RESOURCE NOTES

Fire Effects Information System

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Background

As resource managers, we all have the problem of too much information and not enough time to read and assimilate it. We sometimes make decisions with inadequate knowledge because we don't have time to find pertinent information or think that it doesn't exist. The Fire Effects Information System (FEIS) was developed with the intent of solving this problem, providing information on how fire affects individual species, knowledge that is beneficial to prescribed fire in particular, and fire management in general.

FEIS (Figure 1) is an Internet database that contains fire ecology and effects information for about 900 species of plants and 100 species of wildlife. Each species summary contains a written literature review, organized in a standard format, and includes full citations for all references. FEIS is more than simply an annotated bibliography.

Specific Content

Information in each plant species summaries includes:

- General Information: Name, synonyms, taxonomy, Federal legal status
- Distribution and Occurrence: Geographic distribution, Kuchler types, Society of American Foresters (SAF) and Society of Range Management (SRM) cover types
- Value and Use: Wood products, wildlife, livestock, rehabilitation of

disturbed sites; management considerations
- Botanical and Ecological Characteristics: Description, method of regeneration, characteristics of sites on which it occurs including soils, elevation, and commonly associated species; successional status
- Fire Ecology: Plant susceptibility to fire and its ability to resist damage from fire, fire regimes, fuels and fire characteristics
- Fire Effects: Immediate effects of fire, variations due to fire severity, season, and other plant factors, plant response to fire in the first growing season and over the long-term
- Case studies: Description of specific fire studies on this species which can be non-published material
- References: Full citations for all literature

The wildlife species category, in addition to general taxonomic information and distribution, also contains information on:

- Biological Data and Habitat Requirements: Preferred habitat, cover requirements, food habits, predators
- Fire Effects and Use: Known direct effects on individuals, effects of fire or its exclusion on habitat including variation in effects because of fire frequency, severity, and season

Value of the Information

Many users only read the "Fire Ecology" and "Fire Effects" sections of a summary. However, there is valuable knowledge in other categories, such as "Botanical and Ecological Characteristics," which can help you make inferences about effects for those species about which little is known relative to fire. The "Regeneration Processes" subsection may describe resprouting of a riparian species
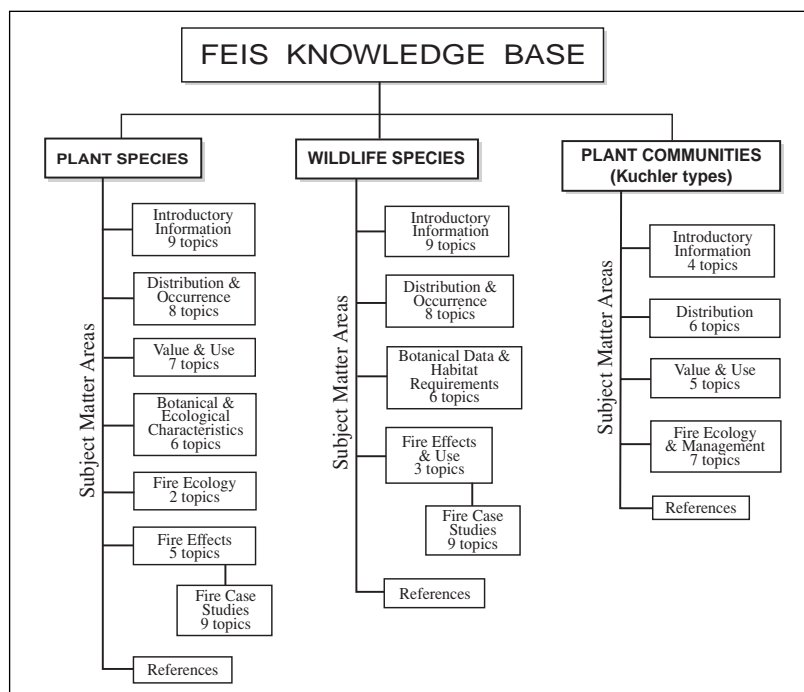

Figure 1. Subject matter content of the FEIS knowledge base[1].

