

# NONNATIVE INVASIVE PLANTS AND FIRE: LITERATURE REVIEWS AND KNOWLEDGE GAPS

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## ABSTRACT

The Fire Effects Information System (FEIS) provides reviews of the scientific literature regarding basic biology and fire ecology of nearly 1,000 plant and animal species. Managers use FEIS in planning for post-fire rehabilitation, use of fire in ecosystem maintenance and restoration, and other management. Scientists and members of the public also use the system. Reviews of 60 nonnative invasive plant species have recently been revised in or added to FEIS (<http://www.fs.fed.us/database/feis/plants/weed/weedpage.html>). Most of these species occur in grassland or shrubland ecosystems. As reviews were written, gaps in science-based knowledge about the relationships between fire and these 60 nonnative invasive species were systematically identified. Fewer than half of the species studied had information on heat tolerance, post-fire establishment, effects of varying fire regimes (severities, seasons, and intervals between burns), or long-term effects of fire. Information was generally available, although sometimes incomplete, on biological and ecological characteristics relating to fire. Most information about species distribution used too coarse a scale or nonsystematic observations, rendering it of little help in assessing invasiveness and susceptibility of ecosystems to invasion, especially in regard to fire. Quantitative information on nonnative plants' impacts on native plant communities and long-term effects on ecosystems was sparse. Researchers can improve the knowledge available to managers by applying rigorous scientific methods and reporting the scope of the research, in both scientific papers and literature reviews. Managers can use this knowledge most effectively by applying scientific findings with caution appropriate to the scope of the research, monitoring treatment results over the long term, and adapting management techniques according to what is learned.

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