Joint Fire Science Program
Fire Science First Look
RESEARCH SUPPORTING SOUND DECISIONS

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Re-vegetating burned arid lands
Identifying successful native species using trait and competition analysis

This is a quick overview summary of the recently completed JFSP research project, 07-1-3-24. This study presents important information on plants that have a potential to compete with cheatgrass after fire in arid lands especially in the Mojave. This summarization was written by Dr. Molly Hunter.

Project objectives

- Identify which native species can be reliably established after fire in the Mojave desert
- Identify which native species can most effectively compete with exotic annual grasses in post-fire environments

Notes/interesting findings

Certain species, particularly early successional forbs, are better able to compete with exotic annual grasses. These types of species also performed well as transplants in recently burned areas. This suggests that certain species would be more appropriate for post-fire seeding or transplant efforts.

Specific Findings

- There is great potential that native species and communities exist in the Mojave Desert that can reduce the establishment of exotic annual grasses.

- A native, early successional forb community reduced biomass (fuel) of the exotic grasses Bromus rubens and Schismus by 8- (nitrogen added to the soil) to 33-fold (no nitrogen).

- The native forb Sphaeralcea ambigua (desert globemallow) performed best overall for reducing exotic grasses and being able to become established on desert burns (see table following).

Survival data among plants and treatment levels for the outplanting study near Goodsprings, NV. Numbers represent the numbers of plants (40 for each species and 100 for each treatment) with survival percentages at the bottom and far right.

Treatment	SPAM	ERFA	LATR	AMDU	ENFA	MUPO	PEBI	SPAI	%
none	5	2	0	2	0	0	0	0	9
shelter	6	2	2	4	0	0	0	0	14
water	8	6	4	1	2	0	0	0	21
water + shelter	7	7	6	4	0	2	1	1	28
Total	26	17	12	11	2	2	1	1	
Percent survival	65%	43%	30%	28%	5%	5%	3%	3%	

Ambrosia dumosa (AMDU), *Eriogonum fasciculatum* (ERFA), *Larrea tridentata* (LATR), *Encelia farinosa* (ENFA), *Muhlenbergia porteri* (MUPO), *Sporobolus airoides* (SPAI), *Penstemon bicolor* (PEBI), *Sphaeralcea ambigua* (SPAM)

Suggested future work

- Information is needed on factors that determine success or failure of seeding in arid lands. This may include factors such as timing and amount of seed used.

- Studies that take a long-term perspective on post-fire revegetation of arid lands are needed.

Visit Scott's website
http://www.unlv.edu/staff/cengel/JFS.htm

How to access this project's deliverables on the JFSP website http://www.firescience.gov/
In the upper left corner of the JFSP website click on the button **Project Search**
On the next page at the bottom you will see **Search by Project ID**
Select **07-1-3-24** from the provided pull-down list and you will see the original proposal and as you scroll down will find the deliverables associated with the project.

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