

U.S. Department of the Interior  
National Park Service  
Natural Resource Stewardship and Science Directorate  
Geologic Resources Division



# Wilson's Creek National Battlefield

## *GRI Ancillary Map Information Document*

Produced to accompany the Geologic Resources Inventory (GRI) Digital Geologic Data for Wilson's Creek National Battlefield

wicr\_geology.pdf

Version: 2/14/2012

# Geologic Resources Inventory Map Document for Wilson's Creek National Battlefield

## Table of Contents

|  |           |
|--|-----------|
| <b>Geologic Resources Inventory Map Document.....</b>                        | <b>1</b>  |
| <b>About the NPS Geologic Resources Inventory Program.....</b>               | <b>2</b>  |
| <b>Map Unit List.....</b>  | <b>4</b>  |
| <b>Map Unit Descriptions.....</b>  | <b>5</b>  |
| Qal - Alluvium (Quaternary).....   | 5         |
| PNr - Pennsylvanian rocks (Pennsylvanian).....                               | 5         |
| Mw - Warsaw Formation (Lower Mississippian - Meramecian).....                | 5         |
| Mbk - Burlington-Keokuk Limestone (Lower Mississippian - Upper Osagean)..... | 5         |
| Me - Eley Formation (Lower Mississippian - Upper Osagean).....               | 5         |
| Mrs - Reeds Spring Formation (Lower Mississippian - Upper Osagean).....      | 6         |
| Mp - Pierson Formation (Lower Mississippian - Lower Osagean).....            | 6         |
| <b>GRI Source Map Citations.....</b>   | <b>7</b>  |
| Unpublished Republic 7.5' Quadrangle.....                                    | 7         |
| Legend.....  | 8         |
| Declination.....   | 9         |
| Quadrangle Location.....   | 9         |
| Unpublished Brookline 7.5' Quadrangle.....                                   | 10        |
| Legend.....  | 10        |
| Declination.....   | 11        |
| Quadrangle Location.....   | 11        |
| Unpublished Nixa 7.5' Quadrangle.....  | 12        |
| Declination.....   | 12        |
| Quadrangle Location.....   | 12        |
| Unpublished Springfield 7.5' Quadrangle (Robertson, 1992).....               | 13        |
| Legend.....  | 13        |
| Declination.....   | 14        |
| Quadrangle Location.....   | 14        |
| Unpublished Springfield 7.5' Quadrangle (Fellows, 1970).....                 | 15        |
| Author Notes Regarding Wells.....  | 15        |
| Declination.....   | 16        |
| Quadrangle Location.....   | 16        |
| Springfield 30' x 60' Quadrangle.....  | 17        |
| Geologic Mapping Index.....  | 17        |
| Correlation of Map Units.....  | 18        |
| <b>GRI Digital Data Credits.....</b>   | <b>19</b> |

## Geologic Resources Inventory Map Document



# Wilson's Creek National Battlefield, Missouri

## Document to Accompany Digital Geologic-GIS Data

[wicr\\_geology.pdf](#)

Version: 2/14/2012

This document has been developed to accompany the digital geologic-GIS data developed by the Geologic Resources Inventory (GRI) program for Wilson's Creek National Battlefield, Missouri (WICR).

Attempts have been made to reproduce all aspects of the original source products, including the geologic units and their descriptions, geologic cross sections, the geologic report, references and all other pertinent images and information contained in the original publication.

National Park Service (NPS) Geologic Resources Inventory (GRI) Program staff have assembled the digital geologic-GIS data that accompanies this document.

