

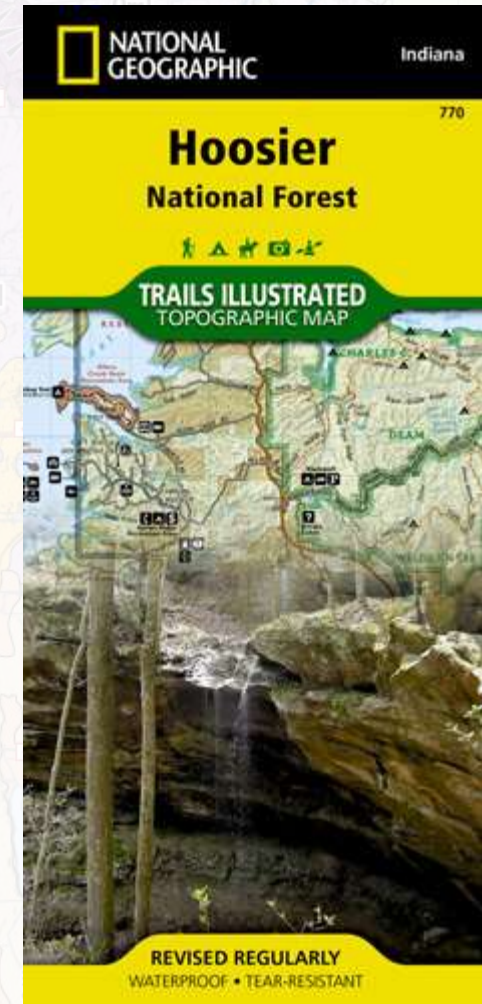
Geologic map background showing various geological units (e.g., Qma, Qac(a), Qmi, Qes(o), Qes(m), Qes(d), Qen, Qem(r), Qac, Qti(o), Qti(d)) and place names (e.g., Middlebury, Shippshewana, Emma, Honeyville). The map also includes a grid of north-south and east-west lines, and various road markers (e.g., 28±2, 22±4, 13, 5, 36±5, CR 35, CR 34, N 1000 W, W 250 N, N 150 W, W 100 S, W 200 S, S 600 W).

Basemaps for Geologic Maps

at the Indiana Geological and Water Survey

Matthew Johnson
*Cartographic Specialist &
Digital Archivist*

Not my first rodeo!



Creating your own basemap...

Pros...

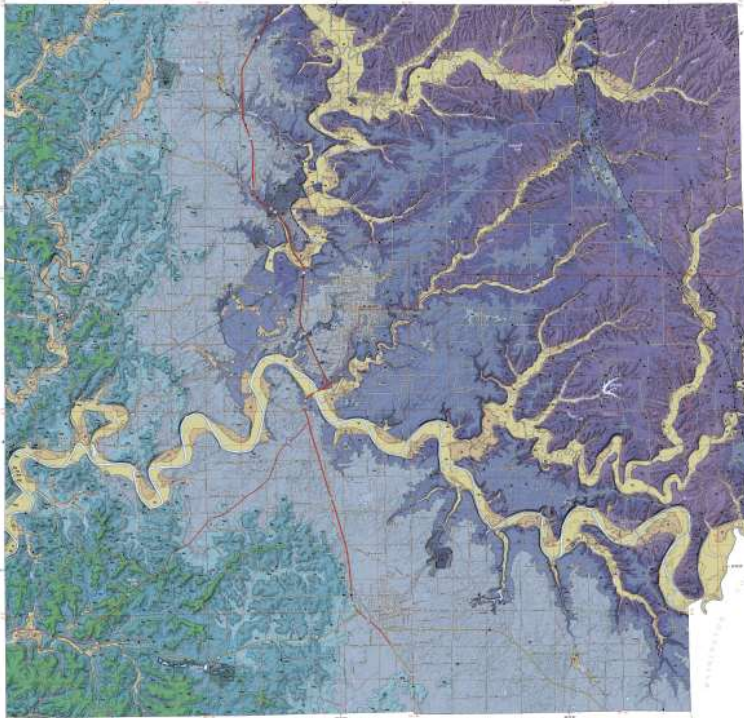
- Full control of symbology
- Label placement
- Opacity control
- Design for final use
- Updated map for field work
- Consistent look for maps
- Custom scales

Cons...

- Time constraints
- Data availability
- Software
- Limited staff
- Lack of training

Data used for IGWS basemaps

- 2016–2020 Indiana lidar data for shading and contours
- Transportation network from county centerlines and/or OpenStreetMap.org
- Boundary data from IndianaMap.org
- Hydrography from U.S. Geological Survey NHD (local resolution)
- Census and USGS Populated places for towns and cities



ABBREVIATIONS

Geological symbols and abbreviations used on the map, including unit codes like Ms, Msl, Qa, and Qt.

