

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: 6/22/2022

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

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Geologic Resources Inventory Map Document



Wilson's Creek National Battlefield, Missouri

Document to Accompany Digital Geologic-GIS Data

[wicr_geology.pdf](#)

Version: 6/22/2022

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.

This document contains the following information:

- 1) **About the NPS Geologic Resources Inventory Program** – A brief summary of the Geologic Resources Inventory (GRI) Program and its products. Included are web links to the GRI GIS data model, and to the GRI products page where digital geologic-GIS datasets, scoping reports and geology reports are available for download. In addition, web links to the NPS Data Store and GRI program home page, as well as contact information for the GRI coordinator, are also present.
- 2) **GRI Digital Maps and Source Map Citations** – The GRI digital geologic-GIS map produced for this project along with sources used in their completion. In addition, a brief explanation of how each source map was used is provided.
- 3) **Map Unit List** – A listing of all geologic map units present on maps for this project, generally listed from youngest to oldest.
- 4) **Map Unit Descriptions** – Descriptions for all geologic map units.
- 5) **Ancillary Source Map Information** – Additional source map information presented by source map.
- 6) **GRI Digital Data Credits** – GRI digital geologic-GIS data and ancillary map information document production credits.

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

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About the NPS Geologic Resources Inventory Program

Background

The Geologic Resources Inventory (GRI) provides geologic map data and pertinent geologic information to support resource management and science-informed decision making in more than 270 natural resource parks throughout the National Park System. 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 GRI is one of 12 inventories funded by the National Park Service (NPS) Inventory and Monitoring Program. The Geologic Resources Division of the NPS Natural Resource Stewardship and Science Directorate administers the GRI. The NPS Geologic Resources Division partners with the Colorado State University Department of Geosciences to produce GRI products. Many additional partners participate in the GRI process by contributing source maps or reviewing products.

The GRI team undertakes three tasks for each park in the Inventory and Monitoring program: (1) conduct a scoping meeting and provide a summary document, (2) provide digital geologic map data in a geographic information system (GIS) format, and (3) provide a GRI report. These products are designed and written for nongeoscientists.

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: <https://www.nps.gov/articles/gri-geodatabase-model.htm>

Geologic Reports: GRI reports synthesize discussions from the original scoping meeting, follow up conference call(s), and subsequent research. Chapters of each report discuss the geologic setting of the park, distinctive geologic features and processes within the park, highlight geologic issues facing resource managers, and describe the geologic history leading to the present-day landscape. Each report also includes a poster illustrating these GRI digital geologic-GIS data.

For a complete listing of GRI products visit the GRI publications webpage: <https://go.nps.gov/gripubs>. GRI digital geologic-GIS data is also available online at the NPS Data Store: <https://irma.nps.gov/DataStore/Search/Quick>. 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: <https://www.nps.gov/subjects/geology/gri.htm>. At the bottom of that webpage is a "Contact Us" link if you need additional information. You may also directly contact the program coordinator:

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The Geologic Resources Inventory (GRI) program is funded by the National Park Service (NPS) Inventory and Monitoring (I&M) Division. Learn more about I&M and the 12 baseline inventories at the I&M webpage: <https://www.nps.gov/im/inventories.htm>.

GRI Digital Map and Source Map Citations

The GRI digital geologic-GIS map for Wilson's Creek National Battlefield, Missouri (WICR):

Digital Geologic-GIS Map of Wilson's Creek National Battlefield and Vicinity, Missouri (*GRI MapCode WICR*)

The GRI digital geologic-GIS map was produced from the following unpublished maps. The full extent of each source map was used, and all geologic features within the map extent were captured.

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, scale 1:24,000 ([Brookline 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, scale 1:24,000 ([Nixa Quadrangle](#)). (*GRI Source Map ID 75527*).

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, scale 1:24,000 ([Republic Quadrangle](#)). (*GRI Source Map ID 75521*).

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, scale 1:24,000 ([Springfield Quadrangle \(1992\)](#)). (*GRI Source Map ID 75534*).

