

FIRE EFFECTS INFORMATION SYSTEM: NEW ENGINE, REMODELED INTERIOR, ADDED OPTIONS



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Some of today's firefighters weren't even born when the Fire Effects Information System (FEIS) (Web site <<http://www.fs.fed.us/database/feis>>) "hit the streets" in 1986. Managers might remember using a dial-up connection in the early 1990s to access information on biology, ecology, and fire offered by FEIS.

For more than 20 years, FEIS has synthesized scientific information on fire ecology and fire effects for managers. The resulting "species reviews" describe patterns in research results, point out conflicting results and possible reasons for disagreement, identify knowledge gaps, and provide thorough documentation and a complete bibliography. Species reviews cover the available knowledge on fire-related questions such as:

- Will changes in abundance after fire be short lived or long term?
- Will increased productivity provide food essential for wildlife?
- Will increases in one species interfere with regeneration of others?
- Is rejuvenation by fire the only way to ensure long-term species presence?

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FEIS reviews also offer extensive information on biology and ecology that can help readers make inferences about responses to fire.

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inferences about responses to fire. For example, the review of rush skeletonweed, an invasive forb, reports successful sprouting from deep rhizomes after injury, so the review infers that it may be able to recover after a fire, possibly even a severe one, by sprouting (Zouhar 2003).

The usefulness of FEIS is not limited to fire. Because reviews give thorough descriptions of species

SPECIES: *Lycaeides melissa samuelis*


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Introductory

AUTHORSHIP AND CITATION:
Meyer, Rachelle. 2006. *Lycaeides melissa samuelis*. 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/> [2008, January 2].

[Continued...]



U. S. Fish and Wildlife Service,
Digital Library System

Figure 1—Opening page of species review in Fire Effects Information System showing table of contents (top) and citation (bottom). This review (Meyer 2006) contains nearly 20 pages of information and 76 citations.

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FEIS Tips

If you locate a species review through the FEIS search window, your first screen shows mainly the citation and taxonomic information. You'll want the complete review, so *click on any link in the table of contents* before downloading.

Don't limit your use of FEIS to the *Fire Ecology* and *Fire Effects* sections of a review. Many facts reported in *Botanical and Ecological Characteristics* pertain directly to management issues. Examples include vegetative regeneration, response to non-fire disturbance, seedbed and establishment requirements, and successional patterns.

Go online to get the best that FEIS has to offer. Recycle those ancient printouts in your file cabinet. Since 2000, more than 100 new reviews have been added to the system, more than 150 old ones have been rewritten, and small changes have been made in at least 250 reviews. This means nearly 50 percent of the database has been improved in the past 7 years—and more improvements are coming.

If you use FEIS for environmental planning documents, cite individual species reviews rather than the entire database. Each review has its own date and author; so, when you cite reviews individually, you tell readers exactly what information you used and how current it is.

biology and ecology, including regeneration and succession, they can be used for land use planning, restoration and rehabilitation planning, wildlife and range projects, and related environmental assessments. A person who is unfamiliar with a particular geographic region can use FEIS to get a quick orientation to the ecology of dominant species.

While the fundamental purpose of FEIS is unchanged, the content and technology have advanced since its establishment. FEIS moved from the now-retired Data General* computer to the Internet in 1996. Additions, corrections, and revisions have been continuous, guided by input from a 20-member advisory committee and supported by the Forest Service Office of Fire and Aviation Management, the Joint Fire Science Program, the National Wildfire Coordinating Group, and the U.S. Department of the Interior. Other contributors include the National Forest System and individ-

Fires that are used to protect, enhance, or maintain resources are managed with the expectation that they will be of long duration.

ual agencies in the U.S. Department of the Interior, including the Bureau of Land Management, the National Park Service, and the U.S. Fish and Wildlife Service.

FEIS now contains reviews of more than 1,100 plant and animal species and subspecies, native and nonnative. The system is nationwide in scope, covering hundreds of species in every region of the United States. Nearly one-half of all fire-related environmental impact statements prepared by Federal wildland managers now cite FEIS. Recent changes that can help managers and fire specialists are discussed below.