REFERENCES

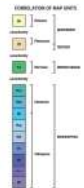
List of references cited in the map, including geological surveys and publications.

MAP INFORMATION

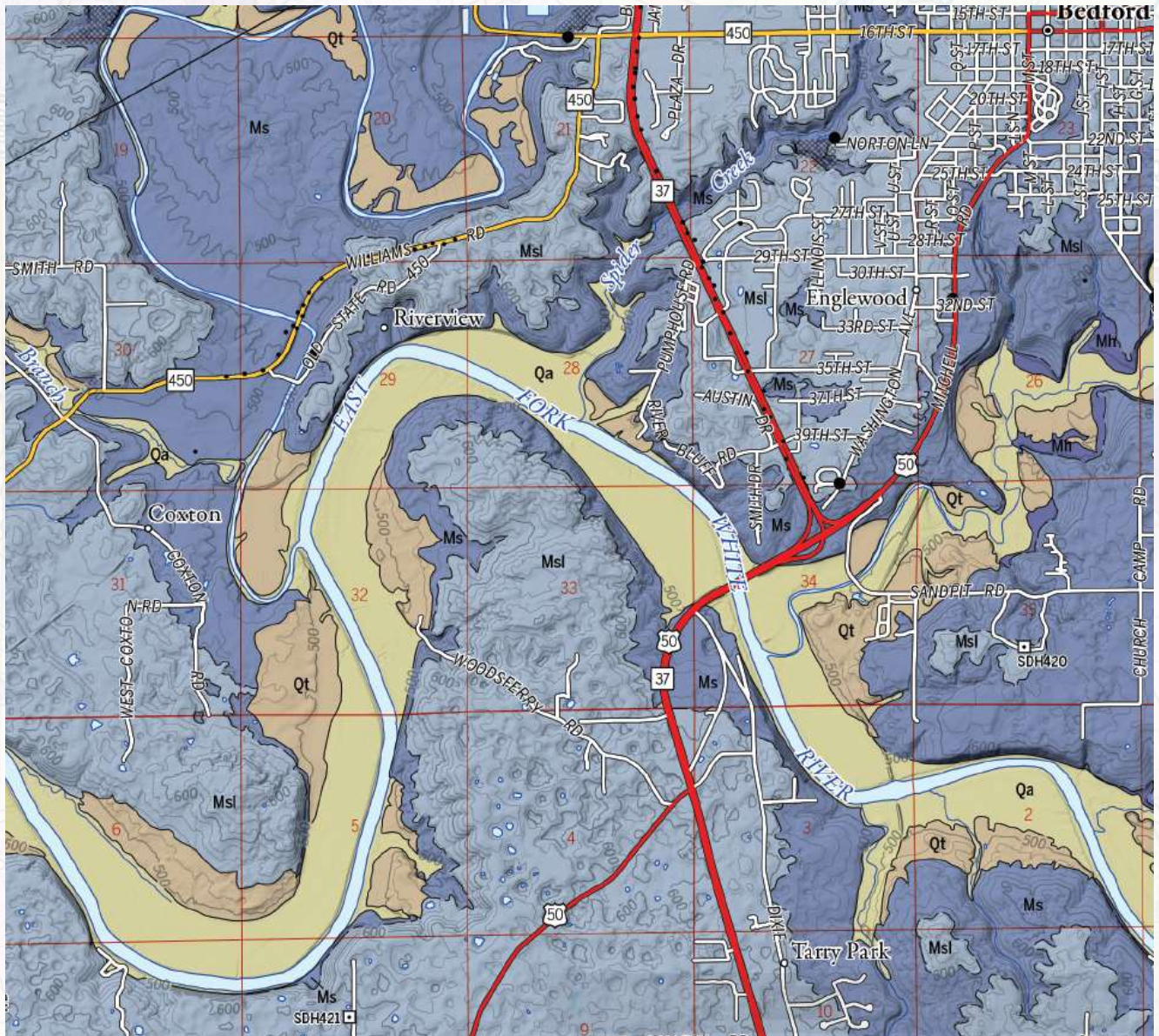
Map scale, projection, and other technical details.



