

Status and Challenges of Grassland Restoration in the United States

Grasslands are dynamic and diverse. They thrive in almost any soil, from former agricultural fields to wetlands, pipeline routes, vacant lots, and brownfields. Despite prolific research and discussion in the academic, public, and private spheres, there is still much we don't know about how to restore an ecologically functioning grassland ecosystem that supports many plant, animal and microbe species, decreases soil erosion, increases water quality, resists invasive plant species, and is pleasing to the eye.

In this special issue of *Ecological Restoration*, we have compiled a series of perspectives, reviews, research, and design articles to address the status, challenges, and success of grassland restoration in the United States. We start this issue with a series of perspectives from individuals in academic, private, and public organizations involved in grassland restoration. These authors cover topics spanning invasion resistance (Yurkonis), coupling habitat restoration with biofuel production (Burkhalter), native seed production (Kedzierski, Miller), and the importance of communication between scientists and practitioners to enhance restoration success (Dickens and Suding). This is followed by a series of restoration notes and articles that experimentally test the practice and theory of restoration ecology. Rayburn and Laca review the practice of strip-seeding in grassland restoration. Goldblum and colleagues,

and Nemeč and colleagues, examine the impact of different seed mixes and density on target species composition and invasion resistance in restored grasslands. Norland and colleagues show that the seeding of functionally similar forbs is successful in resisting invasion of Canada thistle. Agricultural catchments can be successfully restored to diverse plant communities without increasing unwanted species in crops (Hirsh et al.). Espeland examines the importance of soil legacy and soil conditioning in restoring California plantain populations. Taylor and colleagues demonstrate that low-cost grazing, herbicide, and seeding treatments increase native perennial grasses over exotic grasses. Finally, we feature an extensive design project by Nelson Byrd Woltz Landscape Architects that incorporates restoration and monitoring into the transformation of a former agricultural landscape.

All of these pieces further the science and practice of restoration ecology to enhance the diversity and ecological function of our much damaged grasslands. *Ecological Restoration* hopes that by communicating these findings to you, this special issue will help bridge the gap between science and practice, advancing your efforts. Thank you for reading.

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