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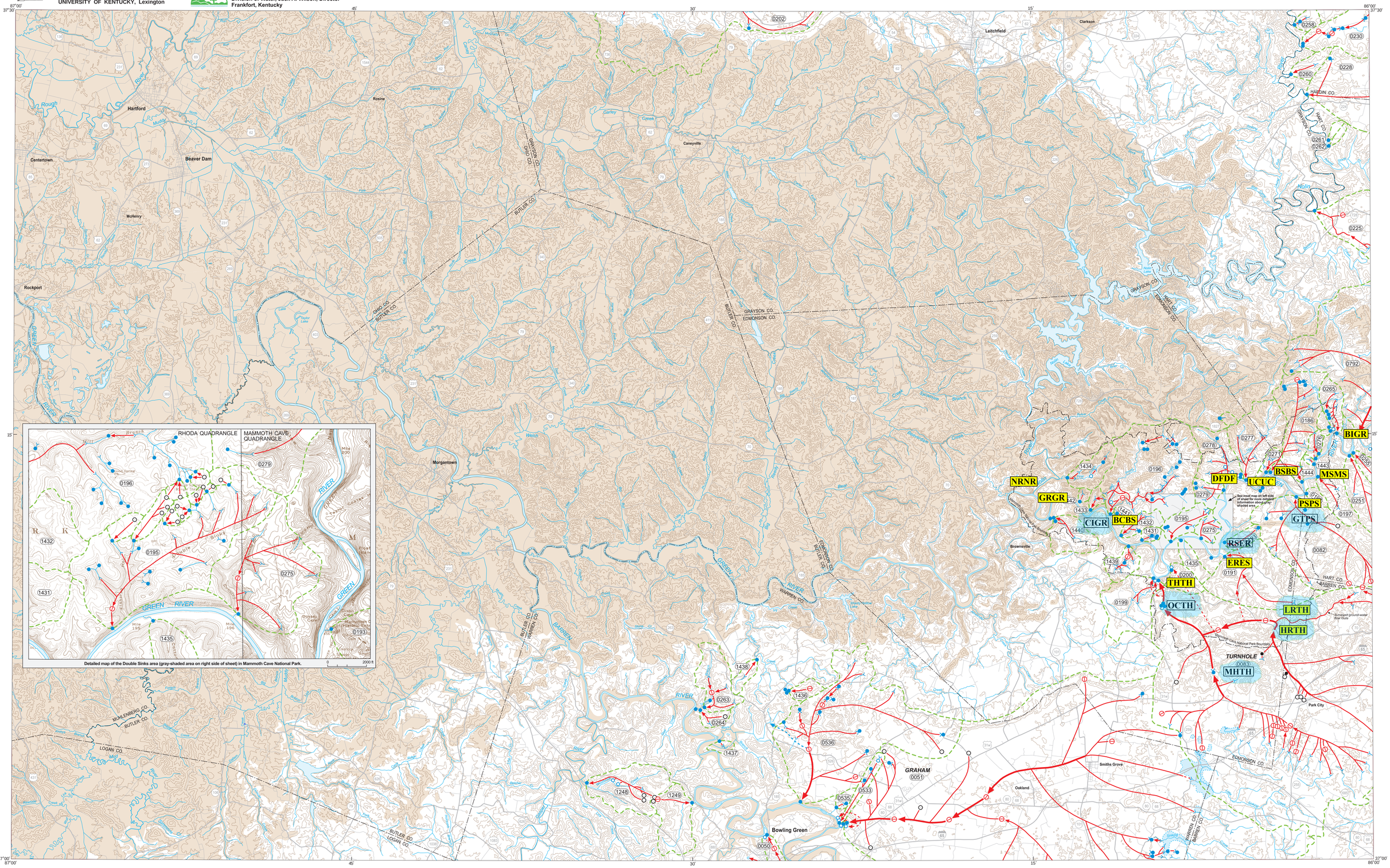

MAPPED KARST GROUND-WATER BASINS IN THE BEAVER DAM 30 x 60 MINUTE QUADRANGLE

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LEGEND

- Sediment sampling location, only — CIGR
- Water Quality sampling location, only — PSPS
- Water Quality and Sediment sampling locations — HRTH
- Area of potential karst ground-water basin development
- Area of limited karst ground-water basin development
- Inferred perennial ground-water flow route
- Subsurface overflow (high-flow) route
- Surface overflow (high-flow) route
- Ground-water basin catchment boundary
- Intermittent lake
- Stream sink or swallet
- Underflow spring (perennial)
- Overflow spring (high flow)
- Karst window or sinking spring
- Cave stream
- Other tracer-injection point
- Water well
- (0083) Kentucky Division of Water AKGWA spring identification number
- *TURNHOLE* Spring name

EXPLANATION

This map shows karst ground-water basins in the Beaver Dam quadrangle, determined primarily by ground-water tracer studies. It can be used to quickly identify the ground-water basins and springs to which a site may drain. Major springs and the relative size of their catchment areas can be evaluated for potential as water supplies. The map also serves as a geographic index to literature on karst ground water in the area.