For information about the status of GRI digital geologic-GIS data for a park contact:

Tim Connors  
Geologist/GRI Mapping Contact  
National Park Service Geologic Resources Division  
P.O. Box 25287  
Denver, CO 80225-0287  
phone: (303) 969-2093  
fax: (303) 987-6792  
email: [Tim\\_Connors@nps.gov](mailto:Tim_Connors@nps.gov)

For information about using GRI digital geologic-GIS data contact:

Stephanie O'Meara  
Geologist/GIS Specialist/Data Manager  
Colorado State University Research Associate, Cooperator to the National Park Service  
1201 Oak Ridge Drive, Suite 200  
Fort Collins, CO 80525  
phone: (970) 491-6655  
fax: (970) 225-3597  
e-mail: [stephanie.omeara@colostate.edu](mailto:stephanie.omeara@colostate.edu)

## About the NPS Geologic Resources Inventory Program

### Background

Recognizing the interrelationships between the physical (geology, air, and water) and biological (plants and animals) components of the Earth is vital to understanding, managing, and protecting natural resources. The Geologic Resources Inventory (GRI) helps make this connection by providing information on the role of geology and geologic resource management in parks.

Geologic resources for management consideration include both the processes that act upon the Earth and the features formed as a result of these processes. Geologic processes include: erosion and sedimentation; seismic, volcanic, and geothermal activity; glaciation, rockfalls, landslides, and shoreline change. Geologic features include mountains, canyons, natural arches and bridges, minerals, rocks, fossils, cave and karst systems, beaches, dunes, glaciers, volcanoes, and faults.

The Geologic Resources Inventory aims to raise awareness of geology and the role it plays in the environment, and to provide natural resource managers and staff, park planners, interpreters, researchers, and other NPS personnel with information that can help them make informed management decisions.

The GRI team, working closely with the Colorado State University (CSU) Department of Geosciences and a variety of other partners, provides more than 270 parks with a geologic scoping meeting, digital geologic-GIS map data, and a park-specific geologic report.

### Products

**Scoping Meetings:** These park-specific meetings bring together local geologic experts and park staff to inventory and review available geologic data and discuss geologic resource management issues. A summary document is prepared for each meeting that identifies a plan to provide digital map data for the park.

**Digital Geologic Maps:** Digital geologic maps reproduce all aspects of traditional paper maps, including notes, legend, and cross sections. Bedrock, surficial, and special purpose maps such as coastal or geologic hazard maps may be used by the GRI to create digital Geographic Information Systems (GIS) data and meet park needs. These digital GIS data allow geologic information to be easily viewed and analyzed in conjunction with a wide range of other resource management information data.

For detailed information regarding GIS parameters such as data attribute field definitions, attribute field codes, value definitions, and rules that govern relationships found in the data, refer to the NPS Geology-GIS Data Model document available at: <http://science.nature.nps.gov/im/inventory/geology/GeologyGISDataModel.cfm>

**Geologic Reports:** Park-specific geologic reports identify geologic resource management issues as well as features and processes that are important to park ecosystems. In addition, these reports present a brief geologic history of the park and address specific properties of geologic units present in the park.

For a complete listing of Geologic Resource Inventory products and direct links to the download site visit the GRI publications webpage [http://www.nature.nps.gov/geology/inventory/gre\\_publications.cfm](http://www.nature.nps.gov/geology/inventory/gre_publications.cfm)

GRI geologic-GIS data is also available online at the NPS Data Store Search Application: <http://irma.nps.gov/App/Reference/Search>. To find GRI data for a specific park or parks select the appropriate park

(s), enter "GRI" as a Search Text term, and then select the Search Button.

For more information about the Geologic Resources Inventory Program visit the GRI webpage: <http://www.nature.nps.gov/geology/inventory>, or contact:

Bruce Heise  
Inventory Coordinator  
National Park Service Geologic Resources Division  
P.O. Box 25287  
Denver, CO 80225-0287  
phone: (303) 969-2017  
fax: (303) 987-6792  
email: [Bruce\\_Heise@nps.gov](mailto:Bruce_Heise@nps.gov)

The Geologic Resources Inventory (GRI) program is funded by the National Park Service (NPS) Inventory and Monitoring (I&M) Division.

## Map Unit List

The geologic units present in the digital geologic-GIS data produced for Wilson's Creek National Battlefield, Missouri (WICR) are listed below. Units are listed with their assigned unit symbol and unit name (Qal - Alluvium). Units are listed from youngest to oldest. Information about each geologic unit is also presented in the Geologic Unit Information (UNIT) table included with the GRI geology-GIS data.

