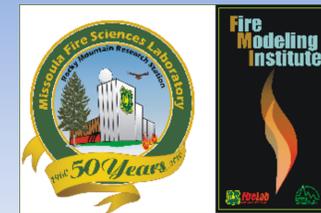




Writing Syntheses for Managers: Lessons from the Rainbow Series & Fire Effects Information System

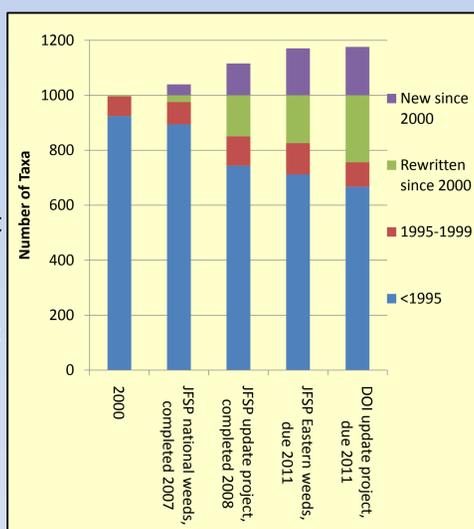
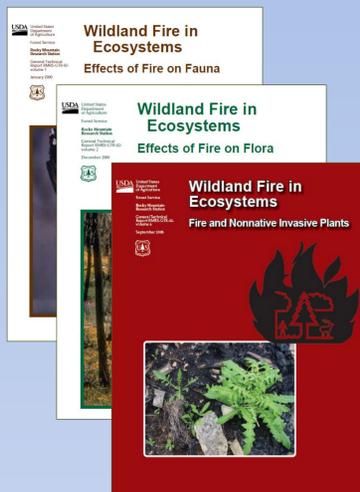


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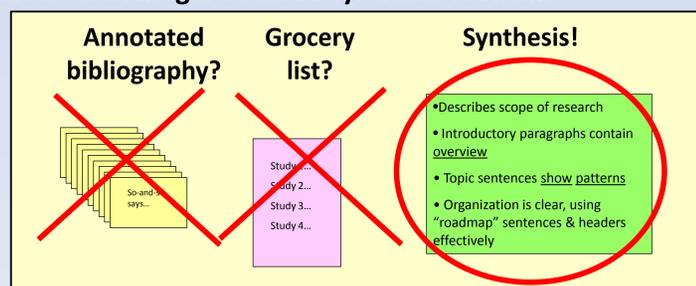
Scientific knowledge is essential for sound wildland management, but this knowledge is complex and ever-expanding. Managers often request syntheses of available knowledge, and scientists have responded. A 2008 search of publications for “fire” combined with “synthesis” or “review” showed:

Source	Contains “fire” &	
	“review”	“synthesis”
Treearch	24	42
FRAMES	85	77
JFSP website	32	11

Since 2000, the Information Team of the Fire Modeling Institute has produced 3 volumes in the *Wildland Fire in Ecosystems* (“Rainbow”) Series and nearly 400 literature reviews in the Fire Effects Information System (FEIS); nearly 30% of the 1117 reviews in FEIS are less than 9 years old. This work has been supported by the Forest Service’s [Office of Fire & Aviation Management](#), the [Joint Fire Science Program](#), and the [National Interagency Fuels Committee](#). In the process, we have trained and collaborated with 24 authors and edited 9,000 pages of text citing more than 44,000 references. **We have learned about ecology and also about the process of synthesizing information for managers.**



What does manager-focused synthesis look like?



Manager-focused syntheses answer these questions:

1. What is the scope of the synthesis? How much homework have you done?

Example from the “About FEIS” web page:

FEIS staff accessions current English-language literature for FEIS literature reviews by searching scientific abstracts, literature databases, and tables of content from refereed scientific journals and government publication lists.

Examples from FEIS review of *Nandina domestica*, sacred bamboo²:

2. How much knowledge is available? How much is not known?

BOTANICAL AND ECOLOGICAL CHARACTERISTICS---- ... Vegetative

regeneration: Several sources suggest that sacred bamboo may regenerate vegetatively by sprouting (review by [6]), particularly from the roots ([77,16], reviews by [48,62], personal communications [24,61]). Root sprouting may occur after control treatments (personal communications [24,61]) or top-kill from freezing temperatures [16,18]. ...



3. What general patterns are reported?

FIRE MANAGEMENT CONSIDERATIONS----

....

Preventing postfire establishment and spread: The little information available regarding sacred bamboo and fire **suggests** that postfire establishment and spread are **likely** in areas with existing populations of sacred bamboo, either via vegetative regeneration or by seed. It is likely that top-killed sacred bamboo will sprout following fire (personal communication [33]); **though managers should be aware** that sprouting after damage **may not occur** for at least a year (personal communication [47]). Sacred bamboo seedlings from on-site sources may emerge soon after fire (personal communication [33]), **though it may be possible** for on-site seeds to germinate up to a year following fire because seeds exhibit dormancy ([77], review by [39]). **Observations** of sacred bamboo taking 18 months to several years to mature ([77], review by [62], personal communication [47]) suggest that **managers may have time to eradicate establishing plants** prior to new seed production. ...

Use of prescribed fire as a control agent: Because there is no published information (2009) regarding the use of fire to control sacred bamboo, the suggestions made in this section should be considered **speculative**. **Observations from northern Florida** suggest that **repeated fire treatments and follow-up removal of seedlings may be effective in controlling sacred bamboo populations**; few sacred bamboo plants were found in an area where surface growth was burned 3 times between 2005 and 2009 and seedlings were killed by managers (**personal communication** [33]).



4. How certain is the knowledge? “Hedge” words indicate uncertainty.

5. Have exceptions been reported?

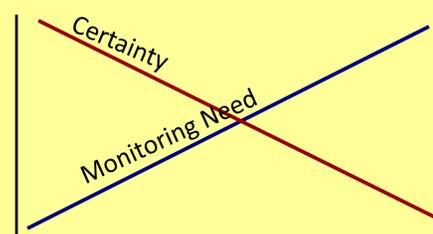
6. Does this knowledge apply to my management questions?

- What kind of information?
- Where is it from?
- What is its scope of inference?

A final question :

8. What can I do about knowledge gaps?

The need for monitoring and adaptive management is likely to increase as certainty decreases.



7. What are management implications of this knowledge?



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² Stone, Katharine R. 2009. *Nandina domestica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2009, November 24]