



# SRM Center for Professional Education and Development: Wildfires and Invasive Plants in American Deserts

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The SRM recently created the Center for Professional Education and Development (CPED) to coordinate continuing education activities. To date, most of the activities conducted have been SRM-sponsored workshops and conferences or partnerships in activities organized by others. In December 2008, the SRM conducted the Wildfires and Invasive Plants in American Deserts conference and workshops in Reno, Nevada, in partnership with 26 other organizations (see sidebar). Participants who benefited from this 2.5-day event included 309 registrants representing 17 states and 77 different universities, federal and state agencies, tribal agencies, private landowners, and companies.

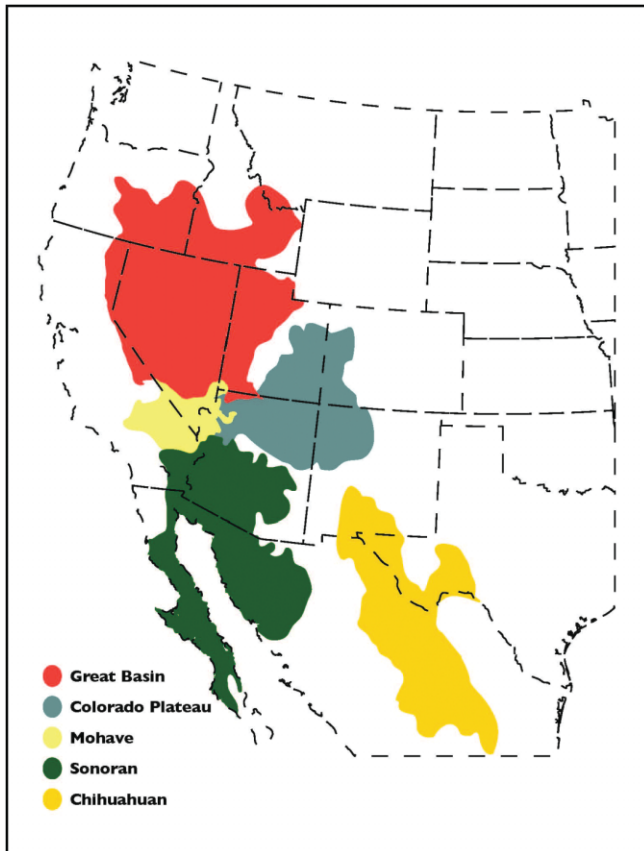
Our speakers, moderators, and synthesizers consisted of close to 50 individuals representing dedicated scientists, managers, and concerned citizens who provided high-quality, thought-provoking presentations. We also enjoyed 31 poster presentations representing successful on-the-ground efforts dealing with these critical issues.

The purpose of the conference was to explore the interactions among exotic invasive plants, native plants, and changing wildfire regimes on the Colorado Plateau and in the Sonoran, Chihuahuan, Mojave, and Great Basin deserts of North America (Fig. 1). The primary goal of this program was to further develop practical frameworks for managing invasive plants and wildfires. To do that, we intended to find out what scientists have learned and what needs further study, what managers in the different desert regions have tried, what on-the-ground management has worked and

what hasn't, and what needs and solutions could be identified for effective management. The timing of the program was intended to help heighten the awareness, under a new administration, of these critical issues that can have major impacts on socioeconomic aspects of American society.

Synthesis papers from the first-day plenary session speakers will be submitted to *Rangeland Ecology and Management*. These plenary proceedings will synthesize the state of our knowledge on the interactions between wildfire and invasive species, and their role in altering fires regimes and plant community dynamics in North American deserts. Additional information is available online at <http://rangelands.org/deserts>.

