

# TECHNOLOGY TRANSFER AND WILDLAND FIRE MANAGEMENT/RESEARCH



Martin E. Alexander

*I would like to see fire scientists and fire managers work much closer together ... I see too many examples of researchers and managers pulling against each other, rather than working together. I regard the scientists as our motivators for change while the managers are implementers of change. Successful change will not be achieved unless it is managed properly, this is, presented in a positive and cooperative climate so that it is rapidly incorporated into the daily business of ecosystem management and community protection.*

–Underwood (1995)

In 2001, I participated in a survey commissioned by the Canadian Interagency Forest Fire Centre's Forest Fire Science and Technology Working Group (MacKendrick 2001). The survey dealt with how fire managers and fire researchers could more effectively work together in the future.

## Wealth of Information

There is a wealth of general information on the interaction between management (operations) and research. I recall attending an excellent session on "Management vs. Research" during the Seventh Conference on Fire and Forest Meteorology, which was jointly sponsored by the American Meteorological Society and the Society of American Foresters on April 25–28, 1983, in Fort Collins, CO. Unfortunately, the 10 papers presented at that conference session were not published as part of the conference proceedings.

There are a couple of excellent older documents that specifically relate to wildland fire (e.g., Underwood 1985; USDA Forest Service 1984). More recently, the subject was discussed

during the Wildland Fire Research Future Search Conference on October 6–8, 1997, in Park City, UT (Saveland and Thomas 1998). I also had the opportunity to attend this conference.

## Useful Reference

One of the more general but highly useful references I have found on the subject, discovered during the course of preparing a paper by Kiil and others (1986), includes recommendations resulting from the conference on "Technology Transfer in Forestry" held by the International Union of Forestry Research Organizations on 25 July–1 August, 1983, at Edinburgh University, Scotland (Moeller and Seal 1984). The recommendations are reprinted in their entirety on page 42 for the benefit of readers.

## References

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USDA Forest Service. 1984. User Needs/Research Planning Workshop: Fire Research To Meet User Needs—Immediate to Long Term; 17–19 April 1984; Missoula, MT. Washington, DC: USDA Forest Service, Forest Fire and Atmospheric Sciences Research. ■

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## TECHNOLOGY TRANSFER IN FORESTRY: RECOMMENDATIONS\*

The final session of the conference on “Technology Transfer in Forestry” was used to assemble and record recommendations. Recommendations for forest managers, the users of research results, were distinguished from those intended for the researchers themselves. Both kinds of recommendations are set forth below.

There was some difference of opinion among conference participants as to the relative importance of the recommendations, and it was acknowledged that different or changing circumstances must change the order of value. Nevertheless, the degree of agreement was remarkable, considering the range of countries and experience represented by the conference participants. All points below deserve the most careful attention.

### **What can users of research and their organizations do to improve technology transfer?**

*Users must be actively involved in the early stages of research planning. They should:*

- Identify and prioritize their research needs; and
- Make sure researchers understand these needs.

*Users must create an organizational environment that encourages innovation. They should:*

- Establish a person responsible for user liaison to research;
- Involve researchers in management teams;

- Encourage interaction and cooperation between researchers and managers;
- Provide managers with technology transfer training;
- Allocate staff time to attend meetings, demonstrations, workshops, etc.;
- Set up an administrative structure to ensure technology transfer;
- Monitor technology in primary and related fields;
- Be open to new ideas;
- Reward people who innovate;
- Establish a technology transfer advisor in a senior staff position;
- Interchange staff with research whenever possible; and
- Form user cooperatives to encourage innovation.

*Users must be involved in research application and evaluation activities. They should:*

- Help fund application efforts;
- Test and demonstrate innovations and inform research about results;
- Make a solid commitment to trying new technology; and
- Conduct benefit/cost and cost-effectiveness studies.

### **What can researchers and their organizations do to improve technology transfer?**

*Research must involve users in early stages of research planning:*

- To help identify problems and set priorities;
- To establish reasonable expectations and commitments; and
- To understand the user market.

*Researchers must create an organizational environment that encourages innovation. They should:*

- Encourage direct contacts between researchers and users;
- Keep users informed and involved throughout the research process;
- Attend management meetings;
- Encourage staff exchanges between research and management;
- Train researchers in technology transfer and communication techniques;
- Commit adequate resources to technology transfer;
- Recognize and reward scientists for application work;
- Establish an organizational focal point for technology transfer;
- Take initiative to motivate managers; and
- Recognize technology transfer as a continuing commitment.

*Researchers must be involved in application and evaluation activities. They should:*

- Whenever possible, quantify the benefits of research;
- Concentrate on the most beneficial results;
- Involve users in application efforts;
- Understand the capability of users to implement research results;
- Provide state-of-the-art summaries;
- Use the most appropriate means of transferring results through demonstration and personal contacts, whenever possible; and
- Ask for and utilize evaluation feedback from users.

\* From Moeller and Seal (1984) (see page 41).

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**WHY ARE FIRE  
SEASONS GROWING?**



United States Department of Agriculture  
Forest Service

## On the Cover:



A fast-moving firestorm sweeps upslope through pine on the 2000 Hash Rock Fire, Ochoco National Forest, OR. Rolling 10-year averages for acres burned on the National Forest System suggest a dramatic rise in fire season severity since the 1980s. For a discussion of growing fire season severity and management response, see the articles by Dale Bosworth beginning on page 4 and by Stephen F. Arno and Steven Allison-Bunnell beginning on page 12. Photo: Thomas Iraci, USDA Forest Service, Pacific Northwest Region, Portland, OR, 2000.

The FIRE 21 symbol (shown below and on the cover) stands for the safe and effective use of wildland fire, now and throughout the 21st century. Its shape represents the fire triangle (oxygen, heat, and fuel). The three outer red triangles represent the basic functions of wildland fire organizations (planning, operations, and aviation management), and the three critical aspects of wildland fire management (prevention, suppression, and prescription). The black interior represents land affected by fire; the emerging green points symbolize the growth, restoration, and sustainability associated with fire-adapted ecosystems. The flame represents fire itself as an ever-present force in nature. For more information on FIRE 21 and the science, research, and innovative thinking behind it, contact Mike Apicello, National Interagency Fire Center, 208-387-5460.



**Firefighter and public safety is our first priority.**

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