



ABSTRACT

names website incorporating information for the bedrock units of units, or view the geographic distribution of units. within the state (https://igs.indiana.edu/IGNIS/). The website and supporting Indiana Geologic Names Information System (IGNIS) were initially developed by the IGS Geologic Names Committee with assistance from IGS Information Services and Photography and Imaging staff. The primary purpose of the website and IGNIS is to make current information about geologic names that are recognized by the IGS available to a broad spectrum of users from academia, industry, government, and the general public.

In addition to the descriptions and images of the bedrock units, a stratigraphic column interface was developed that allows IGNIS website users to explore and understand the stratigraphic and geographic relationships of Indiana rock unit names in ways that In the near future, the IGNIS website will be linking to the Indiana were not possible using paper documents. Users can scroll and view University Paleontology Collection to access: (1) additional fossil images and the formal names and relationships of stratigraphic units from the descriptions; and (2) related information on their stratigraphic distribution. Precambrian to the Pennsylvanian, read and download abbreviated

In 2008, the Indiana Geological Survey (IGS) launched a geologic descriptions of stratigraphic units, link to more detailed descriptions

The IGNIS currently links to and draws information from the following internal sources: (1) the IGS Stratigraphic Names Database; (2) the IGNIS Reference Database of pertinent literature in which bedrock stratigraphic units have been described; (3) the IGS Image Database, which contains photographs and illustrations of Indiana type localities and reference sections, structure and isopach maps, and other figures showing key characteristics of units; and (4) the IGS Publications Database. Current major external sources of information include: (1) the American Association of Petroleum Geologists Correlation of Stratigraphic Units in North America (COSUNA) chart for the Midwestern basin and arches region; and (2) the online U.S. Geological Survey Geologic Names Lexicon ("Geolex").

1 INTRODUCTION

The purpose of the IGS Geologic Names Committee (GNC) is to assist IGS authors in preparing abstracts, manuscripts, maps, and databases that present formal geologic information in a consistent, systematic, and predictable manner. The proper use of geologic names and related terms allows for a more rapid, accurate, and comprehensive dissemination of the IGS's geologic information and concepts within the accepted language of the geologic literature.

The GNC uses the provisions of the North American Stratigraphic Code (The North American Commission on Stratigraphic Nomenclature, 2005) as its guide and maintains an official stratigraphic nomenclature for Indiana that IGS authors should use for both IGS and non-Survey manuscripts. The GNC is responsible for the approval of the use of both Indiana and non-Indiana names. Authors, of course, are free to revise stratigraphic classification and to create new nomenclature in accord with standard practices.

The Geologic Names Database and Geologic Names Website enable the GNC to better carry out its functions and make the geologic nomenclature officially recognized by the IGS available to a broad audience of technical and nontechnical users.

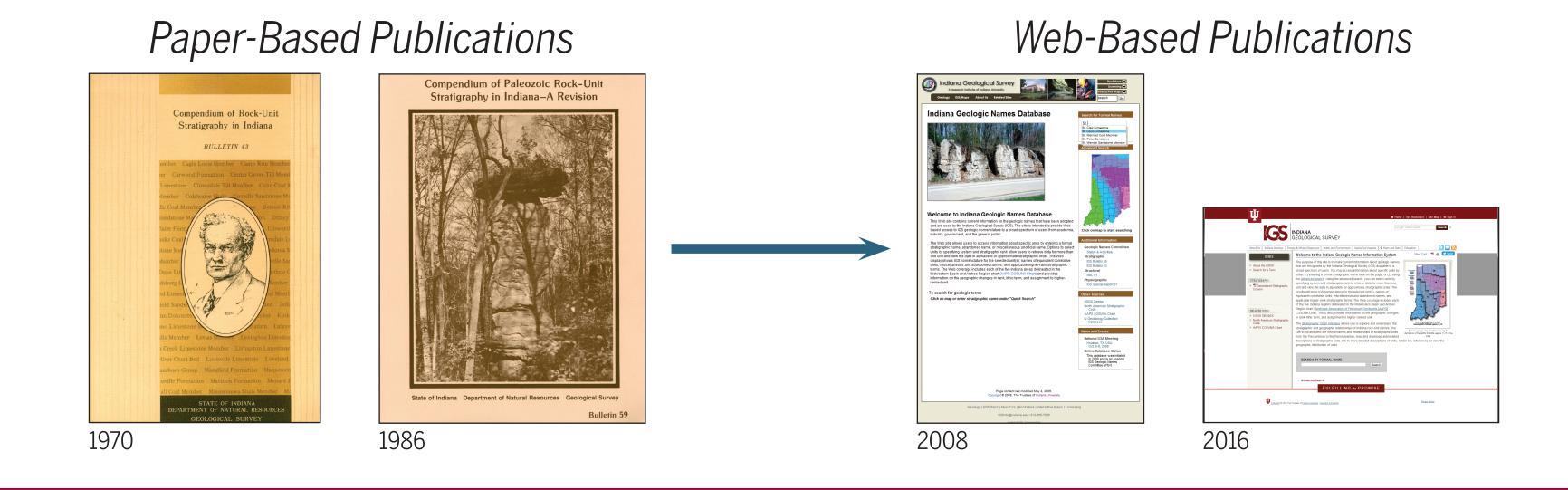


quickly becomes dated. A paper publication also makes it more the general public. difficult for researchers and for managers of geological repositories to use current geological nomenclature.