### Geologic Map Units

#### Cenozoic Era

##### Quaternary Period

Qal - [Alluvium](#)

#### Mesozoic Era

##### Pennsylvanian Period

PNr - [Pennsylvanian rocks](#)

##### Lower Mississippian Period

Mw - [Warsaw Formation](#)

Mbk - [Burlington-Keokuk Limestone](#)

Me - [Elsy Formation](#)

Mrs - [Reed Spring Formation](#)

Mp - [Pierson Formation](#)

\*\* Unit names and ages were taken from Springfield 30 x 60 map ([OFM-01-398-GS](#)) as suggested by the Missouri Department of Natural Resources, Division of Geology and Land Survey (*GRI Source Map 75031*).

## Map Unit Descriptions

Descriptions of all geologic map units, generally listed from youngest to oldest, are presented below. Unit descriptions, as well as their names and ages were taken from Springfield 30 x 60 map ([OFM-01-398-GS](#)) as suggested by the Missouri Department of Natural Resources, Division of Geology and Land Survey (*GRI Source Map 75031*).

### **Qal - Alluvium (Quaternary)**

Unconsolidated sands, silts, and gravels derived from the weathering of exposed rock units and deposited in streams, channels, valleys, and flood plains. Gravels are composed mainly of chert fragments with a quartz sand matrix. Thickness varies up to about 40 feet. *GRI Source Map ID 750331* ([OFM-01-398-GS](#)).

\*\* The unit appears to have only been mapped on the Nixa 7.5' Quadrangle and the Springfield 7.5' Quadrangle.

### **PNr - Pennsylvanian rocks (Pennsylvanian)**

No unit description available.

### **Mw - Warsaw Formation (Lower Mississippian - Meramecian)**

Warsaw limestone is light-gray to bluish-gray, medium- to coarsely crystalline and fossiliferous. It contains some lenticular nodules and discontinuous beds of light-gray chert. The formation is quite variable in thickness, ranging up to 40 feet northwest of Springfield, but is thin or absent northeast of Springfield. In the Greenfield area to the west, the formation varies from 150 to 180 feet thickness. *GRI Source Map ID 750331* ([OFM-01-398-GS](#)).

### **Mbk - Burlington-Keokuk Limestone (Lower Mississippian - Upper Osagean)**

Limestone is light- to medium-gray, medium- to coarsely crystalline, massive-bedded, crinoidal, and contains isolated nodules and discontinuous beds of chert. The chert is typically white to light-gray and fossiliferous. The Short Creek Oolite Member of the Burlington-Keokuk Limestone, a thin oolitic limestone about 2 feet thick, is a marker bed separating the Burlington-Keokuk from the overlying Warsaw Formation. Around Mount Vernon, the 20 to 30 feet thick Grand Falls Member is present toward the base of the Burlington-Keokuk Limestone. This member is fine- to coarse-grained, light-gray, cherty limestone. Total exposed thickness of the Burlington-Keokuk ranges up to 200 feet. Only 60 feet is exposed in the Fair Grove area. *GRI Source Map ID 750331* ([OFM-01-398-GS](#)).

### **Me - Eley Formation (Lower Mississippian - Upper Osagean)**

The Eley Formation is a light-gray, micritic limestone, containing some crinoids. Chert occurs as nodules and elongated lenses and are mottled white, cream, and gray. North of Springfield, the formation contains 25 to 50 percent chert and is 50 to 80 feet thick. The Reeds Spring Formation consists of alternating beds of dense, gray to tan, finely crystalline, thin-bedded limestone with irregular beds and nodules of bluish-gray to brown to dark-gray chert; locally chert exceeds 50 percent. West of Springfield, the unit is prominent in the southern part of the Halltown Quadrangle, ranging up to 120 feet thick, but loses its identity to the north and is indistinguishable from the lower Burlington-Keokuk Limestone. *GRI Source Map ID 750331* ([OFM-01-398-GS](#)).

