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Biogeography of Southwestern Pocket Gophers in the Genus *Geomys*

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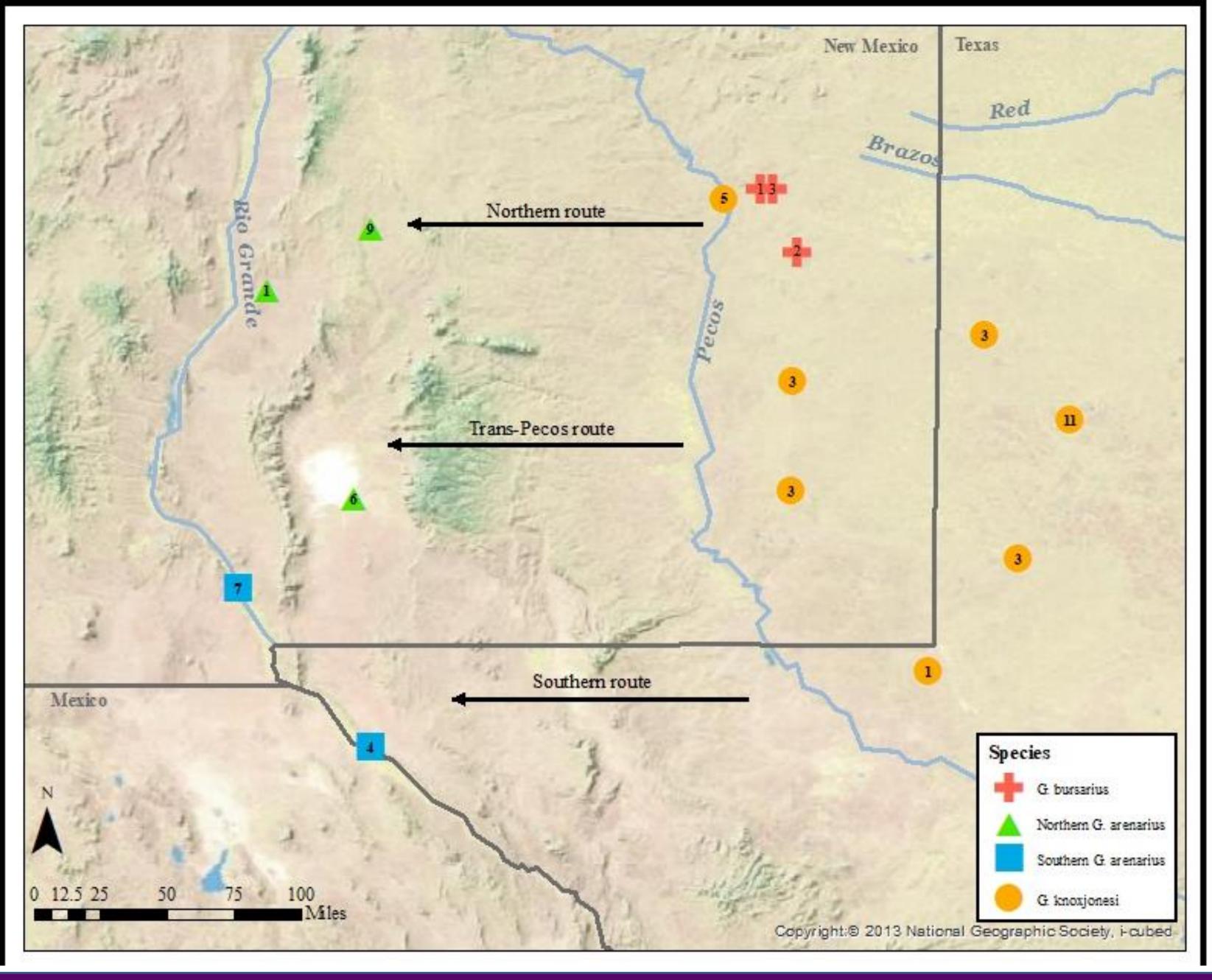




Background

- The southwest United States is home to several closely related pocket gophers species (*Geomys*)
- This project investigates 3 colonization route hypotheses for *G. arenarius* across the arid region between the Pecos River and Rio Grande Valley Complex morphological and genetic relationships between the species has resulted in unclear taxonomic classifications. A second goal of the project was to reassess and further define the evolutionary relationships of the species Previous studies on the topic have been inconclusive and based on limited data sets

