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Fuels Planning: Science Synthesis and Integration

Environmental Consequences Fact Sheet: 1

Fire Effects Information System (FEIS)



Pacific Northwest
Research Station



Synthesizing Scientific Information for Fire and Fuels Project Managers

Steve Sutherland

USDA Forest Service
Rocky Mountain Research Station
Fire Sciences Laboratory
Missoula, MT

Environmental Consequences
Team Leader
Elaine Kennedy Sutherland
USDA Forest Service
Rocky Mountain Research Station
Missoula, MT

Fuels planning: Science synthesis and integration, an interagency research/management partnership to support the Ten-Year Fire Plan, led by Russell T. Graham, RMRS, and Sarah M. McCaffrey, NCRS.

What Is FEIS?

Managers and fuel planners need ready access to quality information about the effects of fire on plants and animals. The Fire Effects Information System (FEIS) provides accessible, up-to-date fire effects summaries, taken from current English-language literature, for almost 900 plant species, about 100 animal species, and 16 Kuchler plant communities found on the North American continent. The emphasis of each summary is fire and how it affects each species, but background information on taxonomy, distribution, basic biology, and ecology of each species is also included. Species summaries are thoroughly documented and each contains a complete bibliography. Summaries are updated as funding becomes available or upon request.

Who Developed FEIS?

The system was developed at the USDA Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory in Missoula, MT. Managers from several agencies (Forest Service, Bureau of Indian Affairs, Bureau of Land Management, Fish and Wildlife Service, and National Park Service) identified the species to be included in the database. Those agencies funded the original work and continue to support maintenance and updating of the database. The interagency Joint Fire Sciences Program is currently supporting the writing or updating of 60 invasive plant species summaries.

What Is Contained in the Species Summary?

Introduction—The species' abbreviation, common names, taxonomy, Federal legal status (endangered, threatened, and so forth), other status, and authorship and citation information are contained in the introductory section.

Distribution and occurrence—General distribution, ecosystems, States/Provinces, BLM physiographic regions, Kuchler plant associations, Society of American Foresters cover types, Society for Range Management cover types, and plant communities are listed in this section.



Fire creates conditions that are favorable to the establishment of noxious musk thistle (*Cardus nutans*), so if its seeds are present and competition is minimal, musk thistle may be favored in the postfire community. FEIS provides this kind of information for a range of plants and animal species (photo credit: Steve Sutherland).

Botanical and ecological characteristics (for plant summaries)—Here you will find general botanical characteristics, Raunkiaer life form, regeneration processes, site characteristics, successional status, and seasonal development (phenology) information.

Biological data and habitat requirements (for animal summaries)—This section contains timing of major life history events, preferred habitat, cover requirements, food habits, predator information, and management considerations.

Fire ecology (for plant summaries)—Fire ecology or adaptations, including information about fire regimes, fire histories, postfire regeneration strategies, and a list of ways plants can regenerate after fire are contained in this section.

Fire effects—This section contains discussions and qualifications of (a) fire effects information about plants, including first order fire effects, second order or indirect responses to fire, fire management considerations including information for estimating fuel loadings, and (b) fire effects information about animals, including second order or indirect habitat related fire effects, prescribed fire, and fire for other resource objectives.

Fire case studies (for plant summaries)—Summaries of one or more research projects that tell a story about fire effects on the plant are listed here, including information about preburn conditions, burn conditions, fire behavior, and plant responses to fire.

Management considerations (for plant summaries)—This section contains information about the plant's value to livestock and wildlife, for rehabilitation of disturbed sites, and for medicinal and commercial uses. If the plant is invasive, this section also contains information on its impact and control.

References—Here you will find complete citations for all reports cited in the species summary, allowing you to access detailed information from the original studies.

Where Can You Access FEIS?

<http://www.fs.fed.us/database/feis/index.html>

For information about adding a species to FEIS, contact Jane Kapler Smith at phone (406) 329-4805 or e-mail jsmith09@fs.fed.us



Heart-leaf arnica (*Arnica cordifolia*) 2 years after fire (photo credit: Steve Sutherland).

Environmental Consequences Fact Sheets

Look for fact sheet topics from the Environmental Consequences Team including information about the effects of fire behavior and alternative treatment strategies, Wildlife Response Model, weed responses, riparian systems, soil erosion, restoration objectives, treated spaces, the Fire Effects Information System (FEIS), and the First Order Fire Effects Model (FOFEM).

Fuels Planning: Synthesis and Integration

This fact sheet is one in a series being produced as part of a larger project supported by the USDA Forest Service to synthesize new knowledge and information relevant to fire and fuels management. Fact sheets address topics related to stand structure, environmental impacts, economics, and human responses to these factors. Information in the fact sheets is targeted for the dry forests of the Inland West, but is often applicable across broad regions of the country. For more information, please visit our Web site at: www.fs.fed.us/fire/tech_transfer/synthesis/synthesis_index

The Fuels Planning fact sheets are based on preliminary findings. Information from fact sheets will be synthesized in an upcoming publication.