*Classic Article*

# Introduction to H. Weaver's Article

***Jan W. van Wagtendonk***

US Geological Survey, Western Ecological Research Center, Yosemite Field Station,
PO Box 700, El Portal, California 95318, USA
Tel.: 001-379-1306; e-mail: jan_van_wagtendonk@usgs.gov

I first met Harold Weaver in 1968, a year after he had retired from the Bureau of Indian Affairs. He had just finished his morning run (barefoot, at that!) and was resting beneath a giant sequoia at Whitaker's Forest, a University of California, Berkeley, forest reserve adjacent to Kings Canyon National Park. He was there at the behest of Harold Biswell, my major professor at Berkeley. Dr. Biswell had a list of required reading for his neophyte fire ecologists that included "Fire as an Ecological and Silvicultural Factor in the Ponderosa Pine Region of the Pacific Slope" that Harold Weaver had published in the *Journal of Forestry* in 1943. I had read it with great interest and was anxious to discuss the topic with him. As I approached him, he stood up and greeted me heartily and before long extended some sage advice. "Before you begin to study the ecological role of fire in an area, be sure to gather information of fire history," he admonished. "Without a solid fire history, you cannot make the case that fire has a role." After a 40-year career as a fire ecologist, that advice still rings true to me.

Weaver followed his own advice in this article, building his argument for the role of fire in ponderosa pine (*Pinus ponderosa* Lawson and C. Lawson) forests with data from published studies by Keen (1937; 1940*a, b*) in Oregon and Show and Kotok (1924) in California. Interestingly, Show and Kotok used their data to make the case that fire should be kept out of ponderosa forests. After establishing the historical record of fire in the forests, Weaver methodically developed a rationale for fire as a cause of even-aged groups of pines based on his personal experience. The prevailing thought of foresters at that time, however, was that past fires had left the forests in an understocked condition through the process of attrition. Fire exclusion, they prophesized, would allow a greater yield to be obtained from the forest. In contrast, Weaver stated that efforts to keep fire out of these stands allowed dense even-aged stands of shade-tolerant species such as white fir (*Abies concolor* [Gord. & Glend.] Lindl. ex Hildebr.), Douglas-fir, (*Pseudotsuga menziesii* [Mirb.] Franco), and incense cedar (*Calocedrus decurrens* [Torr.] Florin) to become established underneath the mature pines. The dense stands were then more susceptible to beetle infestations and to the accumulation of high fuel hazards. In conclusion, Weaver posed several questions concerning the future of ponderosa pine forests under a policy of attempted complete protection from fire. Chief among them were:

> *If ponderosa pine is desired on vast areas how, unless fire is employed, can other species such as white fir be prevented from monopolizing the ground? On the other hand, if it is decided to permit such species as white fir to come under mature ponderosa pine, how much of the public's money are foresters justified in spending in trying to keep fire out? Even with unlimited funds, personnel, and equipment, can they give reasonable assurance that they can continue to keep such extremely hazardous stands from burning up?*

These questions are as apropos as they were in 1943, if not more so.

It is interesting note that the Indian Service (now the Bureau of Indian Affairs) required a disclaimer to be added as a footnote. In addition, the editor of the *Journal of Forestry* felt compelled to invite a member of the Society of America Foresters to provide a comment on Weaver's article. In his response, Arthur Brown first states that a change in composition may not be desirable depending on the value of the alternate species. Brown then criticizes Weaver for generalizing too much from a single area. He states that it is almost impossible to visualize a low intensity surface fire from not crowning out in stagnated stands of ponderosa pine. That might be the case, but Brown fails to recognize that fire exclusion led to those stagnated conditions. Finally, Brown wonders if, in areas where soil moisture rather than light is limiting, understory species would actually compete with the mature pines. In conclusion, Brown states, "To serve society, the forester must substitute harvesting by logging for nature's method of harvesting by bark beetles and fire." In the past 70 years, we have learned that forest ecosystems are best managed by recognizing the role that all natural processes have played in their development.