



Tanglehead in Southern Texas: A Native Grass with an Invasive Behavior

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On the Ground

- Tanglehead is a native bunchgrass with a pan-tropical distribution. Historically, tanglehead was common but not abundant in southern Texas and was considered a decreaser whose presence indicated good range condition.
- Beginning in the late 1990s, the Texas Coastal Sand Plain ecoregion witnessed dramatic increases in the abundance and distribution of tanglehead: thousands of acres of former grasslands were replaced by dense monotypic stands of tanglehead, reducing habitat quality for livestock and wildlife.
- Our research has focused on understanding factors related to tanglehead's expansion, its effects on habitat quality, and management practices that can improve range condition and habitat quality.

Keywords: grazing management, habitat quality, invasive grasses, native grasses, prescribed fire, rangeland improvement.

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Tanglehead (*Heteropogon contortus*), a perennial warm-season bunchgrass with a pan-tropical distribution,¹ is mentioned in many vegetation descriptions of southern Texas from ~20 to 50 years ago,^{2,3} but also is absent in other accounts.^{4,5} Tanglehead is common on Loamy Sand and Sandy Loam Ecological Sites where soils typically are deep loamy fine sands or fine

sands. One of the few papers that provides quantitative data is Johnston's⁶ account of past and present grasslands in southern Texas and northeastern Mexico in which he indicated that tanglehead was commonly encountered but not abundant (33% frequency with trace amounts of cover) in non-grazed settings and less frequent (2%) in grazed settings. This observation of the relationship between tanglehead abundance and livestock grazing is important and is supported by a similar finding in mesquite grasslands in Arizona where tanglehead showed a "marked increase in abundance during the first years of protection from grazing."⁷

Tanglehead has increased both in abundance and distribution throughout thousands of acres in the Coastal Sand Plain ecoregion of southern Texas (Fig. 1) over the past ~30 years. Its dramatic increase in abundance has come at the expense of other native species: what once were both rich and diverse plant communities (Fig. 2) have now become dense and largely monotypic stands of tanglehead (Fig. 3). And yet tanglehead is considered a native species throughout the region of southern Texas where its populations have expanded so quickly and extensively in many areas. For example, beginning in 1999 we monitored plant species composition along 22 permanent transects established in native grasslands on a private ranch in Kleberg County, Texas. In 1999 tanglehead species composition was only 1.4% but it increased to 2.7% (2002), 8.1% (2009),⁸ and 7.7% (2016) over the ensuing 17 years. Composition of other native species decreased from 56% to 37% during the same time period. Tanglehead has taken over other kinds of plant communities as well. Data we have collected in one of our experimental pastures in Duval County, Texas, exemplify what has happened on thousands of acres throughout the Coastal Sand Plain of Texas. In a former Conservation Reserve Program pasture, the area occupied by tanglehead increased from 5.3 acres (2009) to 7.5 acres (2011) to 16.1 acres (2013)—overall, an increase of over 200%. The 114% increase between 2011 and 2013 occurred during the driest 18 months on record and

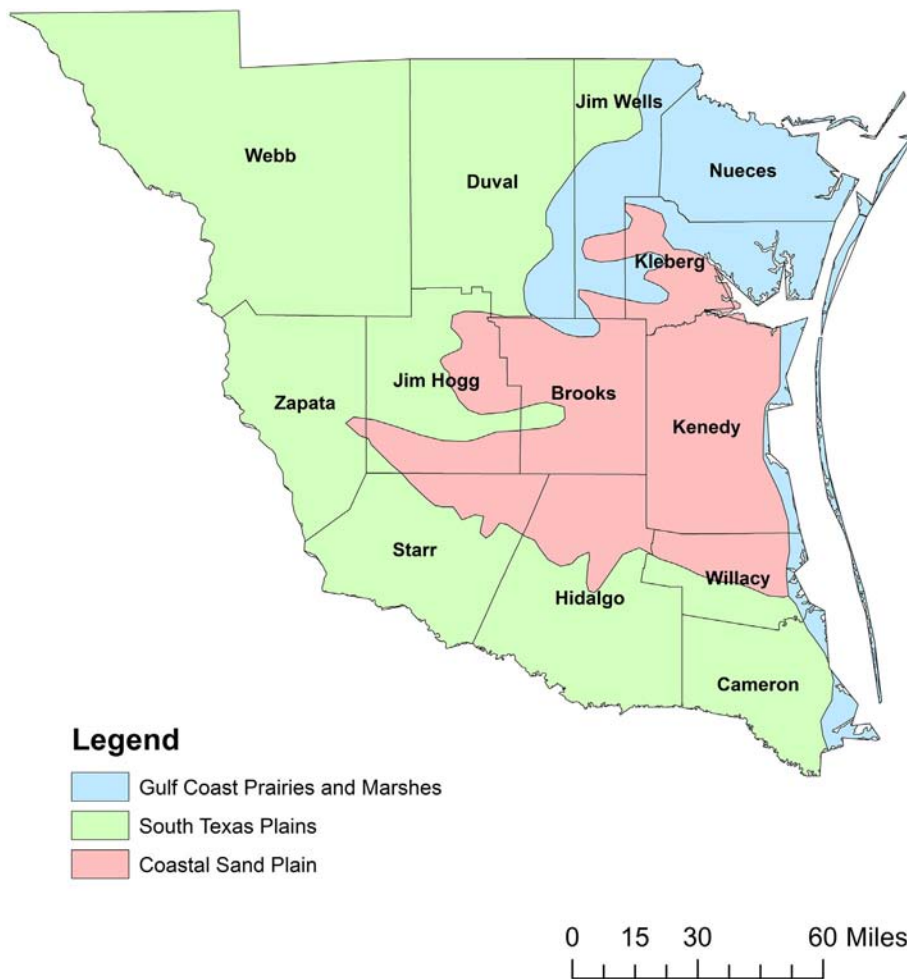


Figure 1. A map of southern Texas showing the location and size of the Coastal Sand Plain (map adapted and used with permission from Plant Resources Center, University of Texas at Austin).



Figure 2. A native plant community in the Coastal Sand Plain, Texas. Photo courtesy of Eric Grahmann.

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