

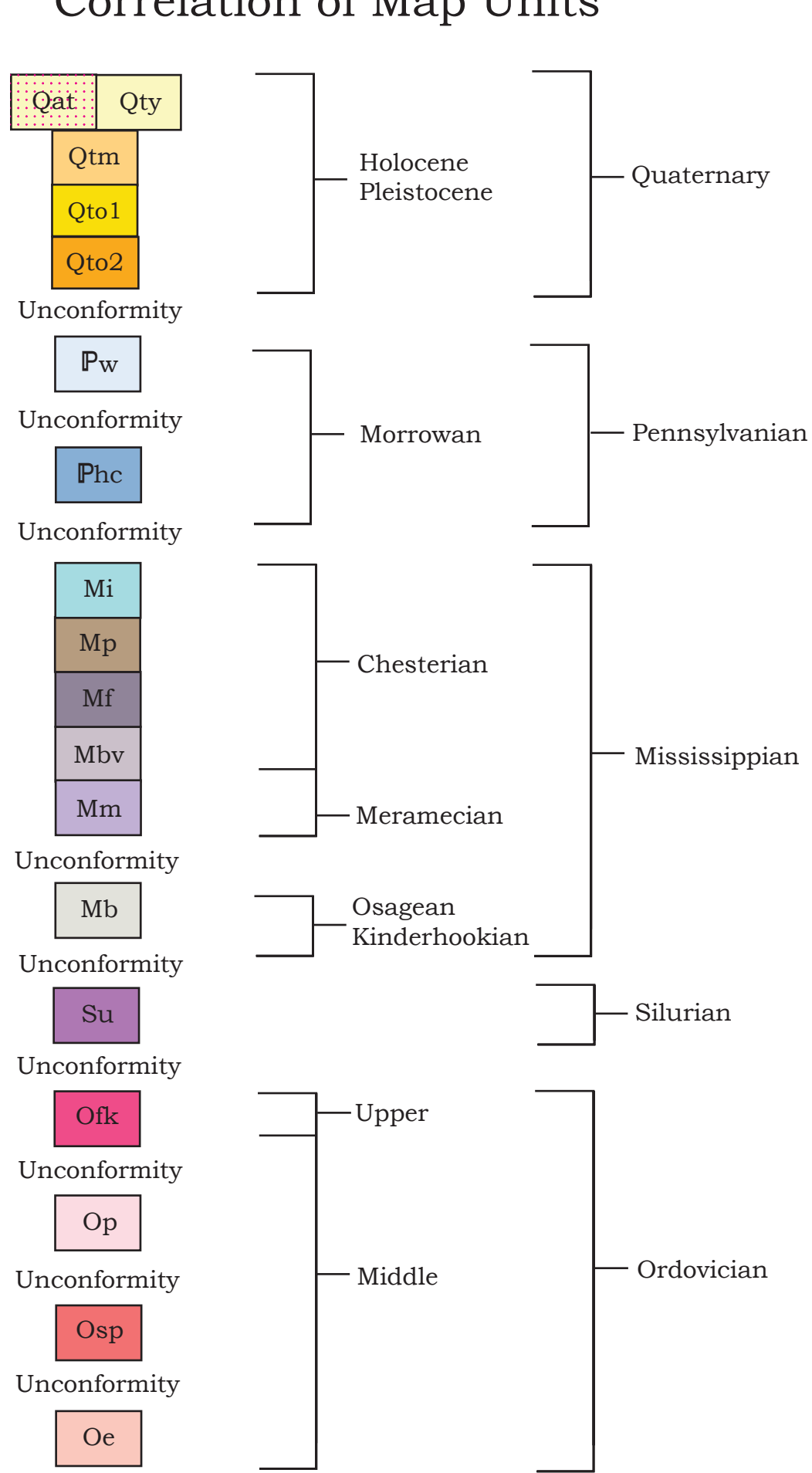


Geologic Map of the Marshall Quadrangle, Searcy County, Arkansas

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2008
Revised 2015

MARSHALL QUADRANGLE
ARKANSAS
7.5 MINUTE SERIES (TOPOGRAPHIC)

Correlation of Map Units



Introduction

This map graphically summarizes the bedrock geology of the Marshall 7.5-minute quadrangle. In this area over 1,200 feet (366 meters) of Middle Ordovician to Lower Pennsylvanian carbonate and clastic sedimentary rocks are exposed. Bedrock is typically overlain by a veneer of unconsolidated residuum, colluvium or alluvium. The mapped area lies mostly on the Springfield Plateau, but includes the northern edge of the Boston Mountains Plateau. The Boston Mountains Plateau, formed on Early Pennsylvanian rocks, is the highest plateau surface of the Ozark Dome, a structural high centered in southeastern Missouri that affects all the bedrock in northern Arkansas. This plateau has a very distinct escarpment which can be viewed from the Highway 65 road-cut just south of Marshall. West of Marshall, the Springfield Plateau surface can be seen spreading out to the horizon and deeply incised by steep-sided drainages. It is formed on the Boone Formation 600 to 700 feet (183 to 213 meters) below the Boston Mountains Plateau.