### **Mrs - Reeds Spring Formation (Lower Mississippian - Upper Osagean)**

The Reeds Spring Formation is 50 to 130 feet thick in the Mount Vernon and surrounding quadrangles and contains 25 to 60 percent distinctive white to gray chert as small nodules and stringers. Here the limestone is light-gray to bluish-gray, weathering to light-brown. It is micritic to finely crystalline. Northwest of Springfield, the formation is only 20 to 55 feet thick. Here the limestone is dark-gray, micritic to finely crystalline, and contains 25 to 50 percent white to gray chert as nodules and elongated lenses. *GRI Source Map ID 750331 ([OFM-01-398-GS](#))*.

### **Mp - Pierson Formation (Lower Mississippian - Lower Osagean)**

The Pierson Formation is light-gray to brownish-gray to light-brown dolomitic limestone and dolostone with minor chert and calcite nodules. The unit is fine-grained and quite silty at the base with small nodules of chert frequently occurring toward the top of the formation. Thickness of the formation varies from 10 to 80 feet. Around Fair grove, a lower massive, brown, silty dolostone and dolomitic limestone is overlain by a layer of brown dolostone with layers of lenticular gray chert. This is overlain by a medium to thin-bedded fossiliferous gray limestone. Here the formation is from 20 to 40 feet thick. *GRI Source Map ID 750331 ([OFM-01-398-GS](#))*.

## GRI Source Map Citations

The GRI digital geologic-GIS maps for Wilson's Creek National Battlefield, Missouri (WICR) were compiled from the following sources:

Work, D.M. and C.E. Robertson, 1991, Geologic Map of the Republic 7.5' Quadrangle, Missouri, Missouri Department of Natural Resources, Division of Geology and Land Survey, unpublished, 1:24,000 scale ([unpublished Republic 7.5' Quadrangle](#)). (*GRI Source Map ID 75521*)

Robertson, C.E., 1990, Geologic Map of the Brookline 7.5' Quadrangle, Missouri, Missouri Department of Natural Resources, Division of Geology and Land Survey, unpublished, 1:24,000 scale ([unpublished Brookline 7.5' Quadrangle](#)). (*GRI Source Map ID 75524*)

Thomson, K.C., 1981, Geologic Map of the Nixa 7.5' Quadrangle, Missouri, Missouri Department of Natural Resources, Division of Geology and Land Survey, unpublished, 1:24,000 scale ([unpublished Nixa 7.5' Quadrangle](#)). (*GRI Source Map ID 72227*)

Robertson, C.E., 1992, Geologic Map of the Springfield 7.5' Quadrangle, Missouri, Missouri Department of Natural Resources, Division of Geology and Land Survey, unpublished, 1:24,000 scale ([unpublished Springfield 7.5' Quadrangle](#)). (*GRI Source Map ID 75534*)

Fellows, J.D., 1970, Geologic Map of the Springfield 7.5' Quadrangle, Missouri, Missouri Department of Natural Resources, Division of Geology and Land Survey, unpublished, 1:24,000 scale ([unpublished Springfield 7.5' Quadrangle](#)). (*GRI Source Map ID 75533*)

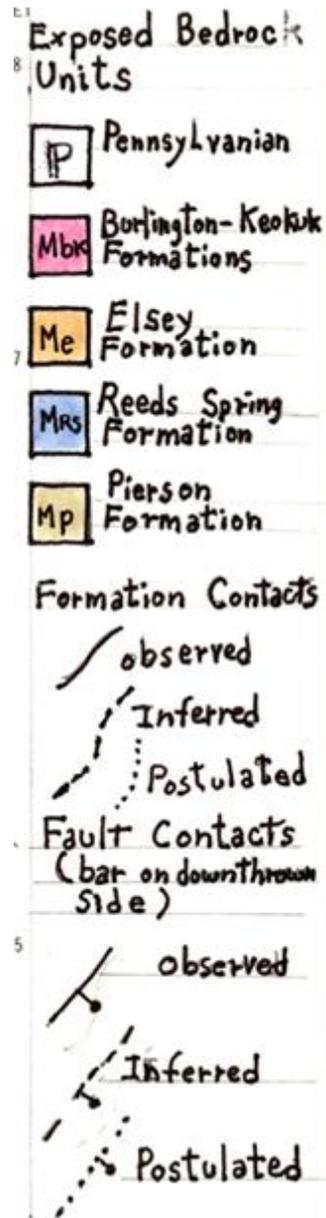
Wedge, W.K., 2001, Geologic Map of the Springfield 30' x 60' Quadrangle, Missouri, Missouri Department of Natural Resources, Division of Geology and Land Survey, OFM-01-398-GS, 1:100,000 scale ([OFM-01-398-GS](#)). (*GRI Source Map ID 750331*)

