



Research Brief for Resource Managers

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A Decision Framework for Fire as a Restoration Tool

Pyke, D.A., M.L. Brooks, and C. D'Antonio. 2011. Fire as a restoration tool: a decision framework for predicting the control or enhancement of plants using fire. *Restoration Ecology* 18:274-284.

<http://www.srmjournals.org/doi/abs/10.2111/REM-D-09-00165.1>

Fires change plant communities by reducing dominance of some species while enhancing the abundance of others. This journal article provides a decision framework that integrates fire regime components, plant growth form, and survival attributes to predict how plants will respond to fires and how fires can be prescribed to enhance the likelihood of obtaining desired plant responses.

The decision framework is comprised of four steps to determine whether fire will be a useful tool to either reduce or enhance a plant species. First, the plant's life form is determined. Second, determinations of whether the plant's perennating buds are protected from the fire are made. Third, seed persistence or ease of seed dispersal is determined. Finally, fire regimes are described that can either enhance or reduce the plant species' abundance based upon its life form and plant establishment or survival characteristics.

Using this decision framework may aid in prescribing appropriate fire conditions for desired results and may aid in determining whether rehabilitation after wildfires might be necessary to maintain desired plant communities. The framework also suggests situations where

Management Implications

- This decision framework can be used in the development of control strategies for invasive plant species.
- The framework can also be used to predict the effects of prescribed fires on native plant species of conservation concern.
- The framework is primarily informative of the immediate effects of fire on the probability of plant survival and is not specifically designed to infer longer term plant community trajectories.

fire alone may not achieve desired restoration results, and alternative or follow-up procedures may be required.



Fire being used to manage the non-native invasive, saltcedar (*Taramix* spp.) in central Nevada. Photo by M. Brooks