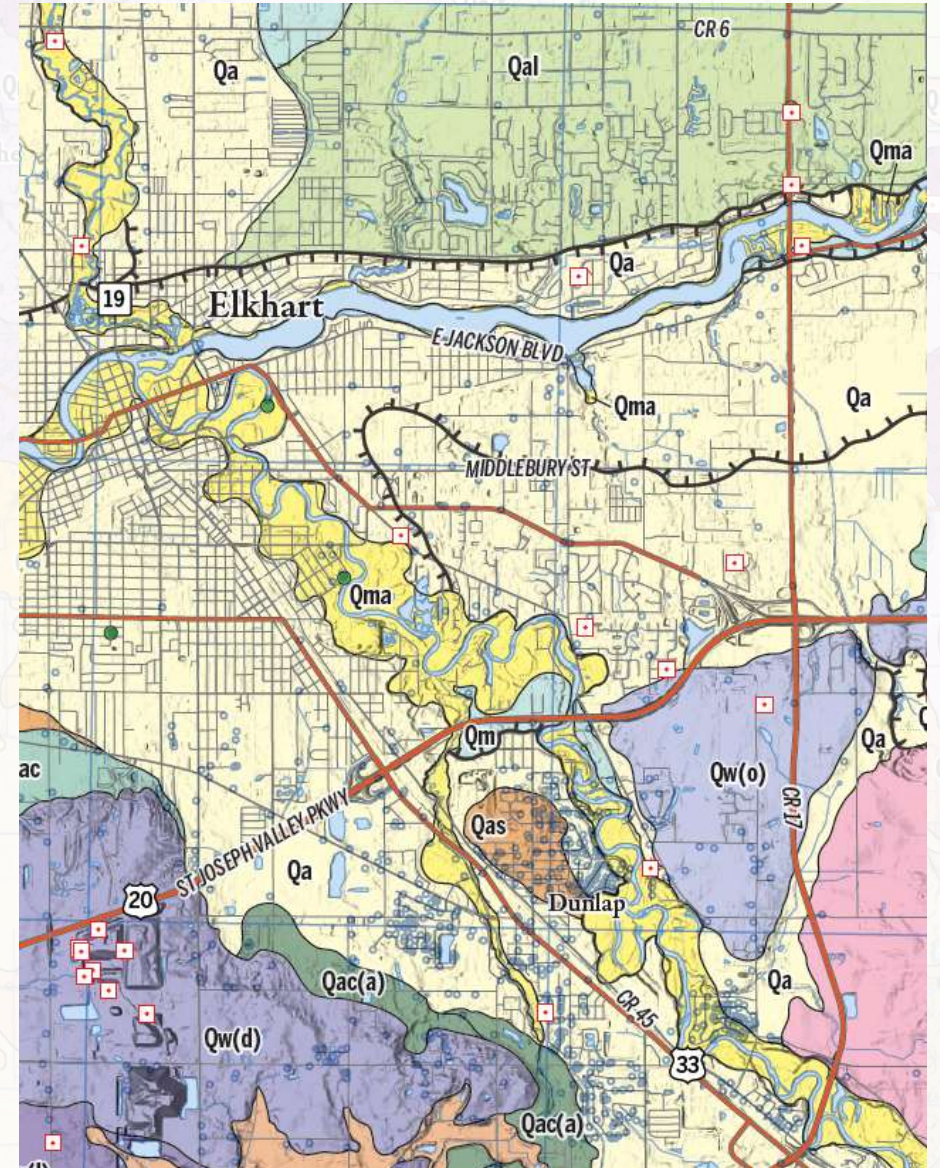
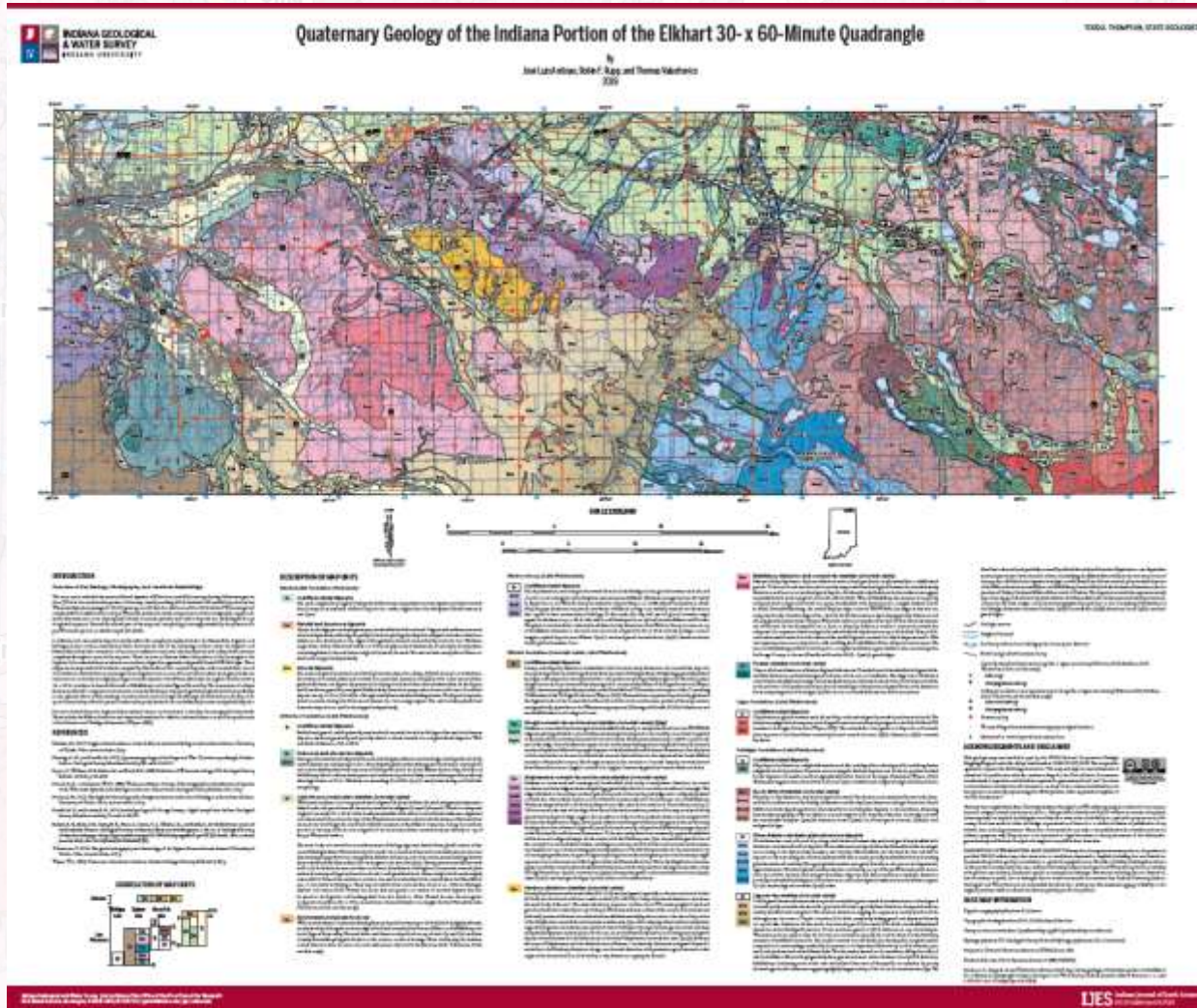
DESCRIPTION OF MAP UNITS: Detailed text describing the geological units shown on the map, including their composition and characteristics.

