

# INDIAN FIRE USE: DEFLATING THE LEGEND

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For many years, the importance of fire use by American Indians in altering North American ecosystems was underappreciated or ignored. Now, there seems to be an opposite trend, as exemplified in the pages of *Fire Management Today* (Summer 2004, volume 65[3]).\* It is common now to read or hear statements to the effect that American Indians fired landscapes everywhere and all the time, so there is no such thing as a “natural” ecosystem. A myth of human manipulation everywhere in pre-Columbus America is replacing the equally erroneous myth of a totally pristine wilderness.

We believe that it is time to deflate the rapidly spreading myth that American Indians altered all landscapes by means of fire. In short, we believe that the case for landscape-level fire use by American Indians has been dramatically overstated and overextrapolated.

## Scant Historical Record

Early-day accounts by Euro-Americans provide a weak basis for interpreting precontact Indian cultures. As Williams (2004) points out in *Fire Management Today*, “European explorers and settlers

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The case for landscape-level fire use by American Indians in all parts of North America has been dramatically overstated.

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rarely saw or understood the cause-and-effect relationships between traditional Indian land use practices and the landscapes they found.” Clearly, their anecdotal vignettes were often heavily biased (Baker 2002). They do not bear out Williams’ (2004) sweeping assertions that:

- “ecological impacts were extensive,”
- “Indians carefully chose where and when to burn,”
- “most of the acres burned were [likely] due to Indian-set fires,” and
- “[i]t seems highly unlikely that the extensive fire effects observed in the presettlement West, especially at lower elevations, can be attributed to lightning.”

Such general assertions are based on a scant historical record. Williams (2004) repeats Pyne’s (1982) overgeneralization that “the modification of the American continent by fire at the hands of [American Indians] was the result of repeated, controlled surface burns on a cycle of one to three years.” The certitude and vast geographic sweep of this statement (“the American continent”) is unjustified.

The vast majority of written and oral accounts by Euro-Americans are not dispassionate observations of the presettlement West, but rather anecdotes fraught with uncertainty, subjective opinion, and bias (Baker 2002). For instance, many early travelers evidently did not recognize lightning as a major cause of fires in the West, and many Euro-Americans might have therefore erroneously attributed fires to Indians, or perhaps they did so out of racism (Bahre 1994; Kaye and Swetnam 1999).

Most oral history and biological evidence of Indian fire use has been irretrievably lost with the passage of time (Baker 2002; Barrett and Arno 1999; Kaye and Swetnam 1999). What little remains seems woefully inadequate for deriving the overly broad conclusions presented by Williams (2002, 2004) and Pyne (1982).

## Physical Record

We prefer to address the issue from scientific and ecological perspectives. To date, we have conducted the only studies that provide statistically based empirical data from tree rings to supplement informa-

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\* The Summer 2004 issue of *Fire Management Today* (volume 65[3]) contains several articles on fire use by American Indians: Karl Brauneis, “Fire Use During the Great Sioux War,” pp. 4–9; Gerald W. Williams, “American Indian Fire Use in the Arid West,” pp. 10–14; Jon E. Keeley, “American Indian Influence on Fire Regimes in California’s Coastal Ranges,” pp. 15–16; and Hutch Brown, “Reports of American Indian Fire Use in the East,” pp. 17–22.

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tion from oral and written accounts (Barrett and Arno 1982; Kaye and Swetnam 1999). The evidence certainly suggests that both purposeful and unintentional burning by American Indians occurred in particular places and times, but not on scales as extensive or as continuous as some would suggest.

Burning occurred in some locales, apparently with some predictability, such as in well-traveled valleys of the Northern Rockies (Barrett and Arno 1982, 1999). However, Indian fires might have been less frequent in other areas, even those dominated by ponderosa pine forests.

In the dry ponderosa forests of the Southwest, for example, purposeful burning seems to have been highly localized and unpredictable (Kaye and Swetnam 1999; Swetnam and Baisan 1996; Swetnam and others 2001). Moreover, purposeful burning was probably rare to absent in wet or cold forest types, where climate seems to be the limiting factor for fire regimes (Agee 1993; Baker 2003; Barrett and others 1991; Buechling and Baker 2004; Johnson and Larsen 1991).

### Role of Lightning

Lightning fires, including onsite ignitions and fires spreading from other areas, were well capable of maintaining most fire regimes in the West.\* In remote locations in the Southwest and adjacent areas in Mexico, for example, fire history

studies have found no perceptible decline in fire frequency after the removal of American Indians in the late 1800s (Swetnam and others 2001). In those landscapes, lightning fires continued to burn well into the 20th century, particularly in areas without intensive livestock grazing and organized fire suppression.

Even where onsite ignitions were rare, free-ranging (and potentially long-burning) lightning fires presumably contributed to many site fire histories. Because modern society has little experience with unhindered fires, some writers seem to incorrectly assume that site fire history depended on local ignition sources.

### Contrary Evidence

If Indian fire use was indeed ubiquitous, how does one explain the broad mix of presettlement fire regimes (Arno 1980; Agee 1993; Barrett and Arno 1999; Swetnam and Baisan 1996)? In the Inland Northwest, for example, up to 10 different regimes have been identified (Barrett 2004; Morgan and others 1998). Clearly, presettlement fires ranged from low-severity underburns to high-severity crown fires, and site fire frequencies ranged from less than 10 years to greater than 500 years.

In our view, writers such as Williams (2002, 2004) and Pyne (1982) often create the misimpression that Indians burned every last acre of the West. Consider, for instance, the suggestive title of Williams' (2002) article, "Aboriginal Use of Fire: Are There Any 'Natural' Plant Communities?" Yet most

early-day accounts suggest that Indian fire use occurred largely in grasslands and adjacent dry forests. For perspective, consider that dry forest types comprise only about 25 percent of the forested terrain in the Northern Rockies (Barrett 2004). The remainder supported widely varying forest structure, composition, and fire regimes, with scant evidence of Indian-set fires.

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### Speculative Venture

Empirical evidence might allow us to infer which ecosystems and which geographic locales might have been most affected by Indian-set fires. However, the ecological evidence suggests that such fires were probably rare or absent in many areas.

Fire practices also likely differed among tribes. Factors influencing fire use probably included environmental variables (such as vegetation types and climate change), evolving lifeways (for example, before and after the acquisition of horses), shifting tribal territories, and demographic changes (such as depopulation by disease).

Regrettably, most accounts of Indian fire use are vignettes allowing little more than speculation about the spatial and temporal scales of burning (Baker 2002). Consequently, describing Indians' role in presettlement fire regimes will remain a highly speculative

\* Although Barrett and Arno (1982) might have inadvertently contributed to the "inadequate lightning" myth, those authors were referring only to lightning potential in the context of wilderness restoration.

venture for ecologists and historians alike.

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Describing the Indian role in presettlement fire regimes will remain a highly speculative venture for ecologists and historians alike.

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## Additional Reading

*Editor's note: The following works also pertain to the debate over practices and ecological impacts associated with fire use by American Indians.*

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