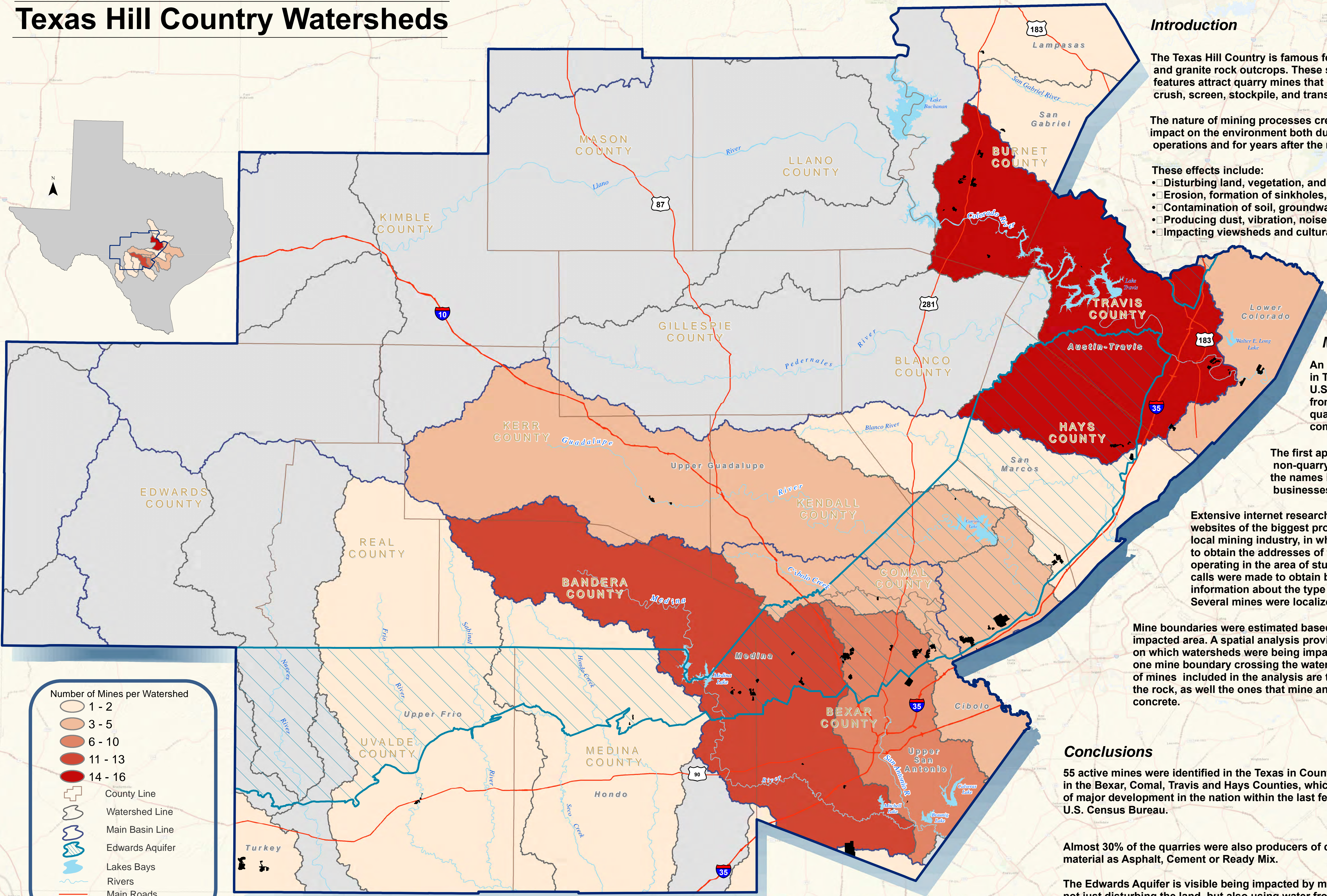
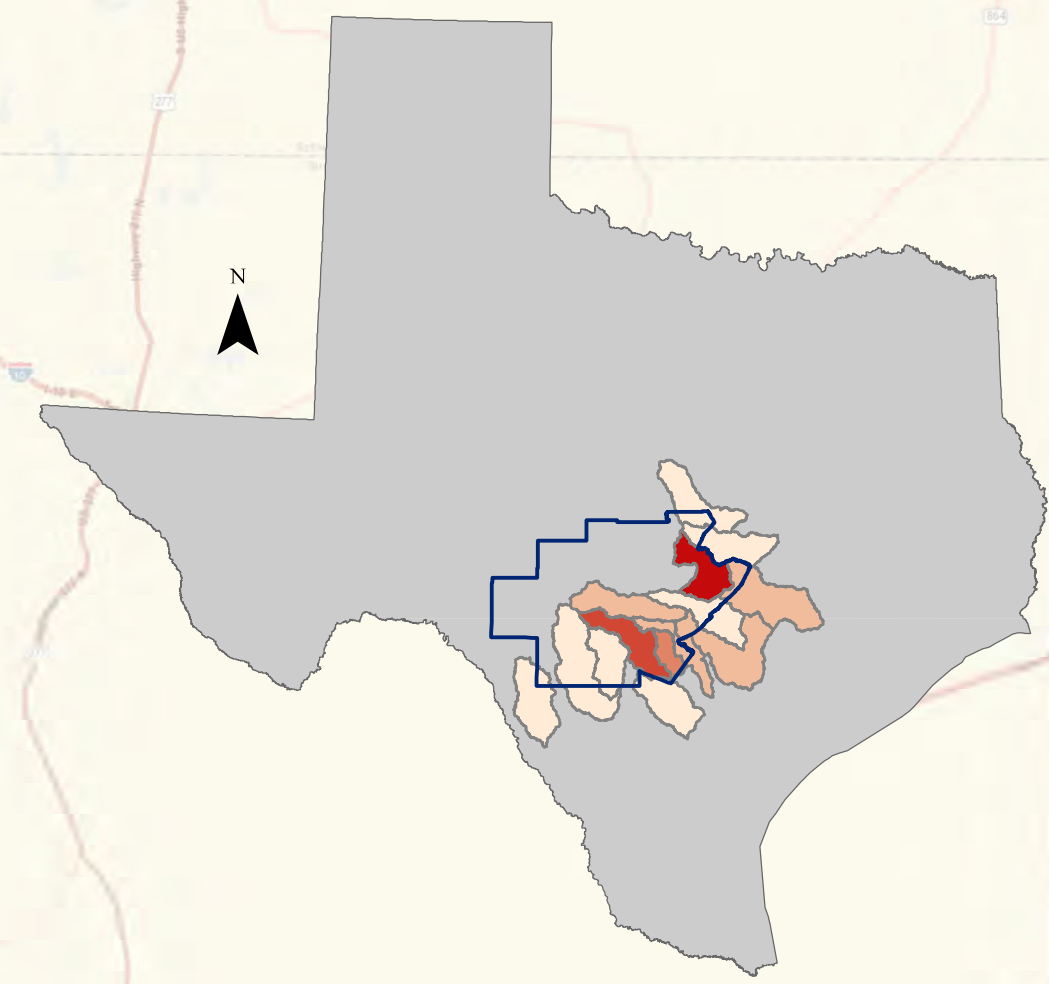


