

ASSESSMENT OF SCALED QUAIL POPULATION DYNAMICS IN TEXAS

Raquel Leyva— Texas Tech University, Nick C. Parker— U.S. Geological Survey, Texas Cooperative Fish and Wildlife Research Unit, and Markus J. Peterson— Texas Parks and Wildlife Department

Scaled quail (*Callipepla squamata*) abundance has declined in many areas of Texas during the past few decades. Changes in habitat characteristics may have caused changes in the population dynamics of this species throughout its historical range. This project tests the hypothesis that long-term habitat changes can account for long-term declines in scaled quail abundance in Texas.

Remotely sensed data and existing databases are being used to describe changes in the biotic and abiotic habitat composition of scaled quail in Texas. A Geographical Information System (GIS) is being used to assemble all the databases for habitat description. These include soil description, scaled quail population surveys, historical climate data, and vegetation description.

Arc/Info was used to create a referenced frame using counties as the sampling unit for this study. This frame was used to overlay the coverages produced from each database. Vegetation coverages are currently being processed. A soil map for the state of Texas was created as one of the several data layers that will be integrated into the spatial model. This model should help explain changes in scaled quail abundance in Texas. The historical climate coverages, created using Kriging techniques, began in the late 1800s and include minimum and maximum temperature, precipitation, and snowfall. A total of 3,860 point locations, representing areas where climate stations are located, were used to create a climatic map for the entire state of Texas.

Population surveys derived from the U.S. Fish and Wildlife Service's Breeding Bird Survey for scaled quail will be incorporated into the GIS and will be spatially delineated using the roads where these surveys were conducted.

Completion of this project is expected to provide a tool for managing scaled quail populations in Texas. The remote sensing techniques employed should prove to be important management tools not only for scaled quail, but other wildlife populations as well.

The Texas Parks and Wildlife Department and Texas Cooperative Fish and Wildlife Research Unit provided funding for this project.