Additional information pertaining to each source map is also presented in the Source Map Information (MAP) table included with the GRI geology-GIS data.

### Unpublished Republic 7.5' Quadrangle

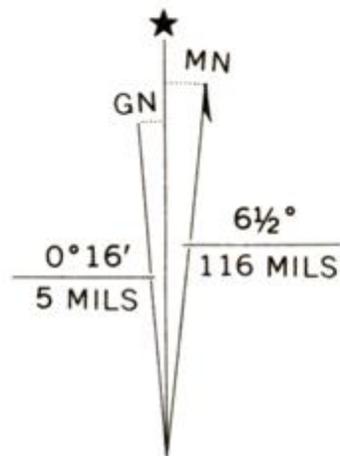
Work, D.M. and C.E. Robertson, 1991, Geologic Map of the Republic 7.5' Quadrangle, Missouri, Missouri Department of Natural Resources, Division of Geology and Land Survey, unpublished, 1:24,000 scale (*GRI Source Map ID 75521*)

## Legend



Extracted from: ([unpublished Republic 7.5' Quadrangle](#))

## Declination



UTM GRID AND 1970 MAGNETIC NORTH  
DECLINATION AT CENTER OF SHEET

Extracted from: ([unpublished Republic 7.5' Quadrangle](#)).

## Quadrangle Location



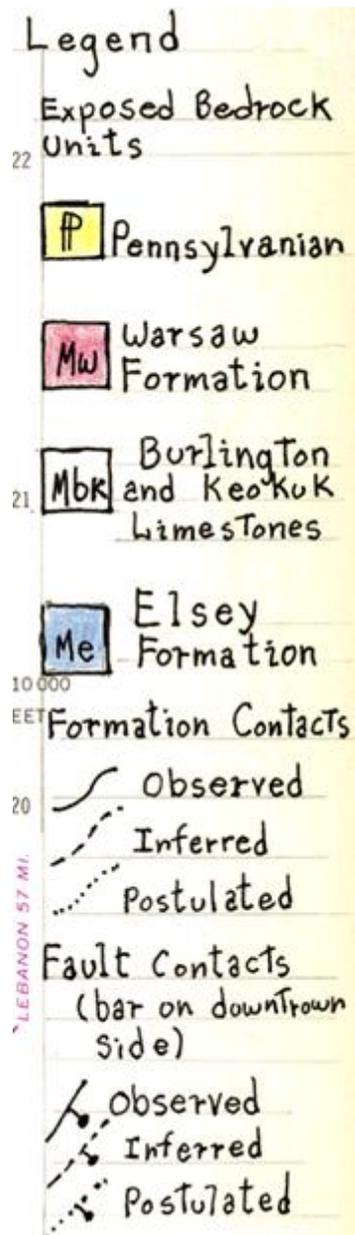
QUADRANGLE LOCATION

Extracted from: ([unpublished Republic 7.5' Quadrangle](#)).

## Unpublished Brookline 7.5' Quadrangle

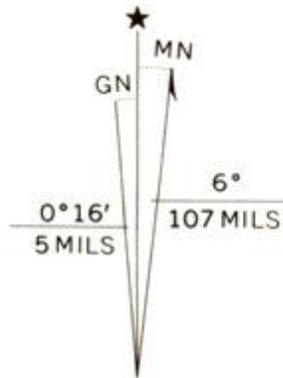
Robertson, C.E., 1990, Geologic Map of the Brookline 7.5' Quadrangle, Missouri, Missouri Department of Natural Resources, Division of Geology and Land Survey, unpublished, 1:24,000 scale (*GRI Source Map ID 75524*)

### Legend



Extracted from: ([unpublished Brookline 7.5' Quadrangle](#)).