IGNIS About Page

Initial need/problem—The paper-based publications summarizing the *Current needs*—Additional databases must be completed and the bedrock stratigraphy in Indiana, namely, *Compendium of Rock-Unit* growing IGS online databases need to be linked to the Geologic *Stratigraphy in Indiana* (Shaver and others, 1970) and *Compendium* Names Database and Website. Also, content and search options will of Paleozoic Rock-Unit Stratigraphy in Indiana—A Revision (Shaver be added to the web-based Geologic Names Committee publication and others, 1986), needed to be updated. Because of the ongoing to bridge the gap between technical geoscience information and stratigraphic work by the researchers, these documents were obsolete. general geologic information sought by the public. This will serve a Publishing an updated compendium is expensive and the publication broad spectrum of users from academia, industry, government, and





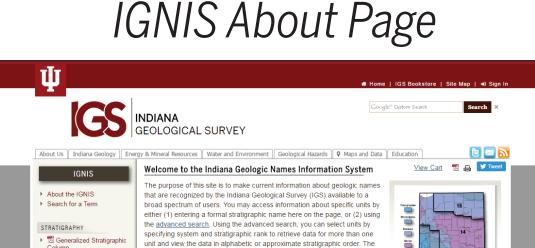
Linking the Indiana Geologic Names Information System to complementary geological databases

3 INDIANA GEOLOGIC NAMES INFORMATION SYSTEM

Supporting Databases—The initial database created to support the Indiana Geologic Names Information System was the Indiana Stratigraphic Names Database, which represents a complete revision of Indiana's Paleozoic nomenclature (Hasenmueller and others, 2009). The Stratigraphic Names Database is a relational database that uses one-to-many relationships to link geologic names to regional variations in nomenclature and the appropriate nomenclature hierarchy for each region.

The IGS GNC and the Information Technology and the Photography and Imaging Sections partnered to expand the Stratigraphic Names Database and to link it to other databases. The Stratigraphic Names Database is linked to the IGS Image Database containing images of Indiana type localities and reference sections, maps showing the distribution, structure, and thicknesses of units, and other figures showing key characteristics of units.

Website—The website allows users to access information about specific units by searching on a formal stratigraphic name, abandoned name, or miscellaneous unofficial name. The option to select units by specifying system and American Association of Petroleum Geologists COSUNA region allows users to retrieve data for more than one unit. The data can be viewed in alphabetic or approximate stratigraphic order. The web display shows IGS nomenclature for the selected unit(s), names of equivalent units, miscellaneous and abandoned names, and applicable higher-rank stratigraphic terms for the five Indiana areas delineated in the Midwestern Basins and Arches Region chart (COSUNA Project [Shaver, 1985]) to emphasize geographic changes in rank, lithic term, and assignment to higher-ranked unit.



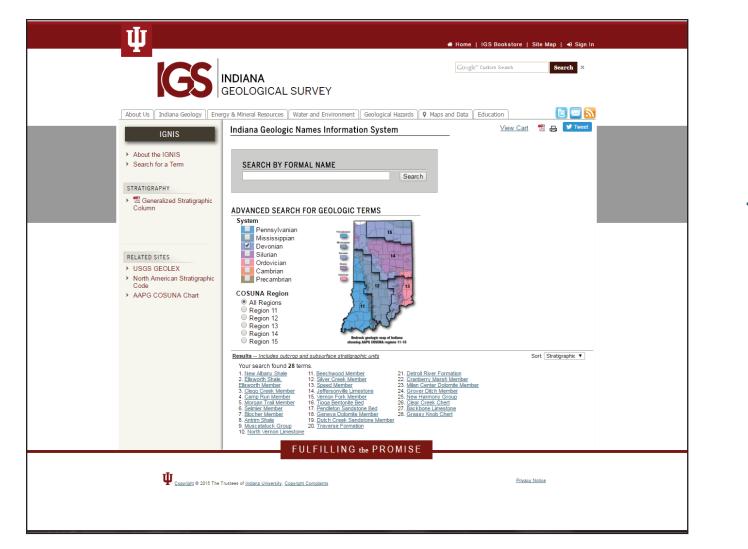
Introduces website

- Includes search option using formal stratigraphic name, which
- links to IGS Stratigraphic Names Database • Links to advanced search page

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- Links to the interactive stratigraphic chart
- Links to USGS GEOLEX database (USGS, 2016)
- Links to The North American Commission on Stratigraphic
- Nomenclature (2005)

