 2010. Operational approaches to managing forests of the future in Mediterranean regions within a context of changing climates. *Environmental Research Letters* 5: 1-9.

US Department of Agriculture and US Department of the Interior. 2014b. National cohesive wildland fire management strategy. USDA and USDI, Washington, D.C., USA.

van Wagtenonk, J.W. 2007. The history and evolution of wildland fire use. *Fire Ecology* 3(2): 3-17.

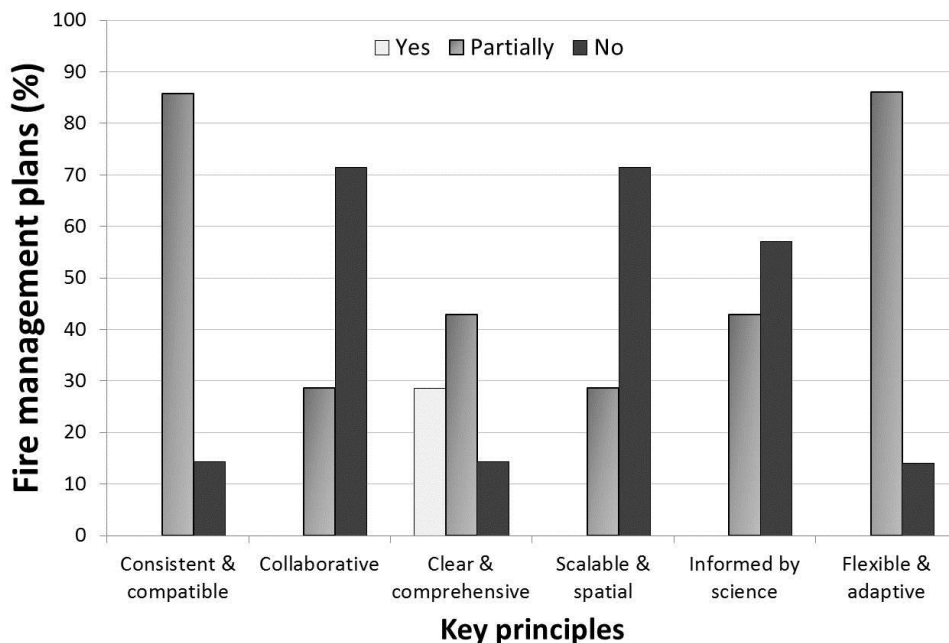


Figure 3. Percentage of federal fire management plans in the southern Sierra Nevada that is consistent, either completely or partially, with key principles for effectiveness.