## Declination



UTM GRID AND 1975 MAGNETIC NORTH  
DECLINATION AT CENTER OF SHEET

Extracted from: ([unpublished Brookline 7.5' Quadrangle](#)).

## Quadrangle Location

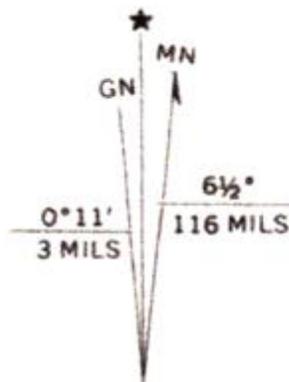


Extracted from: ([unpublished Brookline 7.5' Quadrangle](#)).

## Unpublished Nixa 7.5' Quadrangle

Thomson, K.C., 1981, Geologic Map of the Nixa 7.5' Quadrangle, Missouri, Missouri Department of Natural Resources, Division of Geology and Land Survey, unpublished, 1:24,000 scale (*GRI Source Map ID 72227*)

### Declination



UTM GRID AND 1970 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

Extracted from: ([unpublished Nixa 7.5' Quadrangle](#)).

### Quadrangle Location

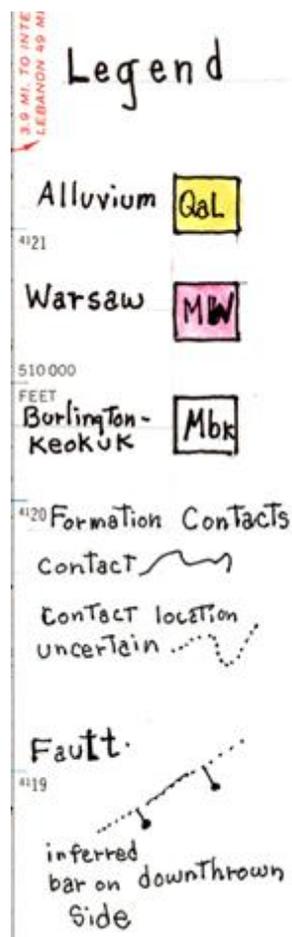


Extracted from: ([unpublished Nixa 7.5' Quadrangle](#)).

## Unpublished Springfield 7.5' Quadrangle (Robertson, 1992)

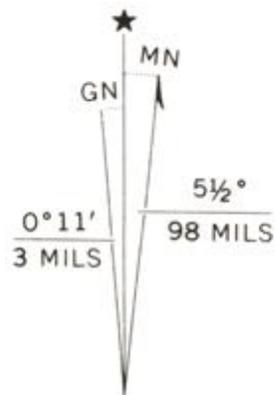
Robertson, C.E., 1992, Geologic Map of the Springfield 7.5' Quadrangle, Missouri, Missouri Department of Natural Resources, Division of Geology and Land Survey, unpublished, 1:24,000 scale (*GRI Source Map ID 75534*)

### Legend



Extracted from: ([unpublished Springfield 7.5' Quadrangle](#)).

## Declination



UTM GRID AND 1975 MAGNETIC NORTH  
DECLINATION AT CENTER OF SHEET

Extracted from: ([unpublished Springfield 7.5' Quadrangle](#)).

## Quadrangle Location



Extracted from: ([unpublished Springfield 7.5' Quadrangle](#)).