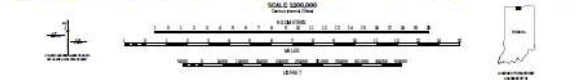
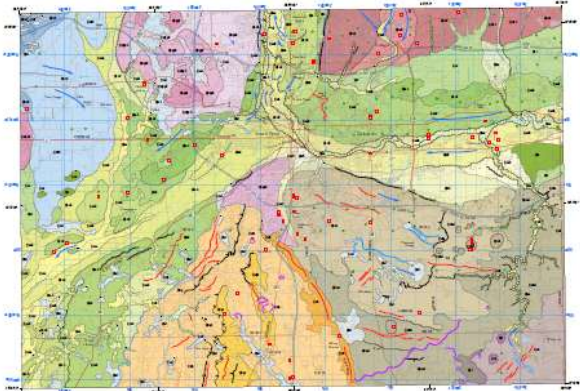


ACKNOWLEDGMENTS AND DEDICATIONS: Text acknowledging the contributions of various individuals and organizations to the map's creation.



2020 Esri ICA/IMIA Recognition of Excellence in Cartography Award





Geological Symbols

Topographic Symbols

Water Symbols

Other Symbols

Notes

Legend

Qwpp1

Qwpp2

Qwpp3

Qma

Qao1

Qao2

Qao3

Qao4

Qao5

Qao6

Qma

Qml

Qac3

Qac5

Qac6

Qac7

Qac8

Qac9

Qac10

Qac11

Qac12

Qac13

Qac14

Qac15

Qac16

Qac17

Qac18

Qac19

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Qac89

Qac90

Qac91

Qac92

Qac93

Qac94

Qac95

Qac96

Qac97

Qac98

Qac99

Qac100

QUATERNARY STRATIGRAPHY

The Quaternary geology of the Indiana portion of the Eastern Extent of the South Bend 30- x 60-Minute Quadrangle is based on a detailed field study of the area. The study area is bounded by the 30- x 60-Minute Quadrangle on the east, the 30- x 60-Minute Quadrangle on the west, the 30- x 60-Minute Quadrangle on the north, and the 30- x 60-Minute Quadrangle on the south. The study area is bounded by the 30- x 60-Minute Quadrangle on the east, the 30- x 60-Minute Quadrangle on the west, the 30- x 60-Minute Quadrangle on the north, and the 30- x 60-Minute Quadrangle on the south.