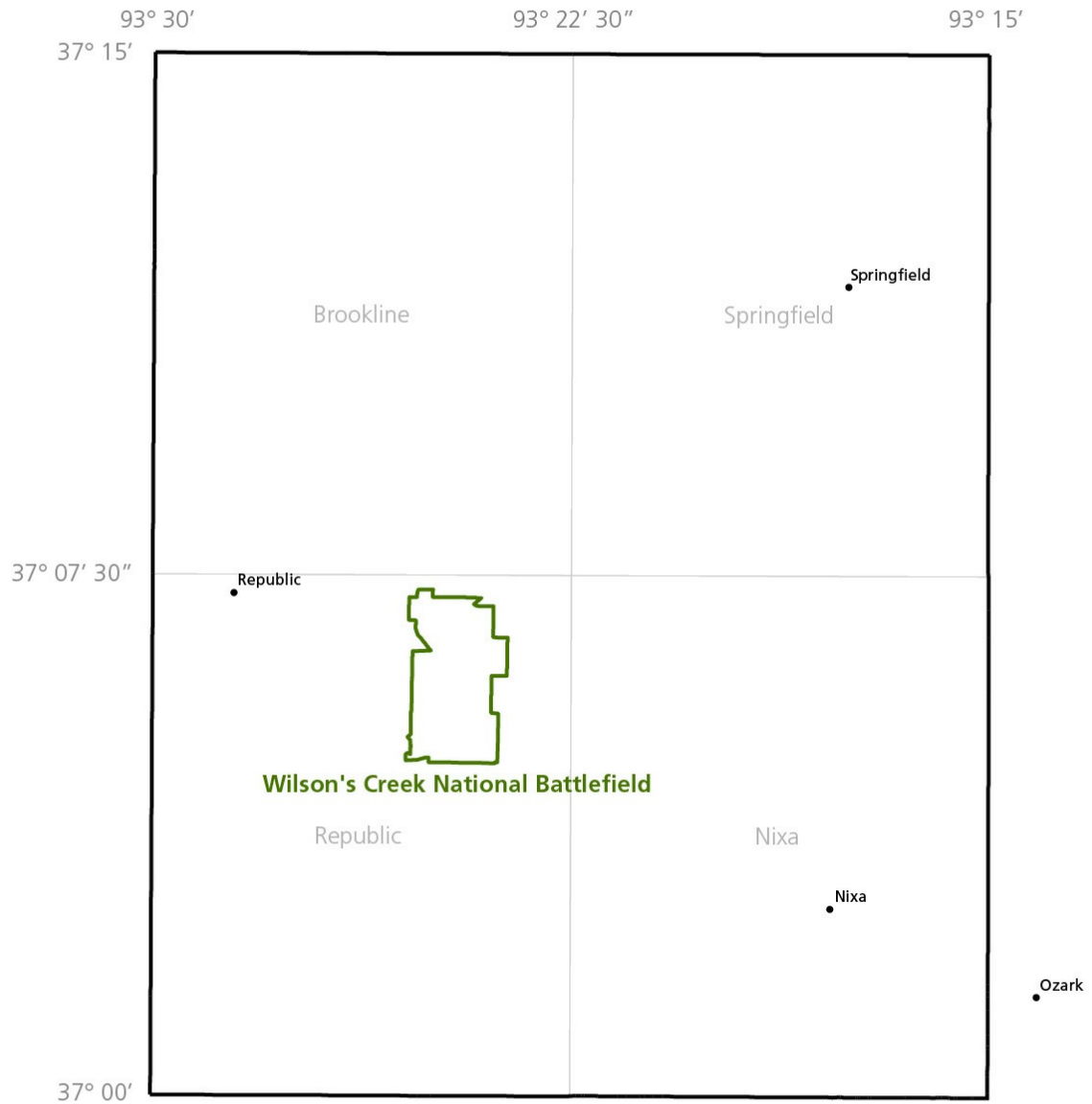
At the GRI scoping meeting conducted for Wilson's Creek National Battlefield (WICR) the Missouri Department of Natural Resources, Division of Geology and Land Survey suggested that unit descriptions, as well as unit names and unit ages, be derived from the following source map.