Two of the larger drainages in this area are Bear Creek and Brush Creek, which flow north and into the Buffalo River which cuts across the northwestern corner of the quadrangle. Alluvial and terrace deposits along these two drainages are only shown in areas where they do not overlap the Ordovician through Silurian section on the northern half of the map to better show the detail of these hummocky units. Recent discoveries of old and very old terrace deposits about a mile north of the current channel of the Buffalo River near Gilbert, indicate that an ancient meander bend cutoff may have existed there. An event of this type would have resulted in a period of rapid downcutting stranding additional terraces.

The area within the thick, brown line is part of the Buffalo National River which is administered by the National Park Service. The lowest elevation on the Marshall quadrangle is on the Buffalo River at the northern edge of the map. Bryan Mountain on the southwestern corner is the highest point.

The geology of the northwestern corner of this area was mapped in 1953 by Maher and Lantz. The entire quadrangle was mapped at the 1:24,000-scale in 1965 by Clardy and Woodward and in 1973 by Glick for the 1:500,000-scale Geologic Map of Arkansas. The current map builds on the previous work using revised stratigraphy and adding structural details. The contacts and structural features on the map were derived from field observations made at numerous sites from July 2007 through April 2008. Additional data were collected in 2014-15 to delineate terraces along the Buffalo River. Data collection sites were located with the aid of a global positioning satellite receiver. Bedrock dipping at less than 2° is depicted as horizontal.

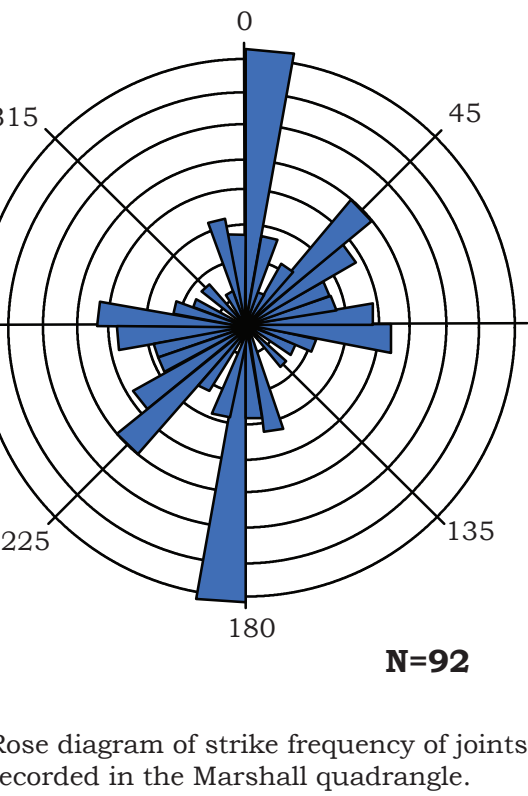
Description of Map Units

- Qat** Alluvium and terrace deposits (Quaternary) - unconsolidated clay, silt, sand and gravel in gravel bars and point bar deposits along the Buffalo River. Primarily clay, silt and sand in youngest terrace above the river. The tops of terraces are generally hummocky and tree-covered but also common are flat tops dissected by tributaries. Approximately 20-30 ft. (6-9 m) thick.
- Qtm** Young terrace and active channel deposits (Quaternary) - unconsolidated clay, silt, sand, and gravel in gravel bars and point bar deposits along the Buffalo River. Primarily clay, silt and sand in youngest terrace above the river. The tops of terraces are generally hummocky and tree-covered but also common are flat tops dissected by tributaries. Approximately 20-30 ft. (6-9 m) thick.
- Qto1** Medial terrace and alluvial deposits (Quaternary) - unconsolidated clay, silt, sand, gravel, and cobbles along the Buffalo River. The contact with the underlying young terrace is located at the base of a rise that is approximately 15-20 ft. (4-6 m) high and usually coincides with the edge of the riparian zone along the river. This terrace is located approximately 40 ft. (12 m) above the river and ranges in thickness from 20-60 ft. (6-18 m).

