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Biogeography of Southwestern Pocket Gophers in the Genus *Geomys*

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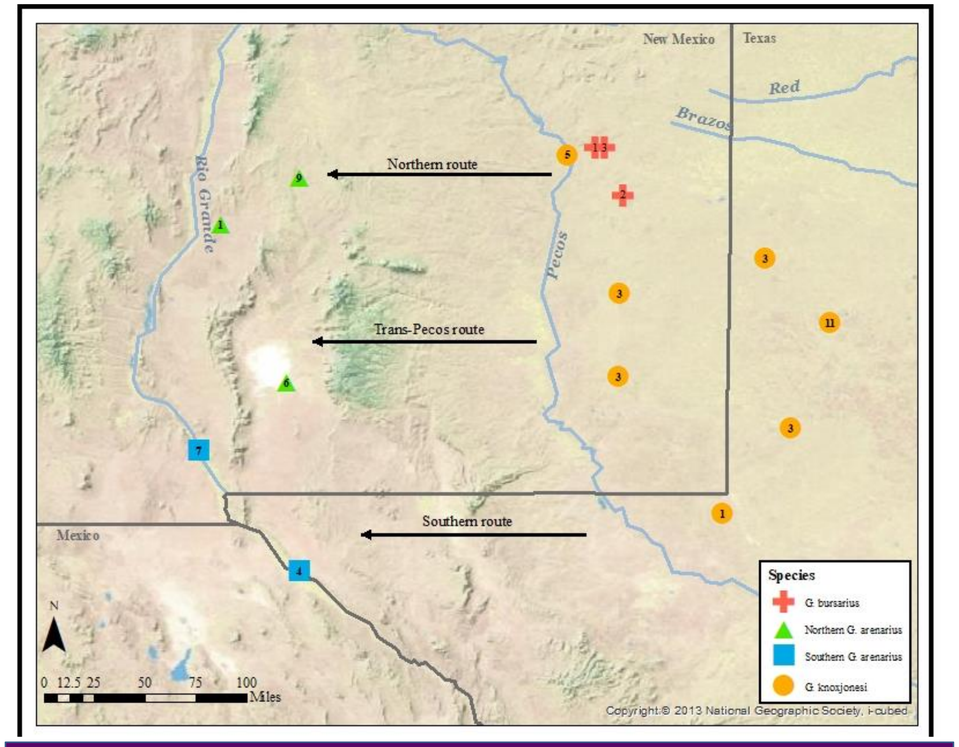
Background

- 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



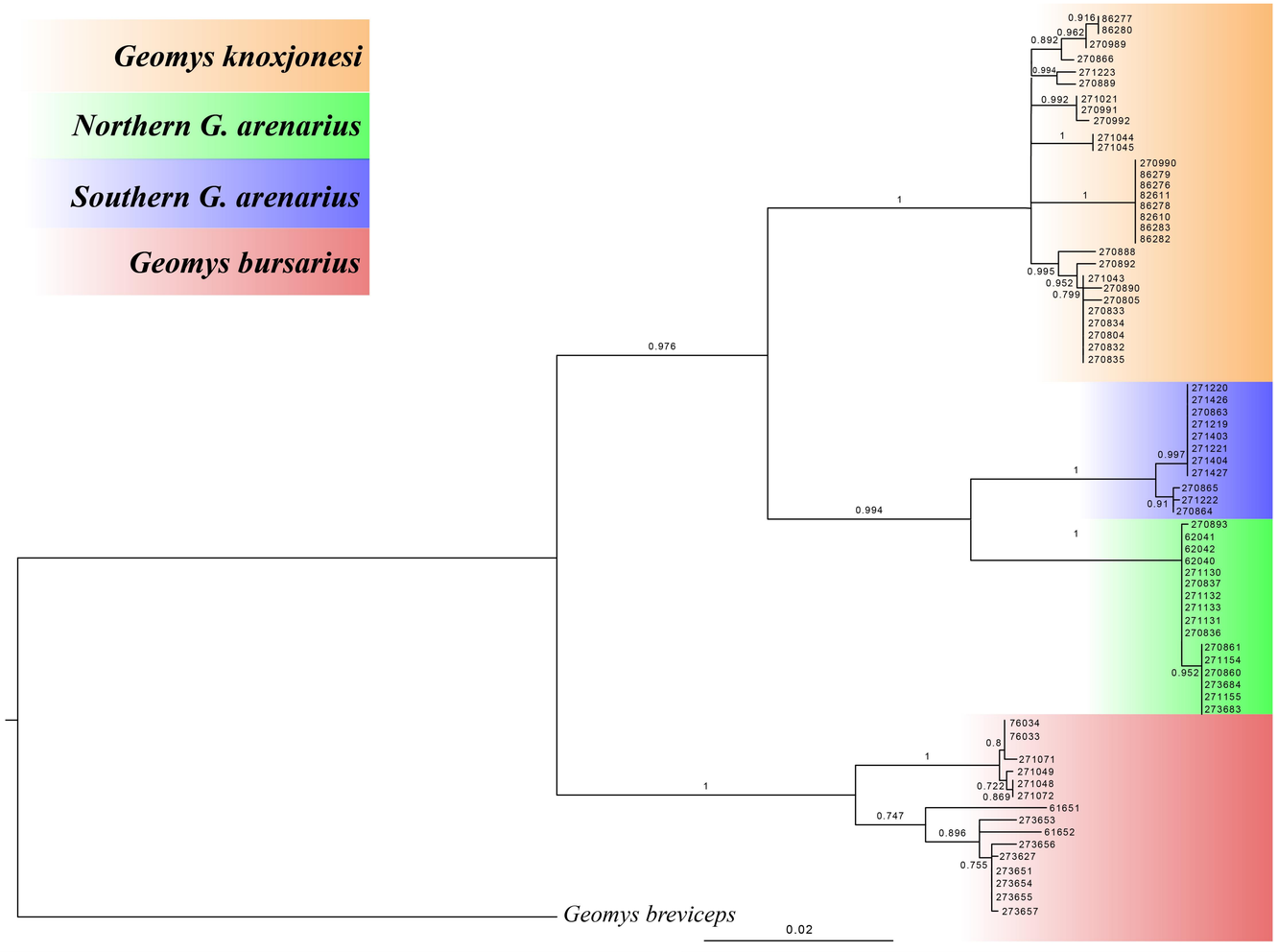
Mitochondrial Gene Sequences

- Mitochondrial gene sequences provide insight into more recent evolutionary splits than nuclear genes
- The COX1 mitochondrial gene was sequenced using Iowa 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

Route and Species Status Results

- Sequences from the COX1 mitochondrial gene support the trans-Pecos colonization route for *G. arenarius*
- Current species statuses are supported

COX1 Phylogenetic Tree



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