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Qao5

Qao6

Qma

Qml

Qac3

Qac5

Qac6

Qac7

Qac8

Qac9

Qac10

Qac11

Qac12

Qac13

Qac14

Qac15

Qac16

Qac17

Qac18

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Qao4

Qao5

Qao6

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Qml

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Qac5

Qac6

Qac7

Qac8

Qac9

Qac10

Qac11

Qac12

Qac13

Qac14

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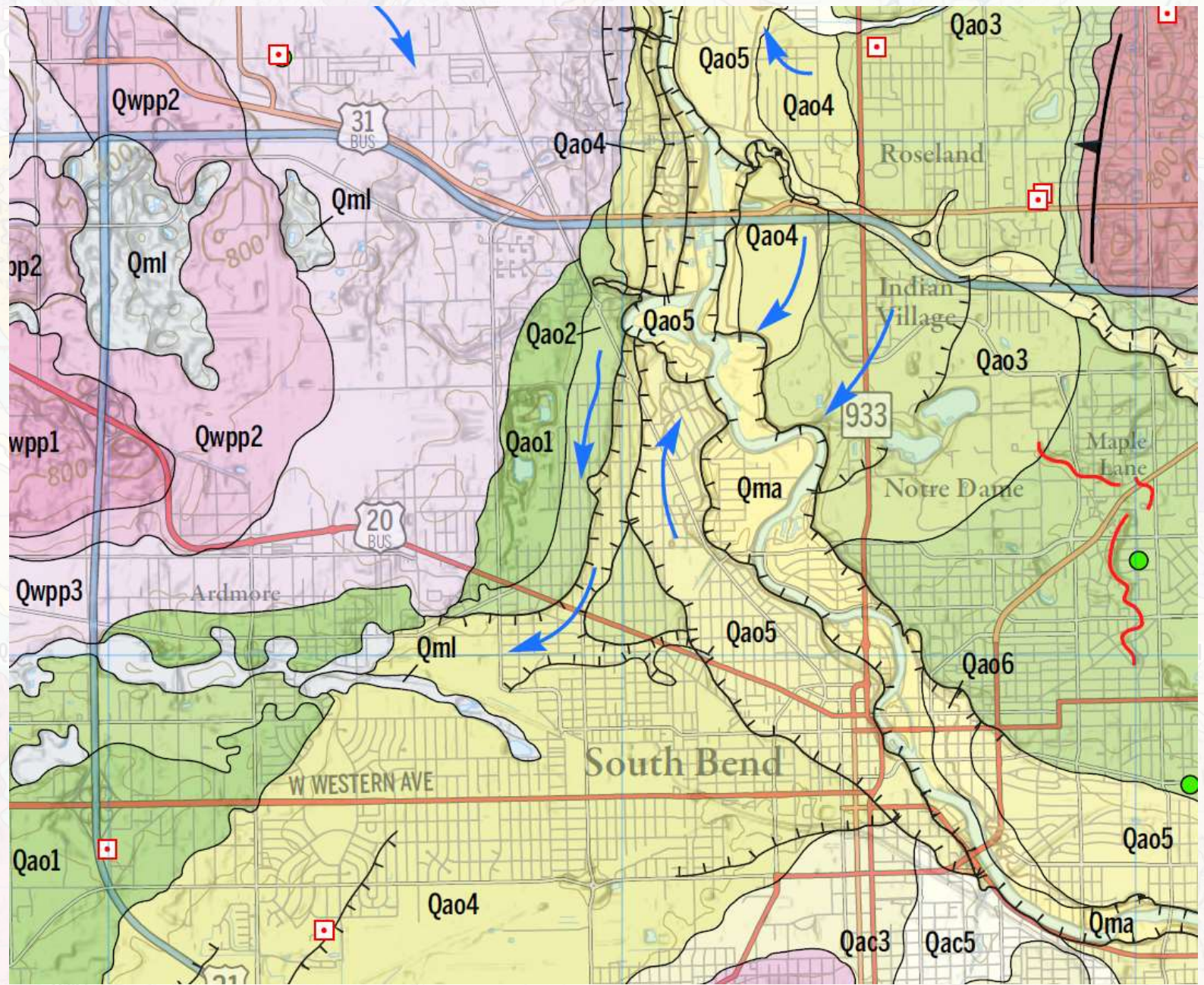
Qac96

