



# Native Plant and Monarch Butterfly Habitat Restoration on the Valley Crossing Pipeline

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By restoring the entire Kenedy County portion of the Valley Crossing Pipeline right-of-way with the best possible commercial native seed mix, researchers at CKWRI hope ecologically significant habitat for monarchs can result.

The Valley Crossing Pipeline is a natural gas pipeline which crosses an area known as the South Texas Sand Sheet, a diverse, undeveloped and biologically significant native grassland. Sand Sheet grassland habitats are crucial to wildlife, and they are of significant economic, cultural and conservation importance to landowners because of the large, unfragmented expanses of

native plants found there. While widely appreciated as the premier habitat for a wide array of wildlife, especially Northern Bobwhite Quail, the Sand Sheet is also of great importance to other species such as the monarch butterfly.

The Valley Crossing Pipeline right-of-way lies within a primary migratory corridor of the monarch butterfly along the Texas Gulf Coast. A significant portion of the monarch

butterfly population traverses the Sand Sheet in both spring and autumn each year to and from wintering grounds in Mexico, and breeds on native milkweeds found there in both spring and autumn. Habitat loss, disturbance and the resulting impacts on pollinator plants in those habitats are of concern for monarchs. Many experts suggest that historic loss of native nectar plants in the southern portion of the monarch's

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migration corridor is a major contributor to the overall population decline.

If not done properly, clearing of vegetation, soil disturbance and installation of pipeline infrastructure can result in the loss of native plant communities. Pipeline rights-of-way commonly serve as points of ingress of non-native plants, often because these species are used in reseeding efforts. Historically, establishment of non-native plants on pipeline rights-of-way has resulted in their spread to adjacent native habitats. Fragmentation of native plant communities, resulting in gaps between habitat resources is also of concern and detriment to some wildlife.

Many of the issues associated with pipeline rights-of-way in wildlife habitats can be minimized with prudent restoration of native plants. If appropriate native seed sources are available and planted following pipeline construction, restored habitats that are beneficial to important species such as monarch butterflies can be sustained and even be improved after pipeline installation.

As a result of the work of the *South Texas Natives* Project at the Caesar Kleberg Wildlife Research Institute (CKWRI), seeds of a wide variety of locally-adapted native plants of the Sand Sheet are available in large supplies through the commercial seed industry. These seed supplies make possible a large and contiguous seeding project in support of providing habitat for monarchs and other wildlife on the Valley Crossing Pipeline right-of-way.

Wildlife-focused landowners, each with large landholdings, own the land impacted by the Kenedy County portion of the Valley Crossing Pipeline right-of-way. These landowners support the restoration goals of this effort and have agreed to the planting of native seed mixes in reclamation of the right-of-way on their ranches. They will also allow researchers to access the right-of-way for data collection to inform future right-of-way restoration efforts.

*South Texas Natives*, Valley Crossing Pipeline, Douglass King Seed Company and landowners have worked together to design the best possible commercial native seed mix to restore native plant communities to the Valley Crossing Pipeline right-of-way in Kenedy County. An emphasis for this seed mix has been inclusion of important native



Photo by Colin Shackelford

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Photo by Forrest Smith

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pollinator plants in order to provide needed nectar sources for the monarch butterfly during their spring and autumn migration through the area.

By restoring the entire Kenedy County portion of the Valley Crossing Pipeline right-of-way with this seed mix, we hope ecologically significant habitat for monarchs can result. The resulting native grassland plant communities will simultaneously provide beneficial habitat for northern bobwhites, and provide grazing resources

for livestock production. In total, 670 contiguous acres covering 46 miles of the Valley Crossing Pipeline right-of-way will be planted with the native plant and monarch butterfly nectar-plant seed mix.

In order to document the results of this unique effort and to refine future recommendations for right-of-way restoration in South Texas and beyond, scientist and students of *South Texas Natives* and CWKRI will monitor the resulting vegetation on the right-of-way after planting



for three years. We will measure and characterize the resulting plant communities and compare them to the adjacent, undisturbed native plant communities. Doing so will provide a unique opportunity to determine the ultimate impact of right of way construction and restoration on vegetation of the Sand Sheet.

We hypothesize that restoration efforts will achieve the goal of providing a similar amount of nectar plant resources and result in habitat attributes similar to those of the surrounding native landscape. It may be possible that superior habitat for monarchs could result because of the effort to include seed of important pollinator plants in the seed mix. It is also possible that we will learn limitations for expectations of restoration of pipeline right-of-ways in this area using current methodologies, one such being the reasonable concern that invasive grasses such as guinea grass will impede successful restoration.

However, prior to this effort, no concerted effort to test these assumptions has been made, and certainly no research effort has had the opportunity to study these concepts at the scale of a county, and in this case, one of the largest counties in Texas.

Thus, there is great value in measuring the vegetation of the seeded portion of the Valley Crossing pipeline and adjacent areas of Kenedy County for two to three years, and in compiling those results for publication in scientific journals, presentations and newsletters to inform industry, landowners and other scientists.

A \$100,000 grant has been provided to CKWRI from Enbridge Inc., the parent company of Valley Crossing Pipeline, LLC, and King Ranch, Inc., a Kenedy County landowner with land in the pipeline corridor. This grant will be used to support CKWRI researchers by assisting with the design and procurement of seed mixes for the project, engaging landowners in the effort, leading educational and outreach activities related to this opportunity, and collecting, summarizing and reporting results of the seeding over the next three years. This grant will also support researchers in data collection on vegetation performance and reporting on resulting plant communities as result of the restoration effort.

The grantors and CKWRI hope this contribution will also be a catalyst to attract additional financial support for this project from landowners, foundations and

conservation organizations. If additional resources can be attracted in support of this project, or as available assistantship funding allows, CKWRI will consider implementing an M.S. project to measure long-term vegetation performance and attempt to characterize monarch butterfly and wildlife utilization of the restored corridor. These activities will not be possible until substantial establishment of vegetation occurs on the right of way, which will be heavily influenced by rainfall conditions following completion and seeding.

Our overarching goal through this project and research is to advance knowledge of pipeline right-of-way restoration and enable successful restoration of future pipeline rights-of-way proposed for the South Texas Sand Sheet and similar ecosystems in Texas and other regions. Results of this project will benefit landowners, industry and the habitats of this region and beyond for years to come. This effort is an ideal opportunity and has potential to serve as a model project of the collective ability of researchers, the pipeline industry and private landowner interests to work together toward effective natural resources conservation solutions in tandem with energy development. ☺

