

Fire and Invasive Plants Special Feature

Wildfire and Invasive Plants in American Deserts: A Special Feature

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Wildfires and invasive plants interact to produce dramatic impacts on western rangelands and are changing how we use and manage these landscapes. Over the last decade the nation has averaged 77 951 fires yr⁻¹ and over 2.7 M ha has burned annually (NIFC 2011). These fires resulted in the death of more than 18 people and the loss of over 3 000 structures. In 2002, fires burned 2.9 M ha and firefighting cost exceeded \$1.6 billion with \$100s of millions more spent on revegetation efforts and emergency watershed stabilization to prevent catastrophic flooding and permanent loss of ecosystem services across the Nation (Miller and Narayanan 2008). In 2005, over 205 000 ha burned in the southern Nevada complex fire and in 2007 over 400 000 ha burned in the Murphy Complex fire in Southern Idaho and the Milford Flat fire in Central Utah (NIFC 2011).

One of the greatest threats to ecosystems of the Great Basin is the invasion of cheatgrass (*Bromus tectorum* L.). Cheatgrass is the most dominant weed species in the Intermountain West, infesting more than 40 M ha, more than 10 M ha in the Great Basin alone. Cheatgrass invasion has modified big sagebrush sites throughout the Great Basin by providing a fine-textured, early-maturing fuel that increases the chance of ignition, as well as the frequency and season of wildfires. Adverse impacts include increased fire risk, reduced biodiversity and forage for livestock and wildlife, degraded water quality, reduced recreational and aesthetic values, and significant economic losses. Historically, wildfire frequency was estimated at 60–100 yr in the sagebrush/bunchgrass vegetation type (Whisenant 1990), 30–70 yr in pinyon/juniper types (Wright 1980), and virtually absent from the salt desert shrub type and Mojave deserts (due to lack of fine fuels; Billings 1994). Fire intervals have decreased to as little as 5 yr in all of these vegetation types since the invasion of cheatgrass, red brome (*Bromus rubens* L.), and other invasive plants (Whisenant 1990).

The Society for Range Management (SRM) and 26 partners hosted a special conference in Reno, Nevada in December of 2008 in response to the need to provide information for the management of native rangelands in the face of challenges posed by the interactions of invasive plants and wildfire. SRM hosted the Wildfires and Invasive Plants in American Deserts Conference through its Center for Professional Education and Development (CPED), and over 300 people representing 17 states and over 70 different universities, state and federal agencies, tribal agencies, agricultural producers, and private

companies participated in this unique event. The purpose of the conference was to explore the interactions between invasive plants, native plants, and wildfire intensity and frequency across the Intermountain west. The conference focused on the Colorado Plateau and the Chihuahuan, Great Basin, Mojave, and Sonoran deserts of North America. The conference was designed to engage both the scientific community and the land managers and producers who must address this issue on a daily basis.

A primary goal of the conference was to provide for the exchange of knowledge between the scientific community, land managers, and other stakeholders and synthesize what is known about the impacts associated with the interactions between invasive plants and wildfire so that land managers will have state-of-the-art knowledge to address this critical issue. Six papers from the interactive workshops conducted during the conference were published in the June 2009 issue of *Rangelands* (31[3]: 2–35). These papers discussed science, management and policy recommendations, and training and outreach coordination strategies essential to communicate the impact that wildfire and invasive plants were having on western rangelands to policy makers. The papers in this special feature provide a detailed synthesis of the scientific literature of what is known about the impacts of wildfire and invasive plants on Intermountain rangelands. It is timely that the SRM now publishes these five synthesis publications on what is known about the adverse impacts of wildfires and invasive plants while hundreds of thousands of hectares are burning across the southwestern United States. We hope that this special feature will provide the knowledge necessary to more effectively assess current impacts from wildfire and invasive plants and contribute to management strategies that minimize pending future impacts.

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