

Base map compiled by Illinois State Geological Survey from digital data (Raster Feature Separates) provided by the United States Geological Survey. Topography compiled by photogrammetric methods from aerial photographs taken 1965. Field checked 1968. Revisions from aerial photographs taken 1976 and other source data. Map edited 1978.

North American Datum of 1927 (NAD 27) Projection: Transverse Mercator 10,000-foot ticks: Illinois State Plane Coordinate system, west zone (Transverse Mercator) 1,000-meter ticks: Universal Transverse Mercator grid system, zone 16

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Geology based on field work by R. Jacobson, B. Denny, and G. Griffith, 2006–2007.

Digital cartography by J. Domier, S. Geegan, and S. Radil, Illinois State Geological Survey.

This Illinois Preliminary Geologic Map (IPGM) is a lightly edited product, subject to less scientific and cartographic review than our Illinois Geological Quadrangle (IGQ) series. It will not necessarily correspond to the format of IGQ series maps, or to those of other IPGM series maps. Whether or when this map will be upgraded depends on the resources and priorities of the ISGS.

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SYSTEM	FORMATION	MEMBER	GRAPHIC COLUMN	THICKNESS (FEET)	UNIT	<b>A</b> Sand, clay, silt, and gravel White, tan, brown, fine to coarse quartz sand. Gray to tan clay and silty clay. Gravels are white, gray, and tan-brown. Unit not depicted on the geologic map.	<b>L Colchester Coal</b> The Colchester Coal Member is bituminous black and typically less than 1 foot thick. In places it is represented by a carbonaceous black smut. It is underlain by a gray claystone or underclay.
QUATERNARY PLEIST- OCENE	Undivided, not shown on map	Alluvial and glacial deposits		0–100	A	<ul> <li>B Shale, coal, and claystone</li> <li>C Piasa Limestone Member Light gray, buff or cream-colored limestone that weathers yellowish orange. It is dolomitic lime mudstone to wackestone with crinoid stems, brachiopods, fusulinids, and other marine fossils.</li> </ul>	<b>M</b> Sandstone and shale The sandstone is light gray and fine- to very fine- grained with occasional clay rip-up clasts. The sandstone interbeds with gray carbonaceous shales. Occasionally the shale is greenish-gray and grades into a shale and claystone.
SSISSIPIAN HESTERIAN MORROWAN ATOKAN ? DESMOINESIAN	Shelburn	Piasa Limestone Danville Coal Galum Limestone Bankston Fork Ls. Brereton Ls. Anna Shale		0-8 8-12 45-85	B C D	<b>D</b> Limestone, shale, mudstone, and thin Danville Coal In descend- ing order, gray shale and mudstone 7 to 17 feet thick is at the top. One well log records a 2-foot coal seam, the Danville Coal Member, near the top of this interval. The Galum Limestone Member is about 2 to 5 feet thick; logs lack detail. Bell et al. (1931), who named the Galum, described it as yellow,	<ul> <li>N Coal, siltstone, and claystone The coal is black bright-banded to dull and sometimes split by a gray claystone. The Dekoven Coal Member attains a thickness of 1.5 feet and the claystone is 2 or 3 feet thick. The Davis Coal Member is a black shiny bituminous coal and attains a thickness of 4 feet. The lower coal is underlain by a gray claystone or underclay.</li> </ul>
	Carbondale	Herrin Coal St. David Ls. Springfield Coal		3-7 20-40 3-5 70-80	E F G H	grades into claystone with limestone nodules. Below the Galum Limestone is up to 7 feet of dark greenish gray mudstone to weakly laminated shale. The Bankston Fork Limestone Member is 3 to 6 feet thick and similar in lithology to the Piasa Limestone. Below the Bankston Fork is up to 15 feet of gray to black, silty, calcareous shale that contains thin interbeds, lenses, and con- cretions of argillaceous limestone. The Jamestown Coal Member, consisting of less than 0.5-foot of shaly coal or carbonaceous shale, occurs within this	<b>Rorah coals</b> The claystone, innestone, shale, and wise hidge and Mt. Rorah coals The claystone is dark gray to green gray and in places red. Carbonaceous plant debris is common in the claystone. Sandstone is light gray and fine-grained with quartz sand and mica. The Seahorne Limestone Member is gray and argillaceous. The shale is gray to black and silty. The coals are very thin carbonaceous smuts to fairly well-developed coal. The thickest coal observed in this part of the section was less than 2 feet thick. These coals are probably correlated with the Wise Ridge coalbed and the
		Excello Creek Sh. Houchin Creek Coal Survant Coal		0-2	l J	interval. The Brereton Limestone Member is 2 to 7 feet thick, generally dark gray, argillaceous lime mudstone to wackestone with fusulinids, brachiopods, and other marine fossils. Bedding can be massive to nodular or hummocky. Below the Brereton is the black, fissile, hard, highly organic, phosphatic Anna Shale Member, 0 to 6 feet thick. Large spheroidal limestone concre- tions are common: fossils include fish scales. The Energy Shale at the base	<ul> <li>Mt. Rorah coalbed in southern Illinois.</li> <li>P Sandstone Light gray fine- to medium-grained carbonaceous, micaeous sandstone. Abundant clay rip-up clasts and small pieces of carbonaceous debris. Cross-bedding is common. This unit is channel form and meanders across the extreme western portion of the guadrangle scouring into the up-</li> </ul>