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, scale 1:100,000 ([Springfield Quadrangle \(2001\)](#)). (*GRI Source Map ID 750331*).

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

Index Map

The following index map displays the extent of the GRI digital geologic-GIS map produced for Wilson's Creek National Battlefield (WICR). The boundary for Wilson's Creek National Battlefield (as of June 2022) is outlined in green. The GRI digital geologic-GIS map covers four 7.5' quadrangles and is defined by the black boundary.



Index map by Ron Karpilo (Colorado State University).

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 (e.g., Qal - Alluvium). Units are listed from youngest to oldest. No description for water is provided. Information about each geologic unit is also presented in the GRI Geologic Unit Information (WICRUNIT) table included with the GRI digital geologic-GIS data.

Cenozoic Era

Quaternary Period

[Qal](#) - Alluvium

Mesozoic Era

Pennsylvanian Period

[PNr](#) - Pennsylvanian rocks

Mississippian Period

[Mw](#) - Warsaw Formation

[Mbk](#) - Burlington-Keokuk Limestone

[Me](#) - Elsey Formation

[Mrs](#) - Reeds Spring Formation

[Mp](#) - Pierson Formation

Map Unit Descriptions

Descriptions of all geologic map units, generally listed from youngest to oldest, are presented below.

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. Description from source map: [Springfield Quadrangle 30' x 60' \(2001\)](#)

PNr - Pennsylvanian rocks (Pennsylvanian)

No additional unit description provided on source maps.

Mw - Warsaw Formation (Lower Mississippian)

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. Description from source map: [Springfield Quadrangle 30' x 60' \(2001\)](#)

Mbk - Burlington-Keokuk Limestone (Lower Mississippian)

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. Description from source map: [Springfield Quadrangle 30' x 60' \(2001\)](#)

Me - Elsey Formation (Lower Mississippian)

The Elsey 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. Description from source map: [Springfield Quadrangle 30' x 60' \(2001\)](#)

Mrs - Reeds Spring Formation (Lower Mississippian)

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. Description from source map: [Springfield Quadrangle 30' x 60' \(2001\)](#)

Mp - Pierson Formation (Lower Mississippian)

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. Description from source map: [Springfield Quadrangle 30' x 60' \(2001\)](#)

Ancillary Source Map Information

The following sections present ancillary source map information associated with sources used for this project.

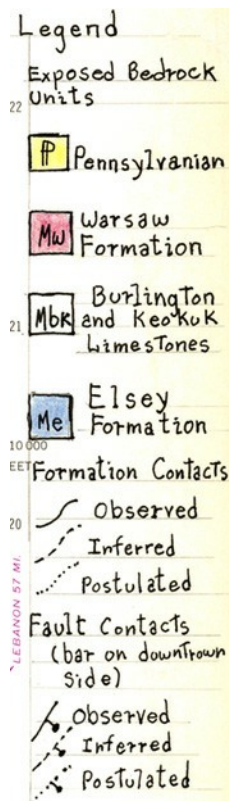
Brookline Quadrangle

The formal citation for this source.

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, scale 1:24,000 (*GRI Source Map ID 75524*).

Prominent graphic associated with this source:

Legend



Graphic from source map: [Brookline Quadrangle](#)

Nixa Quadrangle

The formal citation for this source.

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, scale 1:24,000 (*GRI Source Map ID 75527*).

No additional graphics or text are associated with this source.

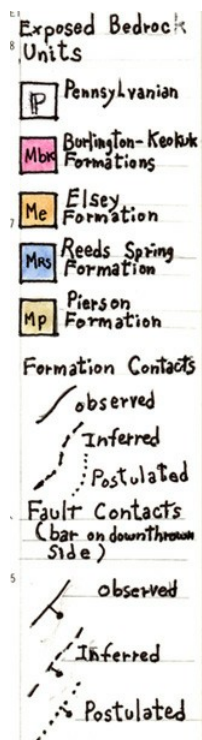
Republic Quadrangle

The formal citation for this source.

