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Forest to Mulch to Prairie: TNC's Experience Reclaiming the Blackland Prairie

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The Nature Conservancy's Clymer Meadow Preserve in Hunt County stretches over 1,400 acres, including more than 500 contiguous acres of remnant Blackland Prairie. The site is home to two rare grassland plant communities: the Eastern Gammagrass – Switchgrass and the Little Bluestem – Big Bluestem series'. Clymer Meadow has been used for a number of scientific studies, and current projects include investigations of bird and mammal habitat, invasive plant species, and the impact of high diversity plant communities on local hydrology. The Nature Conservancy also works on this and neighboring sites to restore areas once converted for agricultural use back to native grassland.

Without periodic disturbance, portions of the Blackland Prairie can quickly move from grassland to woodland by succession. Forested areas of Clymer Meadow are characterized by mature trees including *Ulmus*, *Maclura*, *Celtis*, *Fraxinus*, *Gleditsia*, and *Cornus*. A current project involves the mechanical removal of one of these areas to create opportunity for reclamation of underlying remnant prairie.

Mulching in progress. Photo credit: Larry Crane, TNC

In November of 2016, 8 acres of mature forest was mulched to the ground by a contractor over a five-day period. The resulting litter, exceeds 25cm in depth in many areas, and thus limits recruitment from any intact seedbank beneath. However, the mulch is very helpful in reducing loss of the easily eroded soils during high precipitation events, insulating the soil to help retain moisture near the soil surface.

Results of the first growing season were as expected. With no herbicide application immediately following the mechanical treatment, many of the woody plants have resprouted vigorously from root storage. Additionally, ruderal species, particularly *Smilax*, *Iva*, *Toxicodendron*, and *Ambrosia*, have colonized across much of the mulched areas. Understory species such as *Symphoricarpos*, *Elymus*, and *Chasmanthium* are abundant as well. To date, few individual clumps of Johnsongrass (*Sorghum*) have been located and treated, and no other exotic species have been identified present.

Regrowth variety - grasses, bare mulch and weedy species.
Photo credit: Brandon Belcher

The strong presence of early successional plant establishment indicates native propagules are present and that the mulch will support plant growth. There are no plans to remove or thin any of the mulch. Instead, the debris continues to collect sediment, and should begin to support stronger climax-type plant species in the next 3-5 years. Because the surrounding remnant prairie offers opportunity for propagules of many species, no supplemental over-seeding is planned. In September 2017, the area was shredded, and additional regrowth of woody species will be treated by herbicide (IPT) at the end of the current growing season and as needed in the future. Prescribed burning is planned for this unit during the 2017-18 winter, but it is not expected that the treatment area will carry fire.

This project has been successful at clearing a large area of trees beyond the abilities of TNC staff. Though there have been risks of damage to the delicate soil, erosion, or invasion of exotic species due to release of competition, implementation of this project has allowed for the opportunity to reclaim an area of grassland lost to succession. The Clymer Meadow Preserve staff will continue to monitor the regrowth of this area, limiting recruitment of woody species, and will treat for non-native species as necessary. With the initial success of this project, additional forested areas are under consideration for mulching in the near future.

Before mulching 8 acres of forest. Photo credit: Brandon Belcher

After mulching 8 acres of forest. Photo credit: Brandon Belcher

The Texas Society for Ecological Restoration (TXSER) connects scientists, practitioners, and policy-makers to restore Texas ecosystems and the vital services they provide.

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