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Regional strategies for restoring invaded prairies

Observations from a multisite, collaborative research project

| Amanda G Stanley, Thomas N Kaye, and Peter W Dunwiddie

ABSTRACT

Invasive plants, especially nonnative perennial grasses, pose one of the most critical threats to protected prairies and oak woodlands in the Pacific Northwest. Our current knowledge regarding the effectiveness of weed control methods, especially in sites that retain a significant component of native vegetation, is largely anecdotal or based on results from a few site-specific studies. The Nature Conservancy jointly with the Institute for Applied Ecology and its partners have initiated a large-scale, long-term, interdisciplinary, and collaborative project to: 1) evaluate and improve strategies for controlling the abundance of invasive nonnative herbaceous weeds while maintaining or enhancing the abundance and diversity of native plant species; and 2) develop an approach to generalize results so they can be applied by land managers engaged in prairie stewardship throughout the region. This project combines simultaneous small-scale replicated experiments with large-scale unreplicated experiments at 11 sites in Washington, Oregon, and British Columbia. Experimental treatments, begun in 2005, include combinations of spring and fall mowing, burning, a grass-specific herbicide (sethoxydim), a broad-spectrum herbicide (glyphosate), and seeding of native species. Our preliminary observations show sethoxydim applications effectively reduce exotic perennial grasses. Combining sethoxydim with other treatments had added benefits: fall burning reduced thatch and moss cover, glyphosate application 1 to 2 wk after burning reduced broadleaf weeds, and seed addition increased native diversity.

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KEY WORDS

grassland restoration, prairie, herbicide, restoration methods, seed addition, native diversity, invasive species

NOMENCLATURE

USDA NRCS (2008)