		Oak Grove Ls. Mecca Quarry Sh Colchester Coal		4–10 0–3 40–75	K L M	of the interval is gray, weakly laminated, shale or mudstone that contains mytiloid and pectenoid pelecypods. Less than 6 feet thick, the Energy occurs as small lenses and fills erosional "rolls" in the upper part of the Herrin Coal.	<ul> <li>Q Shale and claystone Gray silty shale and light- to dark-gray claystone.</li> <li>The silty-shale is micaceous and contains abundant carbonaceous plant debris. The claystone is dark gray and carbonaceous</li> </ul>
		Dekoven Coal Davis Coal Seahorne Ls.		20–30	N	stone. The Herrin Coal Member is bituminous with well developed cleats, calcite, and pyrite along bedding. The coal is usually less than 5 feet thick in this region. The claystone "blue band" occurs as a thin (less than 3 inches) dark gray carbonaceous and pyritic parting in the lower portion of the coal	<b>R</b> Murphysboro coal The Murphysboro Coal Member is black bright banded to dull. Where well developed, the Murphysboro Coal reaches 6 to 7 feet in thickness. It averages 4 feet thick in this quadrangle where it was
	Upper Tradewater	Carrier Mills Sh. Wise Ridge coal Mt. Rorah coal		50–95	0 Q	<ul> <li>seam. The blue band is a distinctive marker bed for the Herrin Coal.</li> <li>F Shale, limestone, and claystone Dark gray shale, limestone, and claystone. The shale is silty and may grade into fine-grained sandstone. The limestone, known as the St. David Member, is micritic and contains fusulinids and brachiopods. In places the limestone grades into a calcareous shale. The claystone is rooted and represents an underclay for the overlying coal.</li> </ul>	<ul> <li>observed. The coal is bituminous and moderately low in sulfur and ash.</li> <li>S Shale, claystone, and sandstone The shale is dark gray carbonaceous. The claystone is dark gray and the sandstone is fine-grained tan-brown.</li> <li>Subsurface only</li> <li>The units below are found in the subsurface only (a short distance below</li> </ul>
	Lower Tradewater	Murphysboro Coal	0. e s	0-7	R S P	<b>G Springfield Coal</b> Black shiny coal. The Springfield Coal Member is bituminous with well developed cleats, calcite, and pyrite along bedding. The coal is usually less than 4 feet thick. It is underlain by a gray claystone or underclay.	<b>T</b> Sandstone The sandstone is fine to medium-grained with shale drapes. Cross beds are common along with mica and clay in the matrix.
	Caseyville			0–70		<ul> <li>H Shale, sandstone, and limestone Dark gray shale and tan-brown sandstone. The shale is silty and micaeous and is underlain by sandstone. The sandstone is fine- to medium-grained and micaeous. Below the sandstone is a black shale, the Excello Member, which is less than 4 feet thick. In places a thin marine limestone, the Hanover Member, is present.</li> <li>L Houchin Creek Coal, Black shipy coal, The Houchin Creek Coal Member</li> </ul>	<b>U</b> Sandstone, shale, and sandstone conglomerate The sandstone is medium- to coarse-grained quartz sand with well-rounded quartz pebbles (conglomerate) separated by gray shale. Shales are medium gray and are usually less than 20 feet thick containing clays and minor amounts of mica (less than 2–3 percent). The sandstone beds are medium- to coarse-grained quartz arentites. The conglomerate is composed of white quartz pebbles up to ½ inch in diameter set in a medium to coarse quartz sand.
		Cave Hill Limestone		200–300	U   	<ul> <li>J Shale, siltstone, and Survant Coal The shale and siltstone are dark to medium gray. Carbonaceous shale and a thin coal may be present. The Survant Coal Member may be present in places, but is thin and discontinuous.</li> </ul>	<b>V</b> Limestone and shale The limestone is medium gray to brownish gray, argillaceous, and cherty. Fossils include brachiopods and gastropods. Gray and greenish-gray shale, commonly calcareous, is present between the limestone ledges.
	Kinkaid Limestone	Negli Creek Limestone		, 0–80 	v	<b>K</b> Oak Grove limestone and shale The Oak Grove Limestone Member is medium gray and the shale is black. Limestone is bioclastic. The marine black shale, the Mecca Quarry Shale Member is usually 1 to 4 feet thick and	W Sandstone and shale The sandstone is white- to tan-brown and fine grained. Shales are gray and prominent red shale may be present at the top of the formation.
	Degonia			+25	W	may contain limestone concretions and interbedded limestone lenses. The entire unit is less than 10 feet thick.	Note: See accompanying report for Reference section.



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