[1]from Fischer, William C., Melanie Miller, Cameron M. Johnson, Jane Kapler Smith, Dennis G. Simmerman and James K. Brown, 1996. Fire Effects Information System: User's Guide, USDA Forest Service, Intermountain Research Station, General Report INT-GTR 327, p3.

observed after flooding or heavy browsing. You can infer that the species may have some ability to resprout after fire. A species summary may report that a significant amount of seedling establishment has been observed on road cuts. You may conclude that if a postfire seed source is present, germination and establishment may be more likely to occur on severely burned sites where the organic layer has been removed.

A species summary can help you assess how a species growth or decline can affect other ecosystem components and resource values. The species summaries can help answer some of the following questions: Will its postfire increase pose competition to other plant species? Will its increase be only temporary? Is a change in productivity significant because it provides food for key wildlife species during a critical life stage? Does the species have a fairly short life span, and rejuvenation by fire is the only feasible means of ensuring long-term species presence?

The information in FEIS can be used in many aspects of our jobs, not just for fire management planning and implementation. It is a readily accessible database about species biology. FEIS can provide an ecological basis for Land Use Plans, Environmental Impact Statements, Environmental Assessments, rehabilitation plans, and implementation plans for specific resource components such as wildlife or range. If you are detailed or transferred to a new geographic area, species summaries allow you to more quickly understand the ecological issues in the local environment.

Continued Development
One of the most amazing things about FEIS is that it still exists, and continues to improve, 14 years after it was initiated. A key reasons for its success is that it has strong interagency support. Funding has come not just from Forest Service research, but also from BLM, National Park Service, Fish and Wildlife Service, National Forest Systems, and the Department of the Interior.

The Fire Effects research work unit at the Missoula Fire Sciences Lab began

FEIS development in 1986, with intent to design a system that would be easy to keep current. Between 1986 and 1995, nearly 1,000 species summaries were written. Currently, over 100 species summaries are being revised, using money provided by the Department and the Forest Service fire programs. Work is done under contract, and the cost for each species is the same. For this reason, we have decided not to add summaries for Threatened and Endangered Plant species because there is often so little information that it is not cost efficient to pay a contractor to prepare a summary.

Tips on Use
All species summaries are organized according to the same hierarchical format, using identical titles for individual sections. You navigate through system menus the same way as in any other Internet database. Enter by selecting a species from an alphabetical list of Latin names. If you cannot find a listing for the Latin name of a species, it may be because the name has been changed. Search the database for the old name or a common name, using the search window on the FEIS home page. The search engine will list the species summaries in which that name is contained in the Introductory section, and a click on an item will direct one to that place. Check the synonyms listed in the introductory section to confirm that it is the correct species. If you want to see the complete species summary without going back to the main menu, you can delete the words "introductory.html" from the address in the location box at the top of your computer screen. Hit the enter key, and the main menu for that species will appear.

References within the text of a species summary are indicated by a bracketed number. You can click on a citation index number in the text, and the full citation will show immediately. A list of all citations used is included in the "References" section of each summary.

Revisions
Currently, if you want to save a species summary or print it from the Internet, you have to do it by information

category. The software will soon be changed so that you can save or print an entire species at the same time, by selecting the last item in the menu for an individual species, called "Complete Species Writeup" (for printing purposes). When this window opens, you can save or print using the features in your Internet software. It can be convenient to store frequently used species summaries on your computer or as hard copies in a binder.

The Citation Retrieval System is the companion database to FEIS that contains all of the references used in the species summaries, as well as other current literature on fire effects on plants and animals, annotated by key word. It will soon have its own web page and a search engine that will allow you to search the over 30,000 citations that it contains.

A list of the 100 species summaries being revised is available on request.

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FEIS is available on the Internet through the Forest Service Home Page:
http://www.fs.fed.us/database/feis/