Mining Industries Impact Texas Hill Country Watersheds



Number of Mines per Watershed

- 1 - 2
- 3 - 5
- 6 - 10
- 11 - 13
- 14 - 16

County Line
 Watershed Line
 Main Basin Line
 Edwards Aquifer
 Lakes Bays
 Rivers
 Main Roads
 Active Mines

Introduction

The Texas Hill Country is famous for its limestone and granite rock outcrops. These same geological features attract quarry mines that blast, excavate, crush, screen, stockpile, and transport rock and aggregate.

The nature of mining processes creates a potential negative impact on the environment both during the mining operations and for years after the mine is closed.

- These effects include:
- □ Disturbing land, vegetation, and waterways;
 - □ Erosion, formation of sinkholes, loss of biodiversity;
 - □ Contamination of soil, groundwater and surface water;
 - □ Producing dust, vibration, noise and traffic; as well as
 - □ Impacting viewsheds and cultural heritage.

Methodology

An inventory of active mines in Texas was obtained from U.S. Geology Survey. This list from 2003 contained both operating quarries as well as companies that commercialize the product.

The first approach was to identify the non-quarry operations by comparing the names in a web search for data mining businesses.

Extensive internet research located the websites of the biggest producers in the local mining industry, in which it was possible to obtain the addresses of their different plants operating in the area of study. Several phone calls were made to obtain better detailed information about the type of product they mine. Several mines were localized using orthoimagery as well.

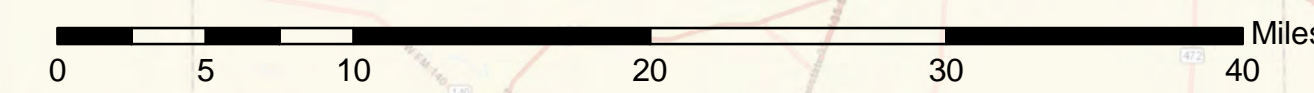
Mine boundaries were estimated based on the visible impacted area. A spatial analysis provided the information on which watersheds were being impacted by having at least one mine boundary crossing the watershed area. The types of mines included in the analysis are the plants that only mine the rock, as well the ones that mine and produce asphalt or concrete.

Conclusions

55 active mines were identified in the Texas in Country, 60% localized in the Bexar, Comal, Travis and Hays Counties, which are some of the areas of major development in the nation within the last few years, according to the U.S. Census Bureau.

Almost 30% of the quarries were also producers of construction material as Asphalt, Cement or Ready Mix.

The Edwards Aquifer is visible being impacted by mining operations, not just disturbing the land, but also using water from the aquifer to operate.



Sources:
 U.S. Geological Survey
<http://www.heidelbergcement.com/en/usa>
<http://colliematerials.com>
<http://www.martinmarietta.com/Facility-Locator>
<http://www.vulcanmaterials.com/>