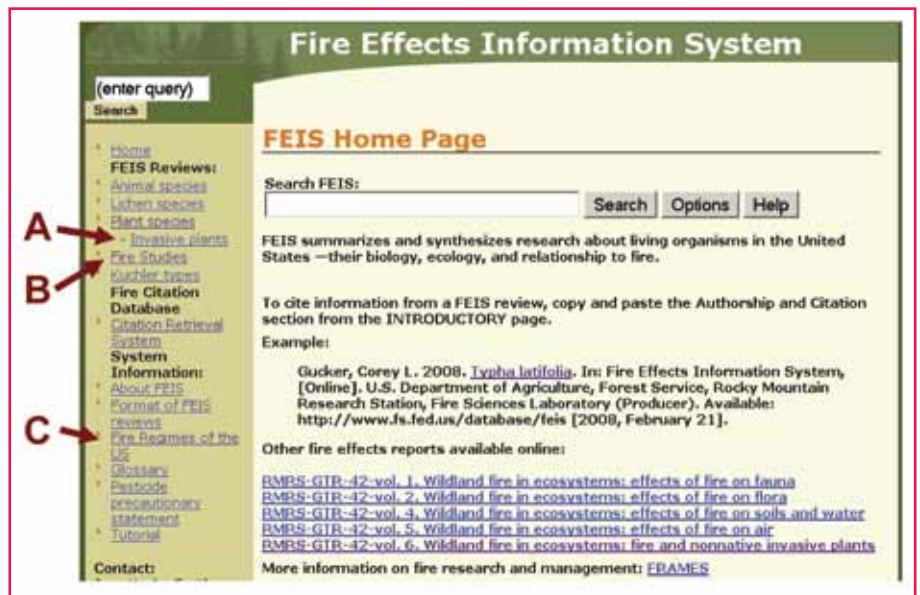


Figure 2—Homepage of Fire Effects Information System shows (A) link to information on invasive species; (B) list of fire studies in FEIS, including research project summaries, fire case studies (located within species reviews), and downloadable research papers; and (C) link to list of fire regimes for the United States.

Excerpt from Research Project Summary (Gucker 2005) describing effects of prescribed fire on graminoids in a rough fescue prairie.* (The RPS includes a separate table describing fire effects on 19 forb and 3 shrub species.)

Percent cover of graminoids species at the end of the second growing season after prescribed fire (Archibold and others 2003)				
Common Name	Unburned	Spring	Summer	Fall
Grasses				
thickspike wheatgrass	0.1	0	0.1	0.1
slender wheatgrass	1.3	0.5	0.1	0.3
rough fescue	11.3	13.2	7	8.8
spikeoat	0	0	0	0.1
porcupine grass	5.6	4.9	3	2.2
prairie Junegrass	0	0.2	0	0.1
green needlegrass	0.5	0.2	0.7	1.5
western wheatgrass	0	0	0.1	0.2
Kentucky bluegrass	6.8	0.2	1.3	5.4
Sedges				
needleleaf sedge	0.4	0.1	0.3	0.7
sun sedge	1.4	2.6	3.2	3.7
obtuse sedge	1	1	0	0

*Yellow identifies species that are cross-linked with FEIS reviews. Blue identifies species *not* reviewed in FEIS; a search on these species in FEIS retrieves the research project summary.

New Engine

FEIS users sometimes stalled out in the database's file structure before finding needed information on ecology and fire. Now, the system is rebuilt so that every review starts with a table of contents and links to all sections in order (fig. 1). This organization allows readers to quickly access topics of interest.

Remodeled Interior

Reviews covering 60 nonnative invasive plant species and subspecies were revised or added to FEIS between 2001 and 2006. A list of all invasives covered in FEIS (more than 100 species) is available through the homepage (fig. 2A).

The FEIS team recently completed a project that began in 2004 to

update 100 FEIS species reviews and add reviews covering 100 additional species. Updates include:

- Rewritten reviews on the spotted owl, Table Mountain and pitch pines, several western oaks, and Jeffrey pine, all originally written in the late 1980s and early 1990s;
- New reviews on bear huckleberry, bog birch, and several cacti, lichens, and mosses;
- New reviews on the great gray owl, Indiana bat, eastern box turtle, red-headed woodpecker, fisher, and black-tailed prairie dog; and
- A review of the first insect species in FEIS, the Karner blue butterfly (fig. 1) and its obligatory forage species, the wild lupine.

FEIS reviews describe the fire regimes thought to have influenced the species in past centuries. When FEIS was established, reviews addressed fire regimes only for dominant species. At the request of managers, FEIS began in 2000 to report historic fire intervals for the habitat of each species reviewed. These reports were initially organized by plant community but not linked to a comprehensive national classification. Reviews completed since mid-2007 include new, more complete fire regime descriptions for a comprehensive list of vegetation types (fig. 2C). These descriptions were developed from data collected for the LANDFIRE Rapid Assessment (2007) and will be updated when the National LANDFIRE Mapping Project is complete.

Added Options

In 2006, FEIS began to provide a new kind of review, the research project summary (RPS). An RPS summarizes research on preburn vegetation, fire weather, fire behavior, and fire effects. It summarizes fire effects on *all* species covered by the study and is linked to—and from—every relevant species review in FEIS. For example, an RPS that describes fire effects on plants in a rough fescue prairie (Gucker 2005, summarizing information from Archibold and others 2003) provides information on nine species reviewed in FEIS and an additional three “non-FEIS” species (see table). An RPS describing restoration treatments in ponderosa pine-Douglas-fir forests (Metlen and others 2006) describes fire effects on 76 FEIS species and 121 non-FEIS species.

How can readers find an RPS? In several ways:

1. From within species reviews. The “fire effects” section links to every relevant RPS.
2. Through the FEIS search engine. When FEIS is searched by species name, it produces a list containing the species review (if there is one) and

all relevant RPSs. The search engine also locates RPSs for species not reviewed in FEIS. For instance, Virginia strawberry is not reviewed in FEIS, but a search on this species retrieves five RPSs, each containing a little information on the species’ response to fire.

3. From the FEIS list of fire studies, available through the homepage (fig. 2B). This list can be searched for a location, species, or plant community of interest. The list includes not only RPSs but also fire case studies (embedded within FEIS reviews) and downloadable research papers linked from FEIS reviews.

FEIS has served wildland fire managers for more than 20 years and continues to adapt and respond to managers’ needs and requests. Please send your comments, suggestions, and corrections to <fmi@fs.fed.us>.

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