

Appendix 3.8 Kentucky's terrestrial habitat guild descriptions, prioritized conservation actions, objectives, and performance measures.

Karst, Cave, Rock Shelter, and Cliffline - Terrestrial Guild

The Karst, Cave, Rock Shelter, and Cliffline Terrestrial Habitat Guild was derived primarily based on the unique features that limestone and sandstone geologies have created, although the plant communities supported by these areas are also unique (see Jones 2005 for discussion about plant communities). Karst topography is formed by the dissolution of a layer of bedrock (e.g. limestone, dolostones, gypsum) by groundwater. During the Ordovician (~ 488 – 443 million years ago), Middle Silurian (~ 430 million years ago), and Middle Devonian (~ 380 million years ago) time periods, fluctuating water levels in Kentucky gave way to vast coral reef (limestone) deposits. The karst topography in Kentucky is a direct result of the slow break-down of these ancient coral reef / limestone deposits through groundwater exposure and carbonation (Haney 1985).

Caves, rock shelters and clifflines are unique geologic features formed through a combination of geologic upheavals, cutting by streams and rivers through rock, and collapse of cavernous limestone systems (Jones 2005). Most of Kentucky's cliffline and rock shelter habitats are restricted to the Appalachian Mountain region of eastern Kentucky; however, the habitats are present throughout The Knobs region of Kentucky and in isolated locales elsewhere in the state. Karst ([Appendix 1.71](#)) and cave systems (includes caves, open-throated sinkholes, and "closed" sinkholes) are largely constrained to the following physiological regions: Inner Bluegrass, Outer Bluegrass, Cumberland Plateau, Pottsville Escarpment, Dripping Spring Escarpment, Muldraugh's Hill, and Mississippian Plateau (see [Appendix 1.6](#) for map of physiographic regions of Kentucky).

The Karst, Cave, Rock Shelter, and Cliffline Terrestrial Habitat Guild also includes boulder fields, talus slopes, shale cliffs, abandoned underground quarries and mine portals (openings), and rock cuts associated with mining, quarrying, road construction, and railroads. This Terrestrial Habitat Guild is particularly important because Kentucky Karst systems harbor high levels of subterranean biodiversity. The rich cave faunas of Kentucky Karst stem from the presence of large segments of two major Mississippian limestone plateaus within the Commonwealth (Haney 1985). Of particular importance is Mammoth Cave, located in Edmonson County, Kentucky which is listed as one of the top twenty global hotspots of subterranean biodiversity (Culver and Sket 2000). Karst conservation and cave protection are critically important because karst systems are easily contaminated by rapid surface water run-off into the aquifer.

LITERATURE CITED

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