

## **Emergence and Establishment of Restoration Seed Sources for Roadside Plantings**

*Anthony D. Falk, Keith A. Pawelek, Forrest S. Smith, Dennis K. Markwardt, Colin S. Shackelford, Mia A. McCraw, James P. Muir, Louis A. Harveson, and Chase Murphy*

Seedings conducted by the Texas Department of Transportation (TxDOT) are usually carried out in harsh conditions due to the nature of highway construction. Additive to these harsh conditions is the requirement that projects be reseeded immediately following job completion, regardless of rainfall potential, time of the year, or current conditions. Furthermore, historically very few regionally adapted native seeds were available for TxDOT's use in much of Texas. In an effort to identify the best available native seed materials to meet TxDOT's needs, we planted replicated plots of 60 native seed varieties and compared their field emergence and establishment at 6 sites across South, West, and Central Texas.

- No species tested met emergence and establishment criteria at all 6 sites, demonstrating the need for locally adapted native seed, and different seed mixes for each region.
- At 1 of the tests sites (Imperial, TX-Trans Pecos Ecoregion) none of the native species planted meet emergence and establishment needs of TxDOT.
- At 5 of the 6 test sites, a range of 5 to 9 native species met emergence and cover requirements for TxDOT, indicating that in many areas of South and Central Texas, there are at least some commercially available native seeds suitable for TxDOT's needs.
- Species that germinated and formed suitable stands ( $>1$  plant/ft<sup>2</sup>) persisted for all 3 years of the study, despite exceptional drought at all locations; this finding supports the hypothesis that initial establishment ability of many seed sources is a significant limiting factor to successful native seeding projects.

*Cooperative funding provided for the Texas Department of Transportation*