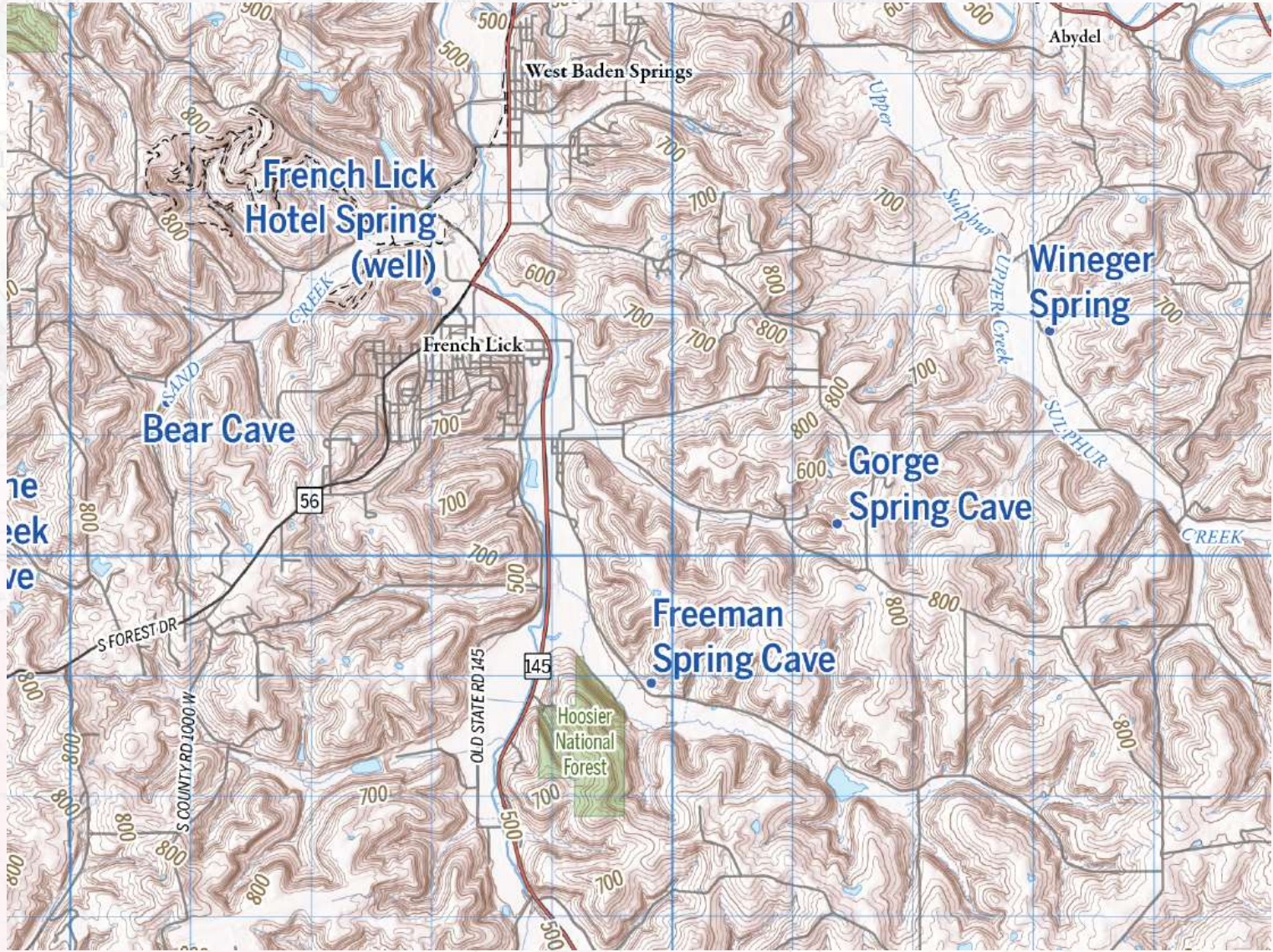
Qac97

Qac98

Qac99

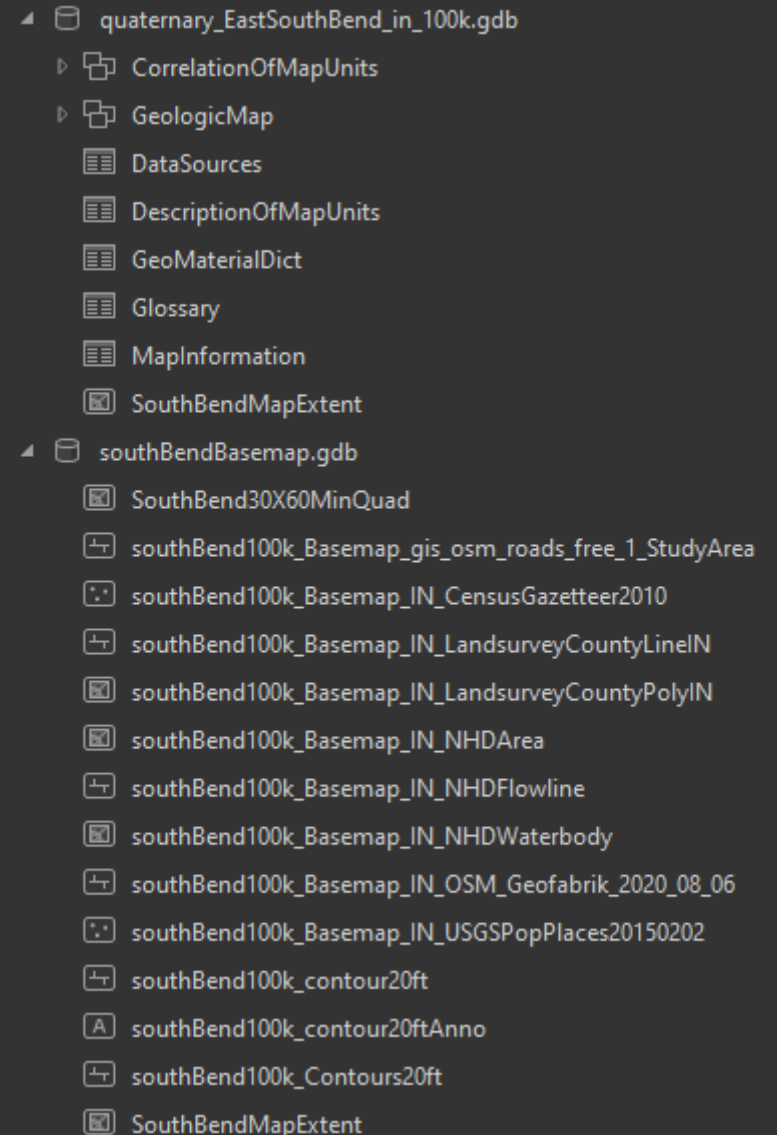
Qac100





Including the basemap with GeMS?

- User will be up and running quickly
- Include fonts and symbols
- Include a basemap.gbd
- Shading, DEMs, surfaces?
- Software issues?
- Basemap metadata?



Why I have gone to the darkside (ArcGIS Pro)!



- Cartographer friendly
- Data stays spatially connected
- Label automation with option to convert to editable graphics
- Easy to collaborate internally (when people make the switch)
- Layouts almost fully connected to the database
- Near term release coming for blending raster's
- Fewer files so better organization of projects
- Overprinting recently implemented into symbology and labels