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, scale 1:24,000 (*GRI Source Map ID 75521*).

Prominent graphic associated with this source:

Legend



Graphic from source map: [Republic Quadrangle](#)

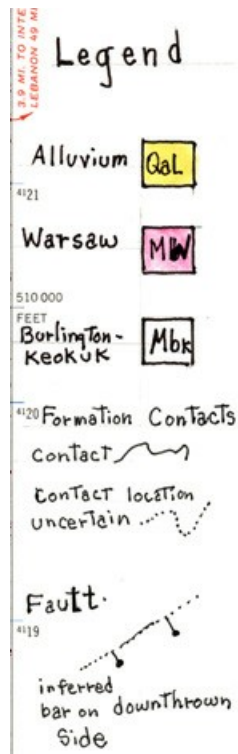
Springfield Quadrangle (1992)

The formal citation for this source.

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, scale 1:24,000 (GRI Source Map ID 75534).

Prominent graphic associated with this source:

Legend



Graphic from source map: [Springfield Quadrangle \(1992\)](#)

Springfield 30' x 60' Quadrangle (2001)

The formal citation for this source.

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, scale 1:100,000 (*GRI Source Map ID 750331*).

The above source map was used for solely for unit names, ages and descriptions. Prominent graphics associated with this source:

Correlation of Map Units

CORRELATION OF MAP UNITS

MAP UNIT SYMBOL & COLOR	SYSTEM	SERIES	FORMATION(S)/MAPPABLE UNIT(S)	THICKNESS IN FEET
	Quaternary	Pleistocene	Alluvium	40
	Quaternary	Pleistocene	Terrace	20
UNCONFORMITY				
	Pennsylvanian	Desmoinesian	Channel Sandstone	10-200
	Pennsylvanian	Desmoinesian	Rowe	10-25
	Pennsylvanian	Desmoinesian	Warner	30-50
UNCONFORMITY				
	Mississippian	Meramecian	Warsaw	150-180
	Mississippian	Osagean	Burlington-Keokuk	200*
	Mississippian	Osagean	Elsy & Reeds Spring	120*
	Mississippian	Osagean	Pierson	10-80
	Mississippian	Kinderhookian	Northview & Compton	15-80
UNCONFORMITY				
	Ordovician	Ibexian	Cotter	175*
	Ordovician	Ibexian	Jefferson City	200*
	Ordovician	Ibexian	Roubidoux	60*

* Unit is not completely exposed.

Only a subset of the units in this graphic are found within the GRI digital geologic-GIS data extent. Graphic from source map: [Springfield Quadrangle 30' x 60' \(2001\)](#)

