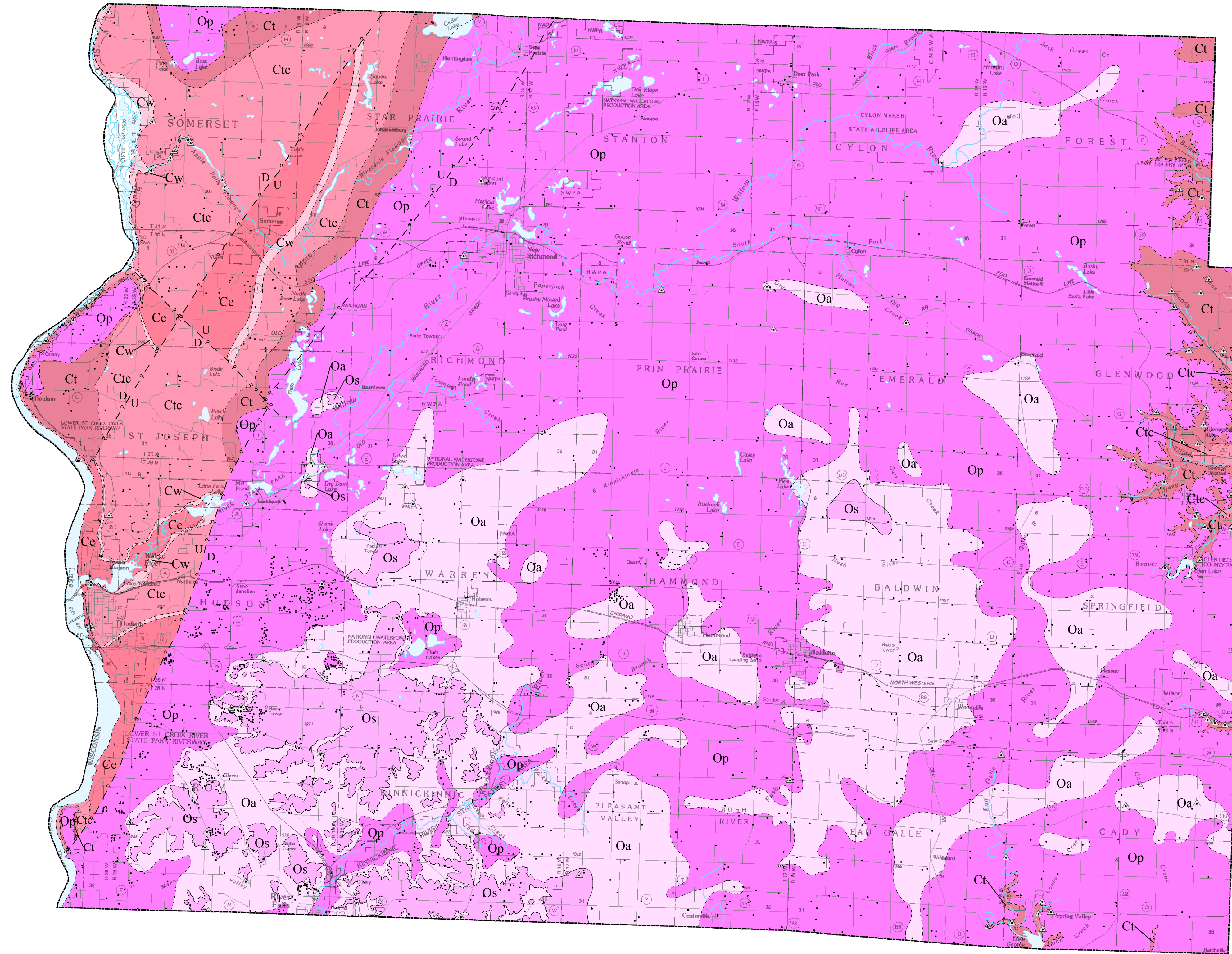


**Preliminary Geologic Map of the Buried Bedrock Surface  
of St. Croix County, Wisconsin**

David L. LePain  
2006



**EXPLANATION**

**SINNIPEE GROUP**

**Os Platteville Formation**  
Light brown to buff dolomite, thin- to medium-bedded. Up to 20 ft thick on hilltops in southwestern St. Croix County.

**ANCELL GROUP**

**Oa St. Peter Formation**  
Yellow-brown, white to gray sandstone. Sandstone is friable to well cemented and fine- to coarse-grained. Thickness up to 130 ft in southern St. Croix County.

