

Ecological Restoration Brief

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Seeds for Restoration

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In restoration projects, seeds are seeds right? Wrong. A seed is not a seed, is not seed, when it comes to success in restoration projects. As a restoration ecologist that has had more than his share of failures, I have learned the hard way about what does and does not work when restoration projects require reseeding with herbaceous plants.

All restoration projects are different. The variability in climate, soils, preexisting vegetation, past land use, etc. make it nearly impossible to implement blanket recommendations across all sites.

However, there are a few steps you can take when seeding, no matter the project, that will help you become more successful in your restoration plantings. Below, I list 3 important tips to maximize your chances for success.

1. Plant native plants only. This point may come as a “duh” to many of you. However, the importance of using plants that are non invasive and provide benefit to wild creatures cannot be over stated. Literally thousands of non-native, invasive plant species have been planted on restoration projects with the intention of slowing erosion, increasing water infiltration into soil, and providing forage for wildlife and livestock among others. But, the ecological value of such non-native plants can be quickly outweighed with negative consequences if they escape areas where planted and invade invaluable native plant communities. This recommendation does not include non-native, non-invasive crops such as cereal rye and some millet species as these species can provide valuable cover until more suitable, long-term native seed mixes can be planted. Just be sure to do your homework before planting non-native cover crops.



Little Bluestem

2. Use the correct ecotype of native species for your project. An ecotype is a distinct form or race of a species that occupies a particular habitat. Along the same lines of using native species, it cannot be stressed enough that the restoration ecologist must use the correct ecotype of the native plant desired. Take for example the extremely popular native grass,

little bluestem (*Schizachyrium scoparium*). Little bluestem occupies natural grasslands extending from about the continental divide to the Atlantic coast and from Canada to Mexico. This native grass is also readily available from numerous seed sources across the country. However, although little bluestem (or other native plant species for that matter) may be native to the site to be restored, there may not be a native ecotype of this species available on the seed market. It is important when purchasing seed to ask for the collection site from which a particular variety originated. This is most easily done by purchasing certified seed. When planting within the Edwards Plateau for example, be sure to plant natives from which the seed source originated from that ecoregion. To demonstrate this point, in a field trial recently conducted by the South Texas Natives Program, multiple ecotypes of plants native to south and central Texas were planted and evaluated in several different sites. To no ones surprise, native plants with ecotypes originating closer to their origins did best. Foreign ecotypes of plants native to south and central Texas performed poorly or did not establish at all. Plants from different regions have different growth and reproductive schedules in addition to different soil and microclimatic adaptations. To sum it up, a little bluestem seed source from Kansas will not perform well when planted in the Edwards Plateau compared to seed from little bluestem native to the Edwards Plateau.



Native Seed Mix

3. Use the most diverse seed mix possible. The only thing constant in restoration plantings is variation. Between soils, climate, previous land use, etc, the restoration ecologist likely will never see the exact same conditions between plantings within their lifetime. Therefore, it is extremely important to create a seed mix that hedges for the unknown. Be sure to include a diverse mix of early and late successional plants in addition to a variety of grasses and forbs. Each plant species has a specific set of conditions in which it performs best and it is impossible to accurately predict what circumstances Mother

Nature has in store for the future. In addition, variable soil structure and nutrients and microtopographical variation can have a profound impact on the establishment of species across the planted area. For example, on our numerous experimental plantings across south Texas using the same mixes, we have had various species do better than others on every site. In addition, certain plant species inevitably do best within their own particular niches. Texas grama (*Bouteloua rigidisetata*) tends to do best in slightly nutrient poor patches than four-flower trichloris (*Trichloris pluriflora*) which tends to do best in more nutrient rich patches across the restoration interface. Planting multi-species blends ensures most niches will be filled by vegetation when the restoration is said and done.

Above, I have listed 3 standard tips that can help maximize restoration success for ecological function and integrity. I wish you success in your future plantings.

For further restoration tips and assistance, Eric Grahmann can be reached at eric.grahmann@tamuk.edu or 361-522-9868.

The Society for Ecological Restoration, Texas Chapter promotes ecological restoration as a means of sustaining the diversity of life on Earth and re-establishing an ecologically healthy relationship between nature and culture.

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