

Restoration of Native Grasslands to Provide Monarch Habitat on the Enbridge Valley Crossing Pipeline in the South Texas Sand Sheet¹

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Abstract: Restoration of vegetation on large pipeline right-of-ways is a difficult process in the South Texas Sand Sheet, which is characterized by highly variable and seasonal rainfall, and extremely sandy topsoils. These climatic and edaphic challenges are magnified when also attempting to utilize native species in order to create nectaring habitat for monarchs and pollinators. Through a cooperative effort lead by Enbridge and King Ranch Inc., and in collaboration with South Texas Natives Project of the Caesar Kleberg Wildlife Research Institute and private landowners of Kenedy County, TX, we attempted to restore 89.5 km of the Valley Crossing Pipeline in South Texas. A seed mix comprised of 19 ecotypic, commercially available native species was drill seeded beginning late autumn 2017 through construction completion in early 2018. Following planting, drought conditions ensued until September 2018, when much of the planted right-of-way received >38 cm of rain. In October 2018, we began collecting vegetation data from the seeded right-of-way, and from directly adjacent undisturbed points. Vegetation was sampled at 1,341 m intervals along pipeline. Vegetation was sampled using a 0.25 m² frame to measure plant density, and a 100 pace, step-point transects was used to measure percent basal cover of vegetation and bare ground. Overall, in terms of revegetation a successful outcome has been achieved. We found percent basal cover and plant density to be nearly identical on and off the right-of-way, although most vegetation established on the right-of-way to date is not of the seeded native species. Establishment of monarch nectar plants and seeded native grasses has been limited, primarily because of early competition from weedy volunteer vegetation and from extensive amounts of volunteering non-native grasses, especially common Bermudagrass on the right-of-way. We hypothesize that as time since soil disturbance increases, and competition from weedy plants declines, planted species will begin to emerge. We will continue to monitor this project to provide recommendations for future restoration efforts in this region, and to determine the ability to provide monarch habitat on large pipeline rights of ways, a topic of nationwide interest.

Additional Key Words: reseeding, pollinators, revegetation

1. Oral paper presented at the 2019 National Meeting of the American Society of Mining and Reclamation, Big Sky, MT. Welcome Back to Montana: The Land of Reclamation Pioneers, June 3 - 7, 2019. Published by ASMR; 1305 Weathervane Dr., Champaign, IL 61821.
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3. Work reported here was conducted near 27° 10' 20" N; 97° 48' 5" W.