

A FUELS MANAGEMENT BIBLIOGRAPHY WITH SUBJECT INDEX

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The primary purpose of fuels management has been to lessen potential fire behavior and, thereby, increase the probability of successful containment (Alexander 2003). More specifically, it has been to decrease the rate of fire and, in turn, fire size and intensity—as well as crowning and spotting potential.

In recent years, fuels management has become viewed as a means of reducing or minimizing the adverse impacts of wildfires (Agee and Skineer 2005; Outcalt and Wade 2004; Weatherspoon and Skinner 1995).

Need for Bibliography

I've found that very few efforts have been made to summarize the existing literature on the subject of fuels management and its effectiveness in boreal and temperate ecosystems.

A few exceptions can be found on selected topics (e.g., Agee and 2000; Alexander 2002, 2004c, 2005, 2006b; Fernandes and Botelho 2003; Greenlee and Sapsis 1996; Martin and Brackebusch 1974; Martinson and Omi 2003). However, there has been no attempt to pro-

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vide a comprehensive review and bibliography of the entire field.

The current efforts of the Forest Service's (2004) Applied Wildland Fire Research in Support of Project Level Hazardous Fuels Planning Project to review and summarize the existing information on fuel treatments in dry forests of the Western United States (<http://forest.moscowfs.wsu.edu/fuels/>) are obviously a very worthy undertaking. Commensurate with this effort has been the publication of recent symposia proceedings (Omi and Joyce 2003; Andrews and Butler 2006). But much still remains to be collated and summarized.

Thus, this need for a comprehensive bibliography of relevant articles on fuels management for both manager and research alike. That is what this bibliography—presented in this article—is intended to do. It consolidates and highlights what Fire Management Today and its predecessors provide regarding fuels management, up to, and including, the Fall 2006 (Vol. 66, No. 4) issue. This fulfills a void that existing bibliographies have failed to address (Schumann 2001; Kumagai and Daniels 2002).

This comprehensive bibliography includes 117 articles—listed under 12 subject areas—that date back to 1939.

Seven-Decade Publishing Record

Fire Management Today and its predecessors, collectively, now have

a 70-year record of publishing on all aspects of wildland fire management. While early emphasis was on fire protection and fire suppression, it wasn't long before articles dealing with fuels management began to appear.

Bunton (2000), in *Fire Management Today* issue 60(1), identified and indexed, by subject, all the fuels management related articles that had been published between 1970 and 1999 in *Fire Control Notes*, *Fire Management*, and *Fire Management Notes*.

Unfortunately, knowing what articles have been published on the subject of fuels management between 1936 and 1969 is not so readily available. Summary indexes were published by *Fire Control Notes* in 1942, 1955, 1963, and 1969.

Thanks to a concerted effort by several people, with Delvin Bunton, systems analyst, Forest Service, Ecosystem Management Coordination Staff, Natural Resource Information System, Sandy, OR, taking the lead, all past issues of *Fire Management Today*, as well as the journal's predecessors—*Fire Control Notes*, *Fire Management Notes*, and *Fire Management*—are now available on *Fire Management Today's* Web site (<http://www.fs.fed.us/fire/fmt/>) (Editor 2006). This accessibility has greatly increased the exposure of the journal for the global wildland fire management community.

Bibliographies By Subject

Broadcast Slash, Pile, and Snag Burning

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This Is What Fuel Management Is All About

Where we manage land for specific uses, we alter the timing, amount, and condition of the vegetation and associated debris. We change its readiness to burn. We convert green fuel to dead fuel. As a strictly functional activity of fire protection, fuel management could lead one into the trap of managing land simply for the sake of successful fire control. To avoid this trap, we must view fuel management in relation to all land management objectives. We must be keenly aware that

all land use activities will some way influence the potential for vegetation to be adversely affected by insect or disease epidemics, windthrow or breakage, wildfire, and other hazards. The choices we make concerning what, where, and how we manipulate vegetation ought to be tempered by the expected hazard associated with such activities. This, basically, is what fuel management is all about.

—A. P. Brackebusch (1973)

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On Developing the Sound Principles of Fuel Reduction

The lack of factual information and specific knowledge regarding fire influences and the techniques of relative social and economics appraisals is handicap to the development of sound principles of fuel reduction. Estimating and theorizing may have to be relied on more than desirable. But if the work is done systematically, cautiously, and prudently, the guides that are developed should produce

much better results than can be obtained by relying on the hurried judgements of many different administrators. The problems of fuel reduction are so complex that busy administrative men can do little more than guess, and such guesses are an obviously inadequate basis for guiding the expenditures of millions of dollars for post-war work.

—C.K. Lyman (1945)

Covered Pile Burning: A Safe and Effective Technique for Fuel Removal

The burning of piled slash is a well-established technique for disposing of thinning, logging, and other woody debris (Beaufait 1966, Luke and others 1993, Olson and Fahnestock 1955, Steele 1960). This fuels management bibliography included four long-forgotten articles on covered pile burning—see Ash (1951), Fahnestock (1954), Gilmore and Blaine (1960), and Forest Service, Region 6, Division of Fire Control (1952) on page 45.

It appears that Ash (1951), an assistant district ranger on the Rogue River National Forest in southern Oregon, originally came up with the idea of covering piled slash. To increase the ease and efficiency of burning woody debris piles, he used Kraft No. 30 waterproof paper to cover and protect the fuels from precipitation prior to burning.

Other covering or roofing materials have been tried and used over

the years, including polyethylene film or “black plastic”—no longer recommended due to environmental concerns (Garrett 1994). For current information on paper specifically designed for covering slash piles, see, for example, the wax paper offered by Terra Tech, LLC* (<<http://www.terratech.net/group.asp?grp=75>>).

Covering slash piles should not serve as a panacea for doing a poor job of constructing slash piles that will not readily ignite and be completely consumed (Olson and Fahnestock 1955). However, covered pile burning does provide the advantage of lowering the moisture content of the protected fuels and, therefore, allows burning at a time of year when either heavy rains or a snowfall has eliminated risk of escape.

* The use of trade, firm, or corporation names in this publication is for the information and convenience of the reader. Such use does not constitute an official endorsement of any product or service by the U.S. Department of Agriculture. Individual authors are responsible for the technical accuracy of the material presented in *Fire Management Today*.

This should provide a valuable technique for fuel removal within the wildland/urban interface.

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