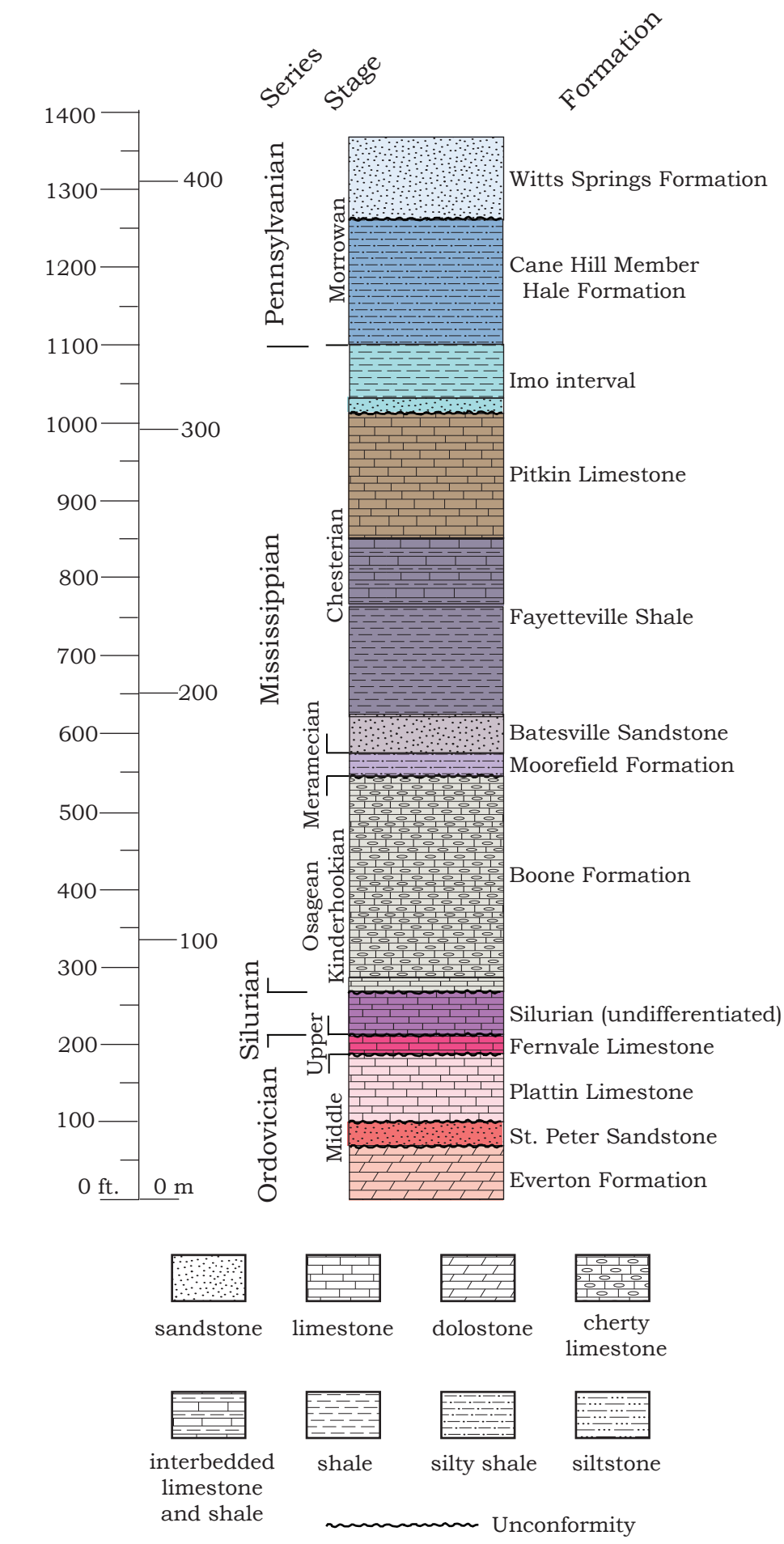
Symbols

- Contact
- Normal fault - ball and bar on downthrown side. Dashed where inferred. Dotted where concealed.
- Inclined bedding showing strike and dip
- Abandoned mine or quarry
- Gravel pit

Joint Frequency



Stratigraphic Column



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Limitations: This map, like all geologic maps, is based on interpretations which were made from the data available at the time it was created. As work continues and new data is collected, the contacts and structures depicted on this map may be changed.

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