

We are unable to supply this entire article because the publisher requires payment of a copyright fee. You may be able to obtain a copy from your local library, or from various commercial document delivery services.

From Forest Nursery Notes, Summer 2009

**44. © Using a diverse seed mix to establish native plants on a Sonoran Desert burn.**

Abella, S. R., Gunn, J. L., Daniels, M. L., and Springer, J. D. Native Plants Journal

10(1):21-31. 2009.

## Using a diverse seed mix to establish native plants on a Sonoran Desert burn

Scott R Abella, John L Gunn, Mark L Daniels, Judith D Springer, and Susan E Nyoka

### ABSTRACT

Revegetating burns is a major challenge facing resource managers in the low- and unpredictable-precipitation deserts of the southwestern US. We monitored the effectiveness of using a diverse, 28-species seed mix for establishing native plants on a 1.5-ha (3.7-ac) burn in the northern Sonoran Desert. Our objective was to compare species performances, which we assessed by measuring species frequencies and cover on 5 sampling dates to capture variation during a 32-mo period following seeding. By 15 mo after seeding, desert senna (*Senna covesii* (Gray) Irwin & Barneby [Fabaceae]) established best, with a frequency of 91% (based on 22, 10-m<sup>2</sup> plots) and a relative cover of 19%. Four other seeded species also became established in  $\geq 50\%$  of plots by 32 mo after seeding. Several seeded species, including desert senna (which flowered only 7 wk after seeding) and purple threeawn (*Aristida purpurea* Nutt. [Poaceae]), were observed with seed heads during one or more sampling periods. Although precipitation was only 67% of normal for 21 mo following seeding and 71% of species established in  $< 10\%$  of plots, we consider the seeding to have met short-term management objectives because of the subset of highly successful species. Our results also illustrate the caution that should be used when evaluating seeding success: conclusions would have differed if the diversity of the seed mix had not included the successful species, and longer term monitoring was needed to detect some species in the seed mix that did not establish until 32 mo after seeding.

Abella SR, Gunn JL, Daniels ML, Springer JD, Nyoka SE. 2009. Using a diverse seed mix to establish native plants on a Sonoran Desert burn. *Native Plants Journal* 10(1):21–31.

### KEY WORDS

fire, revegetation, seeding, species selection, mulch, *Senna covesii*

### NOMENCLATURE

USDA NRCS (2007)

Revegetating burned areas is a formidable challenge facing resource managers in arid lands of the southwestern US. Southwestern deserts, such as the Sonoran, are not generally thought to have a history of frequent burns. Multiple ignition sources combined with increased fuel loads (often resulting from invasion of exotic annual grasses and increased density of non-palatable shrubs), however, have increased frequencies, sizes, and severities of wildfires (Schmid and Rogers 1988). Many long-lived native species in these deserts are not considered fire adapted (Brown and Minnich 1986). Natural revegetation of desert burns by native species may be slow or dominated by exotic annual grasses that perpetuate a frequent-fire regime (Cave and Patten 1984). For example, Guo (2004) found that species richness of native perennial plants continued to increase up to 60 y following protection from disturbance in the Sonoran Desert. This implies a long recovery time for these native perennial communities. In