

Progress Report:

Potential Future Habitat Land for the Guadalupe-Blanco River Trust

Prepared By:



Megan Foster: Project Manager

Adriana Fernandez: Assistant Manager

Layne Duesterhaus: GIS Analyst

Matthew McCracken: GIS Analyst

Introduction

Summary

The proposed project incorporates three phases: database management, potential whooping crane habitat location and creating digital data of currently managed conservation easements from survey field notes. The final goal of the project is to provide a detailed database of the Guadalupe-Blanco River Trust's (GBRT) 13 counties. This will include all boundaries, protected areas, important agricultural areas, priority terrestrial and aquatic wildlife habitats and current land easements. This database can then be used as an efficient source of data and geographic information for the future projects of the GBRT.

The second phase of this project will be to locate potential land easements along the Texas coastal region of the GBRT's extent, in order to create optimal habitats for migrating whooping cranes. Building the comprehensive database of the 13-counties will assist us in identifying whooping crane habitats along coastal areas and will also distinguish potential wildlife refuges and habitat sites within the GBRT's study area.

The final phase of the project is in conjunction with database management in creating a geodatabase through the mapping of field notes.

Purpose

The Guadalupe-Blanco River Trust has taken the necessary precautions to protect the land around our rivers here in the Central Texas Region. By attaining conservation easements, the trust has been able to help protect natural, recreational, scenic and productive areas of land along our river systems that feed into the aquifer. With the drought that is weighing heavily upon us, the trust is looking to expand so that more conservation easements could be in place, especially along the Texas Coastal Regions in order to preserve and enhance the endangered whooping crane population. With a total of 574 wild and captive whooping cranes around the United States (WCEP, 2001), there is a definite need for more adequate space so that these creatures may find a habitat to sustain them in order to meet the goal number of 1000 birds this winter.

Our goal as Enviromaps is to assist the Guadalupe-Blanco River Trust by creating a database that will be efficient for further studies of the area that is being protected. This database will be able to be expanded as the study area grows and more conservation easements are acquired. The extinction of whooping cranes could be imminent without the

help of groups such as the GBRT and as a part of our philosophy Enviromaps' objective is to help enhance the quality of life through Geographic Information Systems. With the map of areas that could be attained for easements we would have contributed to the survival of the whooping crane.

Scope

Our study area extends from the coastal region of Calhoun to Kerr Country with a total of 13 counties that run the length of the GBRT. This project will take approximately a little over three months to complete (August 29th to December 12th).

Data

The data acquired shown in figure 1 was processed and analyzed to ensure the matching datum (NAD 83) UTM SP TX SOUTH CENTRAL and coordinate systems (UTM State Plane/ TX South Central) for the upmost accuracy:

Database	Feature Dataset	Feature Class
General Database		
Calhoun County		
		County Parcel Data
County Data		
		Guadalupe
		Hays-poly
		Hays-anno
		Kendall
		Wilson
Dewitt County		
		Addresses
		City Limits
		County Boundary
		Roads
		County Parcel Data
Guadalupe County		
		Abstracts
		City Limits
		County
		Ownership
		County Parcel Data
		School Districts
		Streets
		Zoning
Kendall County		
		Cemeteries
		City Limits
		Roads
		Voting Precincts
		School Districts
		Hydroscape
		County Parcel Data
		Subdivisions
Wilson County		
		Floodplain Data
Comal County		
		County Parcel Data

Database	Feature Dataset	Feature Class
	Kendall County	
		Cemeteries
		City Limits
		Roads
		Voting Precincts
		School Districts
		Hydroscape
		County Parcel Data
		Subdivisions
	Wilson County	
		Floodplain Data
	Comal County	
		County Parcel Data
	Hydroscape	
		Aquifers-major
		Aquifers-minor
		Bathymetry
		Basins-line
		Basins-poly
		Precipitation
		River Authorities
		Rivers
	Landscape	
		Natural Regions
		Vegetation
		Wildlife Management
	Political Boundaries	
		Cities-point
		Cities-polygon
		Counties
		Parks-point
		Parks-polygon
		Roads
		School Districts
		School Locations
	Conservation Easements	

Creating a Geodatabase

Work Completed

Our first goal in working for GBRT was to create a Geodatabase of their 13 county extents. As of now we have collected the following data layers landscape, hydroscape, political boundaries, current easement locations, schools, beach access data, protected areas, vegetation types, roads, protected areas, scenic areas , and CAD data for counties. We have provided all the data asked for by client up to this point, organized and functional to use.

Current Work

We currently have all the desired layers for GBRT's database. As of now, we plan to ensure the data's integrity, and search for any errors or mishaps within the data. Also we plan on creating a data dictionary for user convenience.

Future Work

We plan on adding more data layers that we find useful for the GBRT in their future works, but overall we have collected all the desired data. Any other layer we add is purely to assist GBRT of information we find useful.

Finding suitable Whooping Crane Habitats

Work Completed

We began compiling a list of variables that are critical for the location analysis of potential whooping crane habitats. Such variables include the cranes main food source and priority vegetation types. We have also defined areas along the coastal region that are considered positive and negative in relation to potential habitat for the cranes. The negative areas include occupied land, public property, and areas within close proximity to urban and developed land.

Current Work

We are currently converting all necessary layers from vector to raster files so that we may use raster calculator for locational analysis. We are acquiring data as we are finding and receiving it as well as maintaining a data standard for all collected data.

Future Work

Once all of the essential layers have been converted to raster files, we will then add and subtract the variables. We will also “times” our variables to find the best areas for potential habitats. After the

model has been run, we will produce a final map that will highlight all areas that were located and are potentially available.

Creating a GIS through Field Notes

Work Completed

Areas of current GBRT conservation easements have been digitized and brought into digital format. Attribute information relevant to each easement has been entered into the database for future ease of use by the GBRT. As these easements were not originally digitally mapped, the accuracy will only be as correct as the paper maps they were digitized from.

Future Work

As the GBRT acquires more easements, these will need to be updated in the system or database. As our work will be completed, this is something the GBRT would need to work with on their own.

Conclusion

All of our analysis is running smoothly and we foresee few problems for each task in the future. We are confident that we will have finished and polished all deliverables by December 12th. We are finding and receiving data constantly and are updating the database as we continue. We are continuously adding data to the GBRT database to ensure any data required or desired will be attainable.

We are currently working on the overall aesthetic of the company website and continuing preparations for final deliverables. We look forward to your feedback.