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44. © Outplanting but not seeding establishes native desert perennials. Abella, S. R., Craig, D. J., and Suazo, A. A. Native Plants Journal 13(2):81-89. 2012.

Outplanting but not seeding establishes native desert perennials

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ABSTRACT

Developing reliable techniques for revegetating disturbed arid lands is challenging. Few studies have directly compared effectiveness of the 2 main revegetation techniques—seeding and outplanting—and the relationship to various treatments intended to enhance plant establishment. We compared seeding and planting and evaluated granivory protection, irrigation, and shelter treatments with a range of native perennial species monitored for 3 y on a wildfire site in the Mojave Desert of southern Nevada. Contrasted with previous studies in the Mojave Desert, seeding failed to establish new plants, despite protecting seeds from small mammal granivory, irrigating, and using seeds known to be viable during a study period that included a mix of moist and dry years. Outplanting, however, resulted in third-year survival $\geq 22\%$ for 4 of 10 species. The best-performing species and their survival included desert globemallow (*Sphaeralcea ambigua* A. Gray [Malvaceae]; 55%), Eastern Mojave buckwheat (*Eriogonum fasciculatum* Benth. [Polygonaceae]; 28%), white bursage (*Ambrosia dumosa* (A. Gray) Payne [Asteraceae]; 23%), and creosote bush (*Larrea tridentata* (DC.) Coville [Zygophyllaceae]; 23%). Adding either water or shelter approximately doubled survival. Surviving the first year appeared critical to success, as outplants healthy at year 1 remained alive at year 3. Although outplanting is often considered inferior for introducing propagules to larger areas in comparison with seeding, a finding that 86% of *Sphaeralcea* and 73% of *Eriogonum* survivors were flowering suggests that potential seed production by the outplants should not be dismissed. Results suggest that outplanting native perennials can revegetate desert disturbances, especially if early survival can be increased.

Abella SR, Craig DJ, Suazo AA. 2012. Outplanting but not seeding establishes native desert perennials. *Native Plants Journal* 13(2):81–89.

CONVERSIONS

1 ha = 2.47 ac
1 km = 0.6 mi
1 m = 3.3 ft
1 cm = 0.4 in
1 l = 0.26 gal

KEY WORDS

container stock, disturbance, fire, Mojave, recovery, restoration, revegetation, species selection

NOMENCLATURE

Plants: USDA NRCS (2012)
Insects: ITIS (2012)