Brushfires in California Wildlands: Ecology and Resource Management
Edited by J.E. Keeley and T. Scott. 1995. International Association of Wildland Fire, Fairfield, WA.

A Scientific Basis for Abandonment of Ryegrass Seeding

Ted St. John

Tree of Life Nursery, San Juan Capistrano, CA 92693
Tel .(714) 728-0685

Abstract. If it is clear that ryegrass seeding is potentially both ineffective and harmful, why is it still practiced. This question is explored and suggestions for changing this policy are discussed.

Keywords: Aerial seeding; Frye-Kelly rule; ryegrass.

Introduction

Sedimentation following fire is a primary concern of those living in and near chaparral. Resource managers are under great pressure to prevent the disastrous mud flows that commonly follow fires, and aerial seeding with ryegrass has been a traditional response to major fires.

Unfortunately, the typical situation in southern California is that the ryegrass does not become established until most of the first rainy season has passed. Over the long term, chaparral converted to ryegrass appears to suffer slightly more erosion than areas left to natural regeneration. Ryegrass seeding is an issue because it is expensive and because it suppresses native regeneration (Barro and Conard 1987).

The ineffectiveness of seeding is due to the fact that most sediment does not come from surface runoff during rainstorms. Fine material moves down steep slopes during and soon after the fire in a process called "dry ravel," where it accumulates in dry stream channels until the first significant rains (Wells 1987). Since dry ravel and channel loading take place before the onset of winter rains, neither natural regeneration nor artificial seeding can prevent them.

Some managers have indicated off the record that they carry out seeding not because they think it is effective, but because of the lawsuits that inevitably follow sedimentation. They believe that they fare better in court if they have done something, even if they know that action to be ineffective. By understanding the legal issues, the scientific community may be able to help land managers do the best job for both erosion contro and environmental protection.

Barriers to a Scientific Management Policy

If it is so clear to us that ryegrass seeding is both ineffective and harmful, why is it still practiced at all? There may be conditions in which it has some beneficial effects on sediment control, especially if the first few rains are slow and gentle. Even if seeding is never effective in chaparral conditions, we have to contend with administrative inertia, inadequate flow of information, and perceived legal exposure.

Administrative inertia can result from attitudes that are understandable if not optimal. Aerial seeding is attractive if worked more consistently in previous assignments, or if the land manager does not want to risk an unfamiliar approach.

Even a soilidly-based new approach is lost if the information does not reach the right people. Some overcommitted managers have neither time nor inclination to read research literature. Managers are more likely to see new viewpoints when they appear in an in-house publication, or when they arrive in a memo from higher management.

The legal issue can be the most intimidating barrier of all. Severe sedimentation causes property damage and even loss of life. Government agencies are attractive targets for lawsuits, especially when there is a public perception that the agency has been negligent.

A Strategy to Assist Management

There is little we can do about inertia, but we can offer effective help to managers who want to follow the best course. Our first responsibility is to be sure that the best information comes to the attention of land managers. The refereed scientific review is a necessary

first step, but we must be sure that clear, factual summaries appear in the publications that are popular with managers of each important agency.

The second part of the educational effort should be directed at higher levels, who can decree that a new policy is in effect. Appeals to high-level administrators and public officials can be very effective if they are clear and balanced. High-level officials must consider a wide range of issues, and it is important that we anticipate other concerns that influence their decisions.

The public is the highest administrative level for public lands. The policy that is perceived as correct by the public is likely to become agency policy. We should be addressing educational materials to the public, with emphasis on the concerns that lay persons most often have. We should take time to talk to school groups, service clubs, the media, and interest groups.

The legal issue is complicated and has no single answer. Nevertheless, it is concern over lawsuits that may paralyze an otherwise cooperative player. The standard in California for scientific evidence is the "Frye-Kelly rule." While legal scholars would refer to the original cases, those of us who need a general description may prefer the summary given by Witkin (1986). The principle that will come into play in any legal confrontation is that the validity of a scientific approach is best judged by the scientific community. The outcome of the case will rest on the effectiveness of research, writing, and support for managers by the scientific community.

What managers need most is a clear statement that "no seeding" is the policy best supported by scientific evidence. Well-written and well-documented work will convince all but the most stubborn members of the "old school," and will provide strong legal cover for converts. We can cooperate in court cases: consultants and university researchers can act as expert witnesses for agency staff, and should do so when required.

If researchers can focus even a small amount of attention on these "political" aspects of their work, they can make possible a management policy that best serves both public safety and environmental concerns.

Literature Cited

Barro, S. C., and S. G. Conard. 1987. Use of ryegrass seeding as an emergency revegetation measure in chaparral ecosystems. USDA Forest Service, Pacific Southwest Forest and Range Experiment Station, General Technical Report PSW-102.

Wells, W. G. II. 1987. The effects of fire on the generation of debris flow in southern California, pp. 105-114. In J. E. Costa and G. F. Wieczorrek (eds), Debris flows/avalanches- processes, recognition, and mitigation. Reviews in engineering geology. Volume VII. The 97th annual meeting of the Geological Society of America.

Witkin, B. E. 1986. California evidence (Third edition). Bancroft-Whitney Co., San Francisco.