## Unpublished Springfield 7.5' Quadrangle (Fellows, 1970)

Fellows, J.D., 1970, Geologic Map of the Springfield 7.5' Quadrangle, Missouri, Missouri Department of Natural Resources, Division of Geology and Land Survey, unpublished, 1:24,000 scale (*GRI Source Map ID 75533*)

\*\* It was suggested at the GRI scoping meeting conducted for Wilson's Creek National Battlefield (WICR) that this source map also be digitized and provided to the park as the map was recognized to possess additional geologic information and/or detail worthy of communicating to the park and users interested in the geology of the Springfield 7.5' quadrangle. This, in addition to the compiled GRI Digital Geologic Map of Wilson's Creek National Battlefield and Vicinity, Missouri (*GRI MapCode WICR*) that also provides geology map information for the Springfield 7.5' quadrangle, but uses a different source map for the Springfield 7.5' quadrangle.

## Author Notes Regarding Wells

The unpublished source map (Fellows, 1970) has additional information concerning wells. This information wasn't captured by the GRI as this was deemed of limited value to our intended users, and there were uncertainties concerning this information. What follows are the author's notes regarding wells.

Short Creek oolite  
Shown in red:

- well w/ short creek
- x sc outcrop

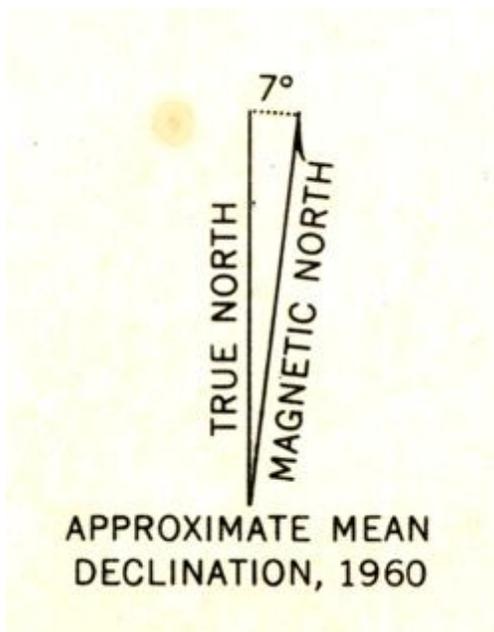
In wells that do not have short creek, elevation is projected using 210' interval from base of Burlington to base of short creek. Example:

b + 1052  
sc + 1262 p

0000  
ET Short Creek is herein classified as uppermost member of Burlington - Kedeuh limestone. Limestone above short creek is considered to be Warsaw.

Extracted from: ([unpublished Springfield 7.5' Quadrangle](#)).

## Declination



Extracted from: ([unpublished Springfield 7.5' Quadrangle](#)).

## Quadrangle Location



Extracted from: ([unpublished Springfield 7.5' Quadrangle](#)).

## Springfield 30' x 60' Quadrangle

Wedge, W.K., 2001, Geologic Map of the Springfield 30' x 60' Quadrangle, Missouri, Missouri Department of Natural Resources, Division of Geology and Land Survey, OFM-01-398-GS, 1:100,000 scale (*GRI Source Map ID 75031*)

\*\* At the GRI scoping meeting conducted for Wilson's Creek National Battlefield (WICR) the Missouri Department of Natural Resources, Division of Geology and Land Survey suggested that unit descriptions present on the Springfield 30' x 60' be used as no unit descriptions are present on the unpublished quadrangle maps. Unit names and ages were also taken from this source.