Description of Map Units

DESCRIPTION OF MAP UNITS

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.
Qt	TERRACE DEPOSIT (Quaternary) - Isolated older alluvial deposits occurring as river terraces and composed of red clay and chert gravels above stream flood plains. Thicknesses range up to 20 feet. Mapped in areas along Wilson Creek in the Springfield Quadrangle and along the James River in the Galloway and Oak Grove Heights Quadrangles.
Pr	ROWE FORMATION (Middle Pennsylvanian - Desmoinesian) - Formation is comprised of sandstone, siltstone, underclay and coal. Present in the northwest corner of the Lockwood Quadrangle with thickness ranging from 10 to 25 feet.
Pw	WARNER FORMATION (Middle Pennsylvanian - Desmoinesian) - This map unit is red to brown, medium- to coarse-grained sandstone and conglomerate. Occurs in the northwest corner of the Lockwood Quadrangle below the Rowe Formation and is 30 to 50 feet thick.
Pcs	CHANNEL SAND (Pennsylvanian) - Red to brown, fine to coarse-grained sandstone matrix with quartzite and chert pebbles and cobbles. Thickness varies from 10 to almost 200 feet, depending on the nature of the channels.
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 in thickness.
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 a 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.
Mre	ELSEY and REEDS FORMATIONS (Lower Mississippian - Upper Osagean)- The Elsey 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. 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.
Mp	PIERSON FORMATION (Lower Mississippian - Lower Osagean) - The Pierson Formation is light-gray to brownish-gray to light-brown dolomitic limestone and dolomite 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 dolomite and dolomitic limestone is overlain by a layer of brown dolomite 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.
Mk	KINDERHOOKIAN SERIES is composed of the Northview Formation and the Compton Limestone which have a combined thickness of 15 to 80 feet. NORTHVIEW FORMATION (Lower Mississippian - Kinderhookian) - Northview Formation is an olive-green to bluish-gray calcareous shale with light-brown dolomitic siltstone. The upper part is dominantly siltstone while the lower part is mainly shale. Thickness is quite variable, ranging from about 5 feet southwest of Springfield to up to 75 feet northeast and northwest of Springfield around Fair Grove and Ash Grove. The unit often weathers to a soft, greenish, silty shale that forms a reentrant between the underlying Compton and overlying Pierson limestones. COMPTON LIMESTONE (Lower Mississippian - Kinderhookian) - Thin-bedded, greenish-gray, finely to medium-crystalline, fossiliferous limestone. Contains green shale partings and pyrite nodules. Locally the formation becomes dolomitic, but is consistently 10 to 20 feet thick over the mapped area.
Oc	COTTER DOLOMITE (Lower Ordovician - Ibexian) - Cotter Dolomite is generally a sequence of tan to light-brown to light-gray, finely to medium-crystalline, argillaceous to siliceous, thin- to massive-bedded cherty dolomite. The formation contains lenses and locally persistent sandstone beds, some of which are up to 30 feet thick. The Swan Creek Sandstone Member is present in the Fair Grove area. Cherts may be oolitic or dense and white, gray, or black. Maximum exposed thickness of the Cotter Dolomite is 175 feet in the area.
Ojc	JEFFERSON CITY DOLOMITE (Lower Ordovician - Ibexian) - The Jefferson City Formation is composed of cherty, gray to brown, silty dolomite with some sandstone beds. The top of the unit is a cherty breccia or "silcrete". This interval can be used to separate the overlying Cotter Dolomite from the Jefferson City Dolomite. The breccia interval is from 20 to 25 feet thick. The entire formation has about 200 feet exposed in the area.
Or	ROUBIDOUX FORMATION (Lower Ordovician - Ibexian) - The Roubidoux Formation is exposed in the Elkland area where the unit is predominantly a clean white to gray quartz sandstone with some light- to medium-gray silty dolomite. Approximately 50 to 60 feet of the Roubidoux Formation is exposed.

Only a subset of the units in this graphic are found within the GRI digital geologic-GIS data extent.
Graphic from source map: [Springfield Quadrangle 30' x 60' \(2001\)](#)

Geologic Mapping Index

GEOLOGIC MAPPING INDEX

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

Graphic from source map: [Springfield Quadrangle 30' x 60' \(2001\)](#)

GRI Digital Data Credits

This document was developed and completed by Ron Karpilo (Colorado State University) 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 initial version of this document was produced by Georgia Hybels (NPS GRD).

The information in this document was compiled from GRI source maps, and is intended to accompany the digital geologic-GIS map and other digital data for Wilson's Creek National Battlefield, Missouri (WICR) developed by Ron Karpilo (Colorado State University) (see the [GRI Digital Map and Source Map Citations](#) section of this document for all sources used by the GRI in the completion of this document and related GRI digital geologic-GIS map). The initial version the GRI digital geologic-GIS map was produced by Georgia Hybels, Ron Karpilo and Stephanie O'Meara (NPS GRD) and Max Jackl (Colorado State University).

GRI finalization by Stephanie O'Meara and Ron Karpilo (Colorado State University).

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