Suitability of Timberlake Biological Field Station for the reintroduction of the Texas horned lizard

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Background

- Although the IUCN list the Texas horned lizard (*Phrynosoma cornutum*) as a species of least concern due to the extent of occurrence, area of occupancy, and number of subpopulations, it is currently listed as a state threatened species in Texas.
- Much of their decline is attributed to the overuse of pesticides and the spread of the highly aggressive red imported fire ant (*Solenopsis invicta*); both eradicate harvester ant colonies, destroying the lizard's primary food supply.
- Timberlake Biological Field Station (TBFS) was once home to several viable populations of *P. cornutum*; however, after many decades of cattle ranching and environmental changes, this state threatened species is no longer found on the property.

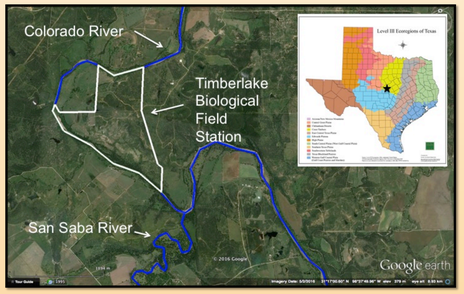

Figure 1. Location and boundaries of TBFS.

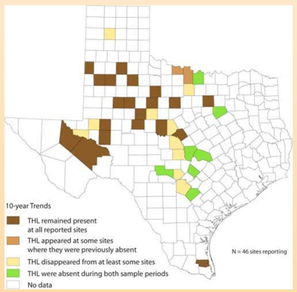

Figure 2. Distribution map.

Objectives

- The overall objective of this study was to determine whether or not TBFS currently has the necessary habitat required to support the reintroduction of Texas horned lizards.
  - Is there the right type of soil?
  - Is there the right type of vegetation?
  - Are there enough harvester ants?

Figure 3. Pictures of Texas horned lizards.

Methods

- Soil and vegetation surveys were created using ArcMaps, Google Earth Pro, Excel, TEAM, and TNRIS
- Harvester ant mounds were surveyed utilizing a 10-meter long rope to section off 10-meter wide survey sections that ran length wise across the project field.
- A Garmin GPS was used to obtain the coordinates of each mound.
- After recording latitude and longitude, numbered survey flags were placed at each location.

Results

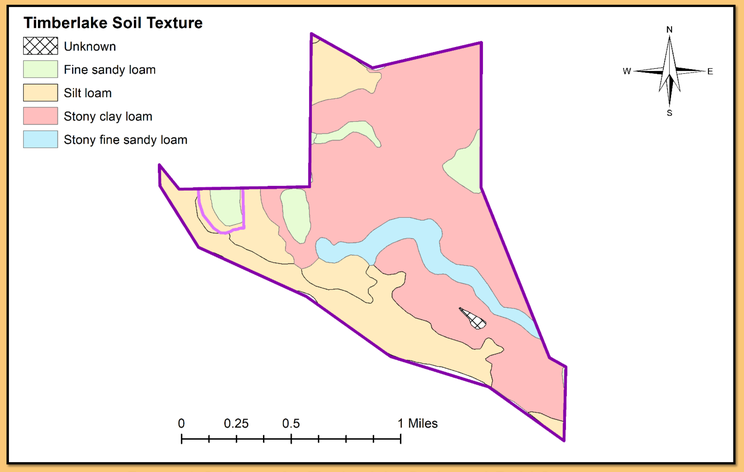

Figure 4. Soil map for Timberlake Biological Field Station

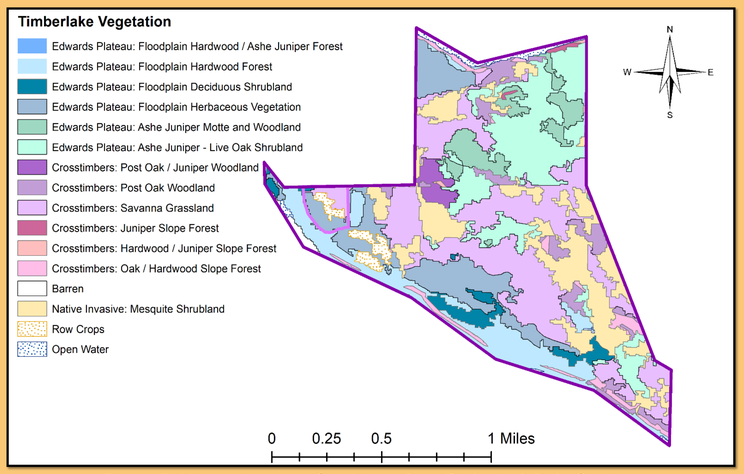

Figure 5. Vegetation map for Timberlake Biological Field Station

Results - Continued

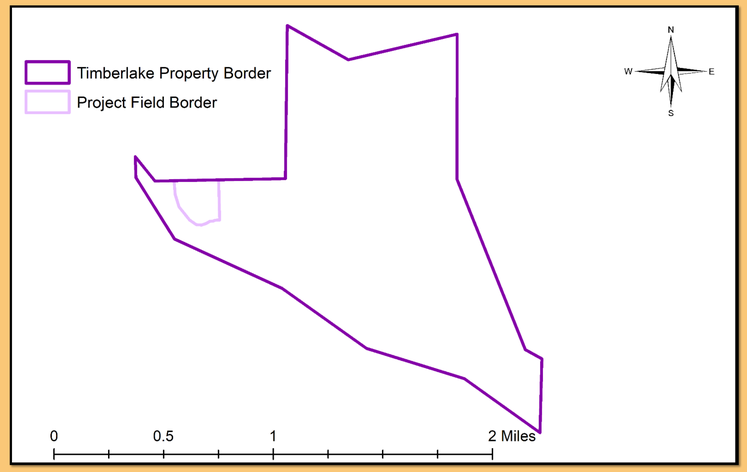

Figure 6. Outline of field to be used for habitat restoration.

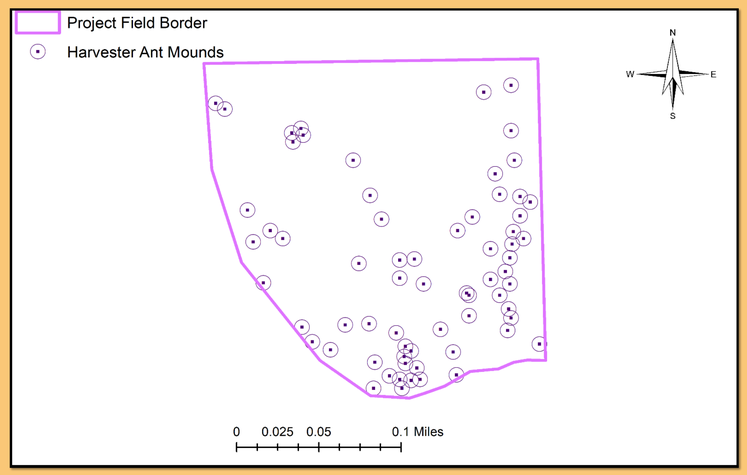

Figure 7. Location of harvester ant mounds with restoration plot.

Conclusions

- A few portions of the property have suitable soil for the reintroduction of Texas horned lizards, but the current vegetation in these areas are not suitable
- Harvester ants are present in areas with suitable soil, but their abundance can only support ~11 individuals
- Restoration of native vegetation is required before TBFS can support viable populations of Texas horned lizards