The series of papers presented here are a synthesis of the presentations and audience input from the five workshops. The primary goal of the workshops was to facilitate communication and information-sharing across desert, regional, and state boundaries and to further develop practical frameworks for managing exotic invasive plants and wildfires. The workshops were structured to identify funding sources, science needs, and implementation strategies that could be distributed to policy makers and managers. The objectives for the workshops were to develop action plans derived from peer-reviewed synthesis papers from the plenary session and workshop-derived information. Each action plan or synthesis paper will be based upon the most current science and the experience of land managers throughout the West, and is intended to identify both gaps in knowledge and effective management strategies to curb the advance of invasive species and the expansion of wildfires that they fuel.



**Figure 1.** Approximate locations of the five desert regions addressed in the conference.

In the following five papers, we have asked different groups to synthesize material from each workshop. The synthesizers had access to the presentations and feedback from the audience in preparing their papers. Specific workshops were 1) hot-desert fire and invasive species management: resources, strategies, tactics, and response; 2) cold-desert fire and invasive species management: resources, strategies, tactics, and response; 3) effective invasive plant management; 4) fuels management at the landscape scale; and 5) wildfire rehabilitation and restoration: triage in the pursuit of resilience.

### Hot-Desert Fire and Invasive Species Management: Resources, Strategies, Tactics, and Response

This workshop focused on the Chihuahuan, Mojave, and Sonoran Deserts. Karen Prentice presented the exotic annual brome grasses (*Bromus* spp.)-fueled Southern Nevada Fire Complex in the previously nonflammable Mojave Desert. Sandee Dingman emphasized the need for a comprehensive fire management plan. Julio Betancourt clarified the unique and difficult challenges presented by the perennial buffelgrass (*Pennisetum ciliare* [L.] Link) and the opportunity for engaging civic leaders to combat this threat

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to the economic foundation for Tucson and the Southwest. Travis Bean provided strategic focus on the need for quality map-based inventory for immediate action and long-term follow-through. The audience responded that the most critical issues are the need for multimedia education and outreach for policy and management emphasizing rehabilitation, monitoring, and fuels, with coordination, collaboration, funding, and research.

### Cold-Desert Fire and Invasive Species Management: Resources, Strategies, Tactics, and Response

The cold-desert workshop addressed the Great Basin and the Colorado Plateau, emphasizing sagebrush taxa (*Artemisia* spp.) that do not resprout after fire. John Sullivan illustrated the challenge of cheatgrass-fueled wildfire and importance of healthy sagebrush ecosystems to wildlife at the Snake River Birds of Prey National Conservation Area. Roger Sheley focused on the underlying causes of weed invasions. Steve Bunting and Rick Miller described how the lack of fire allows woody shrubs and pinyon pine (*Pinus* spp.)

and/or juniper (*Juniperus* spp.) trees to weaken understory perennials before very hot fire opens space for cheatgrass (*Bromus tectorum* L.) fire cycles. They also described how this varies across landscapes, creating imperatives for strategic management. The audience echoed their strong concern about altered fire regimes, flammable annuals, and the need for public education.

### Effective Invasive Plants Management

The effective management of invasive plants is fraught with impediments leading to ecosystem degradation and biodiversity, habitat, and economic losses. Travis Bean grounded the audience on the ecological foundations for buffelgrass management. Gordon Brown advocated a governmental strategy of “do no harm,” avoiding actions that disseminate invasive plants and facilitate their spread. John Randall emphasized strategic spatially explicit prioritization through triage, and Barron Orr presented the geospatial tools to do this in a manner that engages the public. The audience also stressed the need to involve all the neighbors for aggressive and sustained management.

### Fuels Management at the Landscape Scale

At the landscape scale, fuels management combats fire proactively. Jason Davison reported that burn severity contrasts were most linked to vegetation (fuel load) within the Murphy Complex fire that occurred in southeastern Idaho. Ronald Clementson described the work of the Mojave Desert Initiative to address wildfire and invasive species issues. Robin Tausch defined 60–70% relative pinyon–juniper canopy cover as the threshold for lost resilience. Jesse Juen presented the collaborative work of Restore New Mexico treating close to a million acres. The audience supported using all available tools, including livestock, and collaborative planning to incorporate multiple benefits.