**PRAIRIE DU CHIEN GROUP**

**Op Shakopee and Oneota Formations, undifferentiated**  
Light brown, gray-brown, and yellow dolomite, and dolomitic sandstone. Sharp lower contact with Trempealeau Group. Oneota Formation 20 to 40 ft thick in the eastern part of the county; Oneota Formation approximately 140 ft thick, and Shakopee Formation at least 45 ft thick, in the western part of the county. Locally silicified and commonly vuggy; larger solution cavities partially filled with brown unconsolidated sediment are common.

**TREMPEALEAU GROUP**

**Ct Jordan and St. Lawrence Formations, undifferentiated**  
Brown-yellow to white sandstone, gray siltstone, and minor gray shale. Sandstone is friable to well cemented, very fine- to coarse-grained quartzose sandstone and siltstone. Gradational lower contact with Tunnel City Group and sharp upper contact with Prairie du Chien Group. St. Lawrence Formation (Lodi Member) approximately 30 ft thick, dolomitic siltstone and very fine-grained sandstone. Jordan Formation (Norwalk and Van Oser Members) 80 to 90 ft thick, fine- to coarse-grained sandstone. Finer grained sandstones are commonly micaceous.

**TUNNEL CITY GROUP**

**Ctc Mazomanie and Lone Rock Formations, undifferentiated**  
Brown-yellow, buff, and green sandstone, gray siltstone, and pale green claystone. Sandstone is friable to well cemented, very fine- to medium-grained, and quartzose. Sharp lower contact with Waukesha Formation and gradational upper contact with Trempealeau Group. Mazomanie Formation is brown-yellow very fine- to medium-grained sandstone of the upper part of the group, at least 60 to 70 ft thick. Mazomanie sandstone is dolomitic, non-glaucouitic to moderately glaucouitic (few percent to 15 percent glaucouite) and includes abundant worm burrows and cross stratification. Lone Rock Formation is very-fine- to fine-grained sandstone, siltstone, and thin interbeds of gray-green claystone, at least 40 to 50 ft thick. Lone Rock sandstone is slightly glaucouitic (up to a few percent glaucouite) to highly glaucouitic (greater than 20 percent glaucouite), locally feldspathic, and locally includes sandstone intraclasts and sparse to abundant worm burrows.

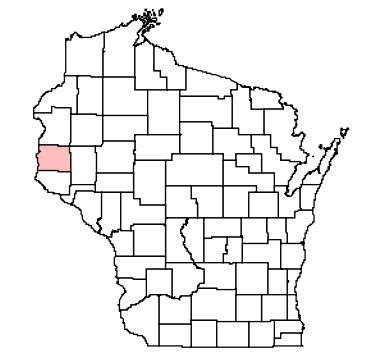
**ELK MOUND GROUP**

**Cw Waukesha Formation**  
Brown-yellow to buff sandstone. Friable fine- to medium-grained quartzose sandstone with minor discontinuous claystone drapes in lower part of the formation. Includes Galesville claystone, 20 to 40 ft thick. Gradational lower contact with the Eau Claire Formation and sharp upper contact with Tunnel City Group. Abundant trough and swaley cross stratification; thin lags of broken and abraded bleached brachiopod shells locally present near lower contact with the Eau Claire Formation. Prominent cemented horizons in the upper part of the formation.

**Ce Eau Claire Formation**  
Light gray to buff sandstone, gray siltstone, and gray claystone. Sandstone is weak to well cemented, very fine-grained to fine-grained. Gradational lower contact with Mount Simon Formation and gradational upper contact with Waukesha Formation. Sandstone is locally micaceous, feldspathic, and glaucouitic (up to few percent potassium feldspar and glaucouite). Sandstone and fine-grained lithologies commonly thinly interbedded; siltstone and claystone are present only as discontinuous drapes and partings in sand-dominated parts of the formation. Trilobites, hyolithids, and brachiopods are locally abundant in sandstones.

**SYMBOLS**

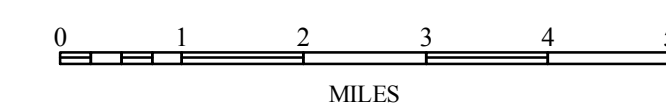
- Contact
- Contact (Inferred Location)
- Fault (Inferred Location)  
"U" indicates upthrown side  
"D" indicates downthrown side
- Outcrop Data Point
- Subsurface Data Point



The base map was constructed from U.S. Geological Survey digital line graph files (1990, scale 1:100,000) modified by the Wisconsin Department of Natural Resources (1992) and the Wisconsin Geological and Natural History Survey (2000).



Scale 1:100,000



**Wisconsin Geological and Natural History Survey  
Open-File Report 2006-04**

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This map represents work performed by the Wisconsin Geological and Natural History Survey and is released to the open files in the interest of making the information readily available. This map has not been edited or reviewed for conformity with Wisconsin Geological and Natural History Survey standards and nomenclature.