## Geologic Mapping Index

| GEOLOGIC MAPPING INDEX            |                                 |                                |   |   |  |   |  |
|-----------------------------------|---------------------------------|--------------------------------|---|---|--|---|--|
| LOCKWOOD<br>Thomson<br>Thacker    | GREEN-FIELD<br>Thomson          | DADEVILLE<br>Thomson           | WALNUT GROVE<br>Thomson<br>Searight, T.K. | MORRIS-VILLE<br>Thomson                             | PLEASANT HOPE<br>Thomson<br>Fellows                                | FAIR GROVE<br>Thomson<br>Russell/<br>Knight                 | ELKLAND<br>Thomson                                     |
| KINGS POINT<br>Thomson<br>Thacker | SOUTH GREEN-FIELD<br>Thomson    | EVERTON<br>Thomson             | ASH GROVE<br>Thomson<br>Searight, T.K.    | WILLARD<br>Thomson<br>Walker                        | EBENEZER<br>Thomson<br>Middendorf<br>Walker<br>Clark/<br>Beveridge | BASSVILLE<br>Thomson<br>Beveridge<br>Russell/<br>Knight     | STRAF-FORD<br>Thomson<br>Pulliam<br>Russell/<br>Knight |
| RESCUE<br>Thomson<br>Thacker      | MILLER<br>Thomson               | HALLTOWN<br>Thomson<br>Clark   | HALLTOWN NE<br>Thomson                    | BROOKLINE<br>Thomson<br>Robertson<br>Walker         | SPRING-FIELD<br>Thomson<br>Robertson                               | GALLOWAY<br>Thomson<br>Fellows<br>Koenig<br>Walker<br>Hayes | OAK GROVE HEIGHTS<br>Thomson<br>Hayes                  |
| STOTTS CITY<br>Thomson<br>Thacker | MOUNT VERNON<br>Thomson<br>Bohm | CHESA-PEAKE<br>Thomson<br>Bohm | BILLINGS<br>Thomson<br>Clark              | REPUBLIC<br>Thomson<br>Walker<br>Work/<br>Robertson | NIXA<br>Thomson<br>Thompson<br>Walker                              | OZARK<br>Thomson<br>Hayes<br>Walker                         | ROGERS-VILLE<br>Thomson<br>Walker<br>Hayes             |

Extracted from: ([OFM-01-398-GS](#)).

## Correlation of Map Units

### CORRELATION OF MAP UNITS

| MAP UNIT SYMBOL & COLOR | SYSTEM        | SERIES        | FORMATION(S)/MAPPABLE UNIT(S) | THICKNESS IN FEET |
|-------------------------|---------------|---------------|-------------------------------|-------------------|
| Qal                     | Quaternary    | Pleistocene   | Alluvium                      | 40                |
| Qt                      | Quaternary    | Pleistocene   | Terrace                       | 20                |
| UNCONFORMITY            |               |               |                               |                   |
| Pcs                     | Pennsylvanian | Desmoinesian  | Channel Sandstone             | 10-200            |
| Pr                      | Pennsylvanian | Desmoinesian  | Rowe                          | 10-25             |
| Pv                      | Pennsylvanian | Desmoinesian  | Warner                        | 30-50             |
| UNCONFORMITY            |               |               |                               |                   |
| Mw                      | Mississippian | Meramecian    | Warsaw                        | 150-180           |
| Mbk                     | Mississippian | Osagean       | Burlington-Keokuk             | 200*              |
| Mre                     | Mississippian | Osagean       | Elsley & Reeds Spring         | 120*              |
| Mp                      | Mississippian | Osagean       | Pierson                       | 10-80             |
| Mk                      | Mississippian | Kinderhookian | Northview & Compton           | 15-80             |
| UNCONFORMITY            |               |               |                               |                   |
| Oc                      | Ordovician    | Ibexian       | Cotter                        | 175*              |
| Ojc                     | Ordovician    | Ibexian       | Jefferson City                | 200*              |
| Or                      | Ordovician    | Ibexian       | Roubidoux                     | 60*               |

\* Unit is not completely exposed.

Extracted from: ([OFM-01-398-GS](#)).

\*\* Only the units Qal, Mw, Mbk, Mre (divided into Me and Mrs), and Mp are present/mapped on the GRI digital geologic maps.

## GRI Digital Data Credits

This document was developed and completed by Georgia Hybels (NPS GRD) for the NPS Geologic Resources Division (GRD) Geologic Resources Inventory(GRI) Program. Quality control of this document by Stephanie O'Meara (Colorado State University).

The information contained here was compiled to accompany the digital geologic-GIS map(s) and other digital data for Wilson's Creek National Battlefield, Missouri (WICR) developed by Georgia Hybels and Max Jackl (Colorado State University). Quality control of this digital data by Georgia Hybels and Stephanie O'Meara.

GRI finalization by Stephanie O'Meara.

GRI program coordination and scoping provided by Bruce Heise and Tim Connors (NPS GRD, Lakewood, Colorado).