



Midwest Region

Conserving the Nature of America

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Karst Ecosystems

Karst is a general term used for unique landscapes (caves, sinkholes, springs, sinking streams) formed on carbonate rocks (limestone, dolomite, marble) or evaporites (gypsum, anhydrite, rock salt) and exemplified by a variety of closed surface depressions, underground drainage, and surface streams. Karst features are formed when rainwater picks up carbon dioxide from the air, and dead plant debris in the soil, then percolates through cracks dissolved in the rock. The bedrock becomes saturated with water at some level, and dissolving continues as the water moves sideways along bedding planes (horizontal cracks between rock layers) and joints (or fractures) in the rock itself. These conduits enlarge over time, and move the water via a combination of gravity and hydraulic pressure, further enlarging the conduits through a combination of solution and abrasion of water on the surrounding rock.



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Above: The entrance to a karst cave.

Left: A karst cave.

Karst ecosystems are rich in water and mineral resources, and provide unique habitats to numerous fish and wildlife. Many species of bats, including the federally-listed Ozark big-eared bat, rely on karst features (i.e., caves) for their existence. The federally endangered Ozark cavefish rely on caves as well. In the state of Missouri alone, there are about 5,700 caves. Nearly 800 different species of animals have been recorded in Missouri caves, of which about 64 are truly cave-adapted troglobites (live in darkness) or stygobites (aquatic troglobites). Caves are also important for many common wildlife to escape cold, drought and predators.

Unfortunately, karst ecosystems are very vulnerable to groundwater pollution, due to ease of water flow. Natural filtration is nearly non-existent in karst area. The recent use of cave conduits as natural sewer lines, and sinkholes as garbage dumps threatens native wildlife, and is putting many drinking water supplies at risk. Urban expansion in karst areas has resulted in house construction on land which cannot support them and the associated problems with septic tanks, underground pipeline breaks and landfills. Given the vulnerability of water quality in karst landscapes, extra precaution must be taken to ensure karst recharge areas remain free of pollutants. It is only recently that these problems are being addressed by state and federal agencies.

To learn more about Midwest karsts, visit:

- **[Below Missouri Karst](#)**

Missouri is known as The Cave State because of its large number of caves. At least 5,700 caves are recorded in the Missouri Speleological Survey's files in Rolla. Tennessee exceeds our count with 7,000 caves, but people discover about 125 new caves each year in Missouri. Certainly our caves are among the largest and most spectacular in the nation.

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