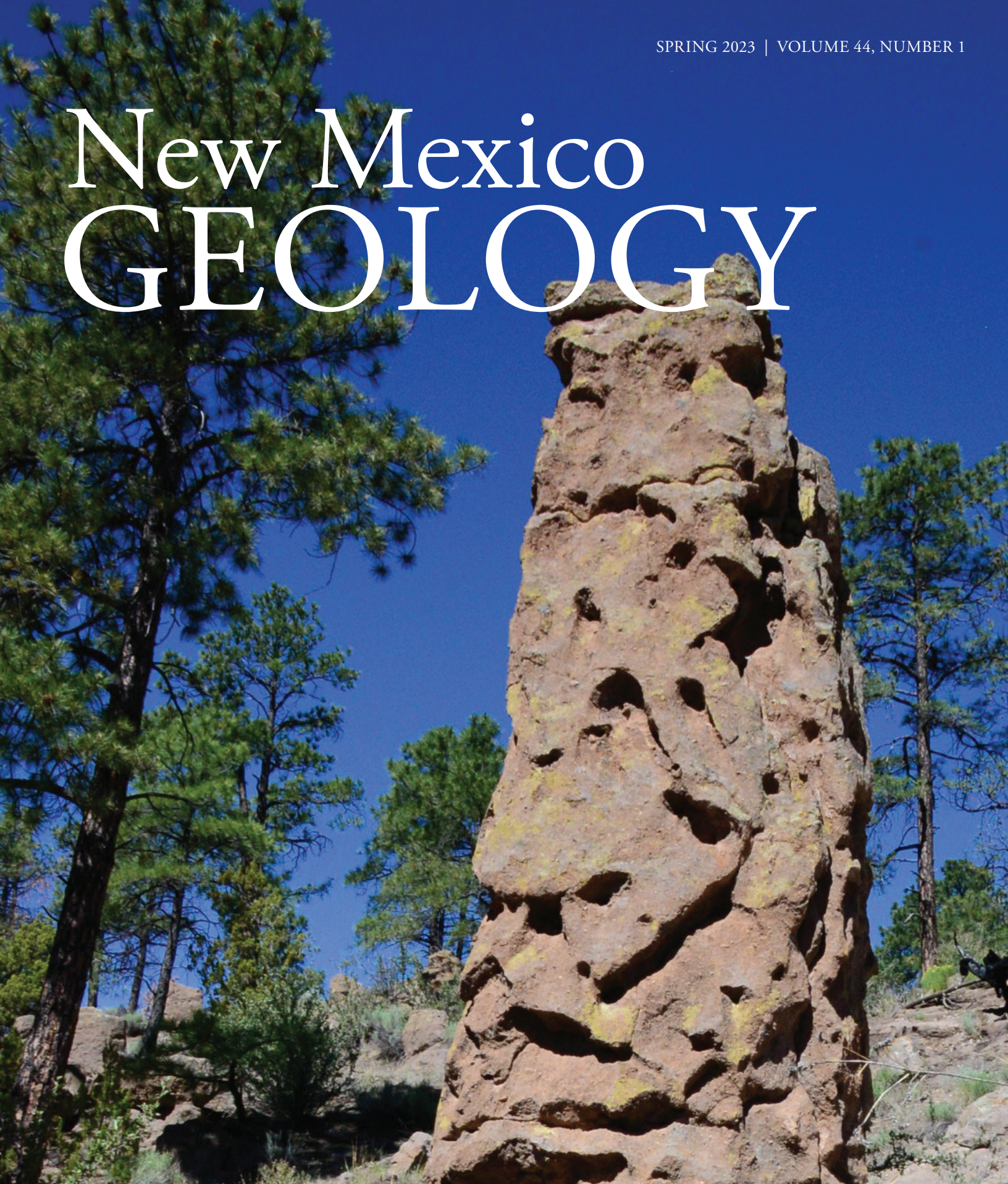


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New Mexico GEOLOGY



NEW MEXICO BUREAU OF GEOLOGY AND MINERAL RESOURCES

Contents

The Goblin Colony: Spectacular Monoliths and Walls of Altered Bandelier Tuff South of the Valles Caldera, New Mexico

Fraser Goff, Cathy J. Goff, Steve Chipera, David Schiferl, Laurie Waters, Emiko Konishi, Nels Iverson, and Jean Gindreau

The authors of the featured article investigated the origin of eroded spires, fins, columns, steam pipes, and tabular ledges that developed in the 1.23 Ma Bandelier Tuff in a place known as Goblin Colony in the southern Jemez Mountains. Goblin Colony, so named because the eroded features look like goblin faces on moonlit nights, is a popular hiking destination. Using geologic mapping, an aerial drone survey, and petrologic and geochemical results, the authors determined that these features formed when relatively cool and gas-depleted Bandelier Tuff encountered surface water (springs, a pond, or a marsh) in the bottom of a wet paleocanyon.



Photo of a 6-m-tall solitary spire of zeolite-altered ignimbrite at the Goblin Colony 11 km south of Valles Caldera, New Mexico. An eerie-looking face at the top of the spire has formed by differential erosion of Unit 1 of the Tshirege Member of the Bandelier Tuff. This spire is one of more than 100 altered spires, fins, and mazes in the main cluster of the Goblin Colony.

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