DEMO

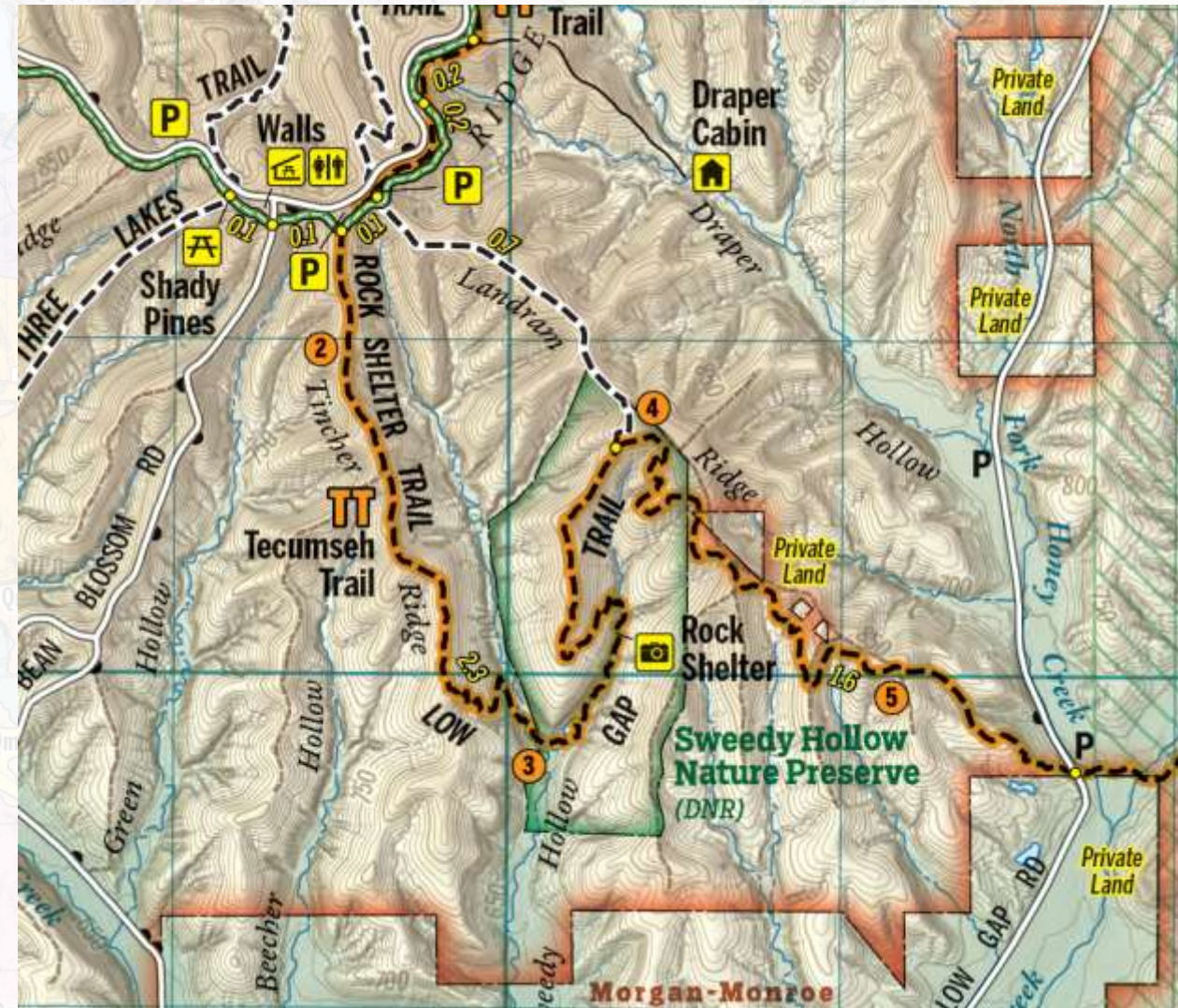
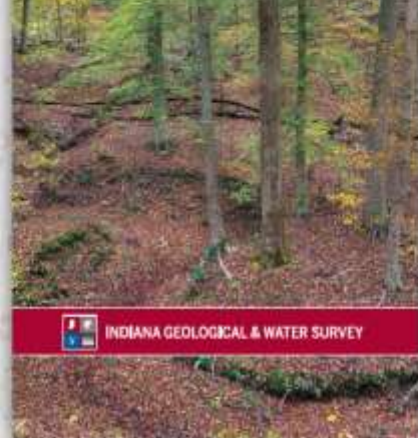
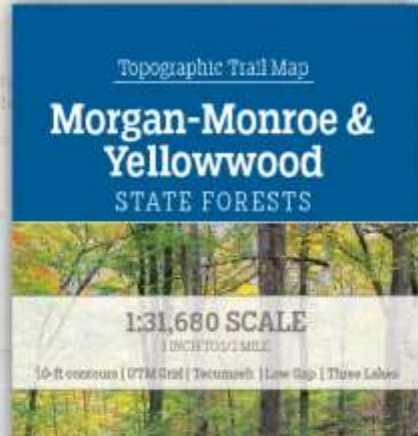


ArcGIS Pro

- Layer structure in ArcGIS Pro
- Labeling
- Layout design and pulling in database attributes
- Map automation using map series (used in our Petroleum well maps)

Some future work...

Topographic Trail Maps



A geological map of Indiana, showing various geological units and features. The map is overlaid with a grid and text. The text "Questions?" is prominently displayed in the center. Below it, the name "Matthew Johnson" and his title "Cartographic Specialist and Digital Archivist" are listed, along with his email address "mrj21@indiana.edu". The map shows various geological units such as Qml, Qes(o), Qes(m), Qes, Qa, Qal, Qem(r), Qem, Qac, Qma, Qtl(o), Qtl(d), Qen, and Qma. It also shows major roads like US 13, US 20, and US 5, and cities like Middlebury, Shippshewana, Emma, and Honeyville. The map is color-coded to represent different geological units, with colors ranging from light green to dark purple.

Questions?

Matthew Johnson
Cartographic Specialist and Digital Archivist
mrj21@indiana.edu