Colonization route hypotheses



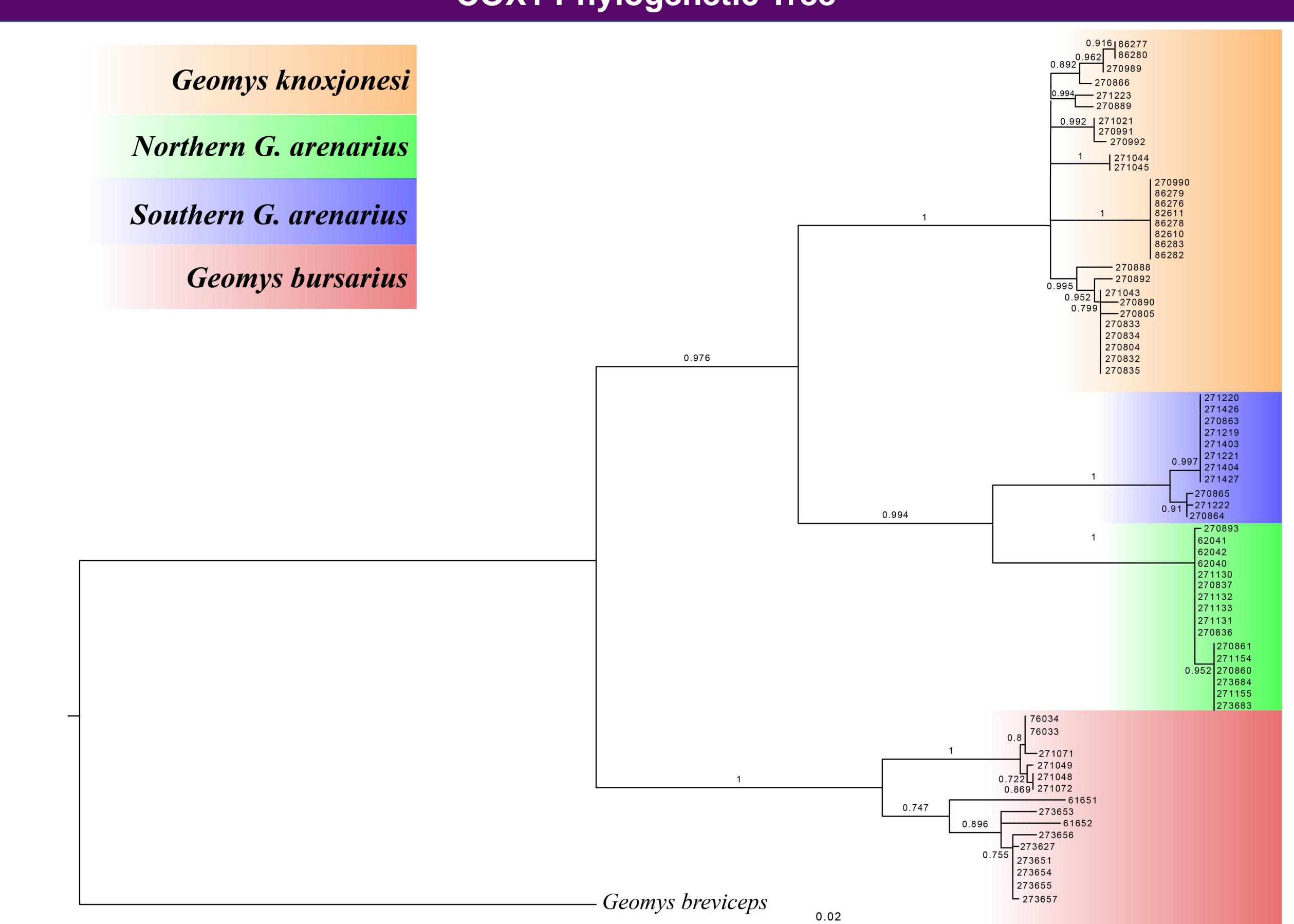
Mitochondrial Gene Sequences

- Mitochondrial gene sequences provide insight into more recent evolutionary splits than nuclear genes
- The COX1 mitochondrial gene was sequenced using lowa State University genetic sequencing services from tissue samples of gophers from 4 subspecies: G. bursarius (outgroup), northern G. arenarius, southern G. arenarius, and G. knoxjonesi
- 69 samples were used in the final assessment, samples that were missing information, such as geographic coordinates, or were misidentified as belonging to *Geomys* were excluded from analysis Trees were generated using Geneious, MEGA7, and FigTree

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- Current species statuses are supported



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Route and Species Status Results

Sequences from the COX1 mitochondrial gene support the trans-Pecos colonization route for *G. arenarius*

COX1 Phylogenetic Tree

Literature

- Award
- **Research Award**



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