

KARST Secrets

of the New and Roanoke
River Valleys

The New River flows north from its headwaters in the igneous and metamorphic rocks of the Blue Ridge Mountains before starting its journey across the Valley and Ridge. This is where the story of karst in the New and Roanoke river valleys begins.



What is karst?

Karst is a landscape produced by the dissolving of rock. The karst in the New and Roanoke river valleys formed as mildly acidic waters dissolved ancient limestone and dolomite bedrock over hundreds of thousands of years.

Karst groundwater in the Valleys

The hidden, underground paths through which karst groundwater flows are poorly known. Contaminants can enter karst waters quickly through sinkholes, sinking streams, losing streams and open pits, then travel quickly over long distances and show up at unexpected places. The paths of these underground streams can only be learned through cave exploration and water-specific studies like dye tracing. Karst landscapes are common west of the Blue Ridge in Virginia's Valley and Ridge. If you are drinking tap water in karstlands, odds are it passed through a cave before reaching your faucet.

Caves in the Valleys

The New and Roanoke river valleys are home to over a quarter of the approximately 4,000 caves known in Virginia. While frequently majestic, the cave environment is also extremely fragile; what took thousands of years to form can be forever destroyed in a second. Therefore, be vigilant and respect these ancient wonders if you choose to visit them.

Life in caves

Caves in the New River and Roanoke Valley are home to eight bat species and at least 135 invertebrate species. Over 30 of these species are considered globally rare, only known from a handful of caves in the region and nowhere else on Earth. Although used to the challenges of living in caves without light and with limited food, cave species are extremely vulnerable to any changes in their environment, including areas that overlie or drain to caves.





Some cave invertebrates, such as the state endangered Ellett Valley Cave Millipede (*Pseudotremia cavernarum*) are at imminent risk of extinction unless conservation measures are taken soon. Most aquatic cave animals require clean, clear water for their survival. These organisms help scientists detect any changes in water quality without expensive tests.

Karst surface above caves

Calcium-rich water seeping from springs can create small wetland communities that harbor rare and unusual plant species. Dolomite and/or limestone barrens generally occur on steep, south-facing slopes and are home to globally rare plant species and communities. Barrens vegetation, which thrives on magnesium-rich substrate, is characterized by Eastern Red Cedar, Chinquapin Oak and rich assortments of grass, herbs and wildflowers that are resistant to heat and drought.

Protection of karst in Virginia

The Virginia Cave Protection Act helps protect karst resources, which receive few other protections under state or federal regulations. The identification and protection of sensitive karst areas through appropriate land-use planning helps ensure a safe, clean water supply for everyone. These actions also protect rare species and natural communities. Therefore, do something for yourself and others — be aware of the karst that surrounds you, and help protect it.

Learn more at:

<http://www.dcr.virginia.gov/natural-heritage/karsthme>

Sources: Esri, USGS, NGS, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, Virginia Speleological Survey and the GIS user community