### Wildfire Rehabilitation and Restoration: Triage in the Pursuit of Resilience

Presenters at the rehabilitation and restoration workshop described post-fire reseeding programs for which considerable knowledge is brought to difficult challenges.

Mike Zielinski used a quarter century of well-monitored rehabilitation to describe variation among ecological sites and methods. Mike Pellant also emphasized monitoring as the foundation for scaling up to the Great Basin landscape. Bruce Roundy focused attention on the more essential and difficult restoration needs of Wyoming big sagebrush (*Artemisia tridentata* subsp. *wyomingensis*) and salt desert shrub rangelands. David Repass spoke to the need for national plans with priorities for times of wildfire crisis. Audience emphasis on science for successful plant materials to suppress invasives and manage fuels embraced green strips, assisted migration, and many other tools.

### Post-Conference

Following the conference, an online evaluation form was developed. Eighty-three participants filled out the survey. The vast majority of attendees felt that the conference content was appropriate and informative. Ninety-three percent felt that they learned new information at the conference, but only 48% felt they would change the way they address wildfires and invasive plants in their work and 33% were not sure or did not know. When asked if they would encourage coworkers and others to attend a local workshop, 91% said yes. Responses are sorted by type of employment and work focus (Table 1). Although the respondents are heavily weighted to federal agency employees, a wide variety of work areas is represented.

Many who attended American Deserts consider this conference to be just the beginning of further professional development opportunities. Preliminary discussions have suggested the development of extension-related and/or SRM section-related regional take-it-to-the-field workshops (under the auspices of CPED) to further explore implementation strategies with a focus on individual deserts and their needs. The vast majority of survey respondents (91%) said they would encourage coworkers and others to attend a local workshop.

Filmmaker Mark Betancourt conducted interviews at the American Deserts conference as a preliminary basis for a short video about invasive plants and wildfire. He produced

**Table 1. Distribution of attendees responding to the post-conference survey. Respondents were allowed to select more than one work area**

Work area	Employer				
	Federal agency	State, tribal, or local agency	University	Private industry	Other
Wildfires	20	0	2	1	3
Invasive plants	21	0	4	1	5
Management of public lands	32	2	1	2	3
Management of private lands	3	0	1	1	1
Other	15	0	6	2	2
Respondents	55	2	10	4	8

a 10-minute “call to action” video earlier this year about buffelgrass in the Sonoran desert and is now looking to make a similar piece with broader scope on all American deserts and the invasive plants that threaten them. Mark was able to capture illuminating comments from many of the scientists and managers attending the conference as well as from other community members with stakes in the organized protection against mounting impacts of wildfires and invasive plants. These interviews will really help to illustrate how important these issues are and how these problems affect large-scale areas extending beyond local communities. More information regarding the further development and production of this video will be forthcoming.

Lastly, we are extremely indebted to many people who contributed to the success of this program. Planning for this conference started in the late spring of 2008. Over 50 individuals initially contributed to the topics and organization of the conference. Sponsors, speakers, moderators, and synthesizers all agreed to participate and/or support the program at very short notice. A final special thank you

to the American Deserts Executive Program Committee ([http://rangelands.org/deserts/American\\_Deserts\\_Exec\\_Committee.shtml](http://rangelands.org/deserts/American_Deserts_Exec_Committee.shtml)), whose dedication and support withstood the test of time and enabled the development and delivery of an outstanding program in only a very few short months. They are to be congratulated!!

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The Vizcaino subdivision of the Sonoran Desert is on the Pacific side of the Baja California peninsula. Though rainfall is very low, cool, humid sea breezes with frequent fog ameliorate the aridity. This subdivision contains some of the most bizarre plants and eerily beautiful landscapes in the world. Photo taken in March 1998; © 1998 Mark Dimmitt/ASDM Sonoran Desert Digital Library.