This map is designed for regional and preliminary hydrologic investigations. Features such as springs and swallets are much too small to precisely locate on this map with a scale small enough to show regional relationships. The user is referred to the literature for detailed site descriptions. The data used to compile this map were obtained by numerous investigators over the last 25 years. The underflow spring draining a ground-water basin is assigned a unique identification number, referred to as the AKGWA number (Assembled Kentucky Ground Water Database). Individual basins are identified by the underflow spring name and AKGWA number. The authors of tracer data are identified by number in the "Data Source" column of the key, and are listed in "References Cited" in order of publication or research date.

Although ground-water flow routes shown here have been established by tracer studies, with the exception of mapped cave streams, the precise flow paths are unknown and are inferred or interpreted using water-level data, geologic structure, or surface features. Arrows show the direction of ground-water flow and tracer recovery locations. Conduit flow is illustrated as either thick trunk-flow lines or thin tributary-flow lines. The locations of some ground-water basins are inferred, based on the existence of a significant spring system and the delineation of adjacent basins. The position of ground-water basin boundaries should be considered approximate because of the map's scale and because boundaries can shift during high-water conditions. Also, excess flow may exit or enter a basin via surface or subsurface overflow routes. Additional overflow routes probably exist. Although most of the results of ground-water tracing shown on this map were obtained during moderate- or high-flow conditions, the ground-water basins are illustrated in base flow because base flow is the most common flow condition. The main spring draining the basin is assumed to be an underflow spring that preferentially drains base flow. Overflow springs discharge during high flow.[1] Generally, names of ground-water basins are derived from these main springs. Not all additional springs are shown because of the small map scale.

DISCLAIMER: This map is subject to revision upon receipt of new hydrologic data. The unshaded area (shown in white on the map) is karst. The shaded area (shown in light brown) is largely underlain by noncarbonate rocks and has minimal development of karst. Karst features are only shown in those areas where tracer tests have been conducted. The user should consult the "References Cited" for additional information.

[1]Worthington, S.R.H., 1991, Karst hydrogeology of the Canadian Rocky Mountains: Hamilton, Ontario, McMaster University, Ph.D. dissertation, 380 p.

N

1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 KILOMETERS
1 0 1 2 3 4 5 6 7 8 9 10 MILES
1000 0 5000 10 000 15 000 METERS
5000 0 10 000 20 000 30 000 40 000 50 000 FEET

SCALE 1:100 000
UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 16
Contour interval 20 meters

KEY

AKGWA No.	*Spring Name*	*Data Source*
0050	Double	(12)
0051	Graham	(2,,3,,5,6,7,,8,,9,,15,,26)
0082	Pike	(1,6,7,9,15)
0083	Turnhole	(2,,3,,6,7,9,,15,,17,,18,,24)
0186	Big	(17,25)
0191	Echo River	(1,6,7,9,15,,17)
0193	River Styx	(1,6,7,9,15,17)
0195	Ganter Bluehole	(14,,16,,17,,22)
0196	Buffalo Creek	(4,,16,,17,,19,,20,,22)
0197	Mile 205.7	(9,,15)
0198	Grinstead Mill	(9,,15)
0199	Sandhouse Cave	(6,9,,15)
0200	Sand Cave	(9,,15)
0202	Mahurin	(13)
0225	Webb Cave/Bacon Creek	(9,,15)
0228	Bell	(10)
0230	Goodman	(10)
0251	Suds	(9,,15)
0255	Bush Island	(9,,15)
0258	Copeland	(10)
0260	Twilight	(10)
0261	Brittain	(10)
0262	Avery	(10)
0263	Greencastle Big	(9,,15)
0264	Sharp Bluehole	(9,,15)
0265	Cub Run Complex	(17)
0271	Mile 5	(17)
0275	Running Branch	(17)
0276	Wilson Cave Hole	(17)
0277	Doyle Ford	(17)
0278	Ugly Creek	(17)
0279	Nappers Notch	(14,,17)
0533	Waterworks	(9,,15,,26)
0535	Martin	(9,,15,,26)
0536	Poorhouse	(9,,15,,26)
0792	McCoy Bluehole	(6,9,,10,,15,,17)
1248	Westbrook Creek	(21)
1249	Lock Bend	(21)
1431	Stillhouse Hollow	(17)
1432	Sal Hollow	(17)
1433	Hellbender	(17)
1434	First Creek	(17)
1435	Cotton Gin Hollow	(9,,15)
1436	Pruett Saltpeter Cave	(9,,11,,15)
1437	Goad Lake	(9,,15)
1438	Indian Creek	(9,,15)
1439	Whittle	(17)
1440	Dry Branch	(27)
1441	Tombstone	(17)
1442	Parsley Hollow	(17)
1443	Crayfish	(17)
1444	Sycamore	(17)

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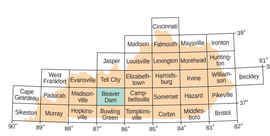
CAUTION: Prolonged exposure to sunlight or contact with water will damage this map.

Base map compiled from U.S. Geological Survey digital line graphs.

ACKNOWLEDGMENTS:
We thank the many karst investigators who have contributed data for this map. Without their cooperation this map would not have been possible.



Locations of the 1:100,000-scale quadrangle maps covering Kentucky. This map, the Beaver Dam quadrangle, is highlighted in green.

For information on obtaining copies of this map and other Kentucky Geological Survey maps and publications call:
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<http://www.uky.edu/KGS/home.htm>

Cartography by Terry Hounshell

Plate 2. Karst Hydrology of the 30'x60' Beaverdam quadrangle.