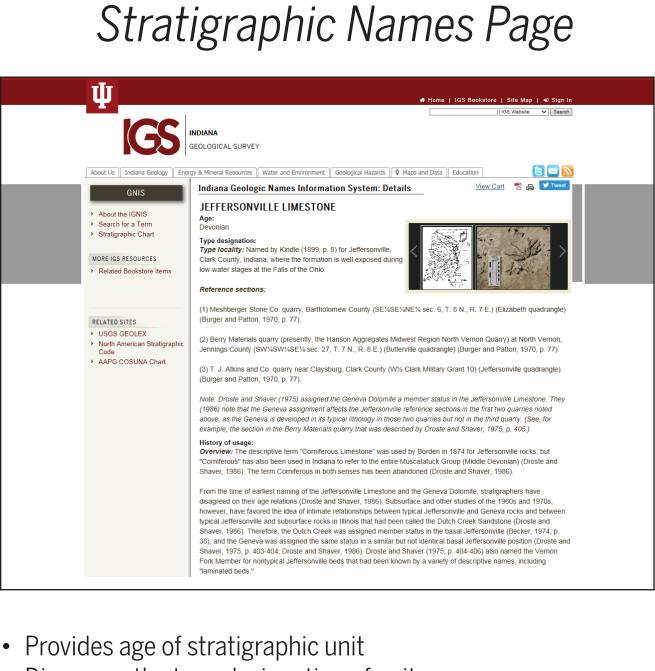




- Allows selection of stratigraphic units by specifying system
- Allows selection of units by specifying COSUNA area • Allows selection of units by specifying system and COSUNA area
- Permits retrieval of units in either stratigraphic or alphabetic
- Links to IGS Stratigraphic Names Database

PENNSYLVANIAN Shale, sandstone, mudstone, clay, coal, limestone, and conglomerate MISSISSIPPIAN Shale, sandstone, siltstone limestone, and gypsum SILURIAN Dolostone, limestone, siltstone, and shale The map above shows the COSUNA areas (heavy black lines),

which approximate regional bedrock outcrop patterns and major structural features in Indiana, and the COSUNA numbers for these areas. The COSUNA areal boundaries are limited to state and county boundaries to facilitate coding.



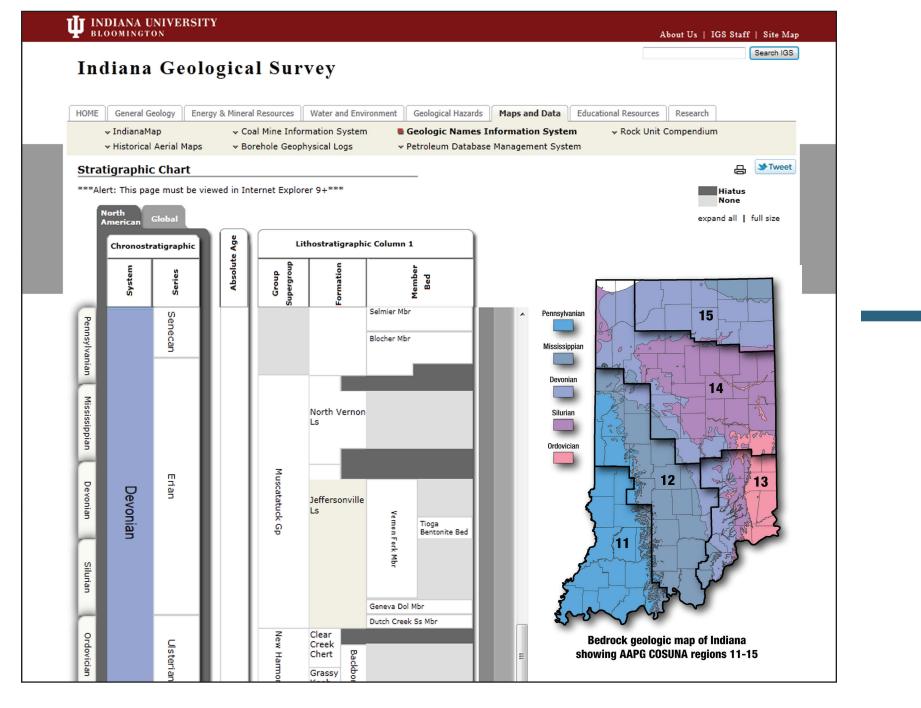
- Discusses the type designation of unit
- Describes the lithologic characteristics and distribution of unit • Discusses correlations and boundary relationships of unit
- Includes equivalent terms for stratigraphic unit
- Includes miscellaneous and abandoned stratigraphic names
- Links to enlarged COSUNA map
- Includes map of the Midwest showing geologic features
- Includes list of references cited on webpage
- Links IGS references cited on webpage to the IGS Bookstore Database
- Links to relevant data in IGS Image Database Links to relevant data in Indiana University Paleontological **Collection Database**

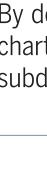
Completed 80% completed In progress













When the IGNIS and Indiana University Paleontology Collection (IUPC) linking is complete the IGNIS users will be able to access information about the fossil content of Indiana stratigraphic units and view fossil images, including 3-D images. IUPC users will be able to use the link to obtain detailed stratigraphic and other related information from the IGNIS.

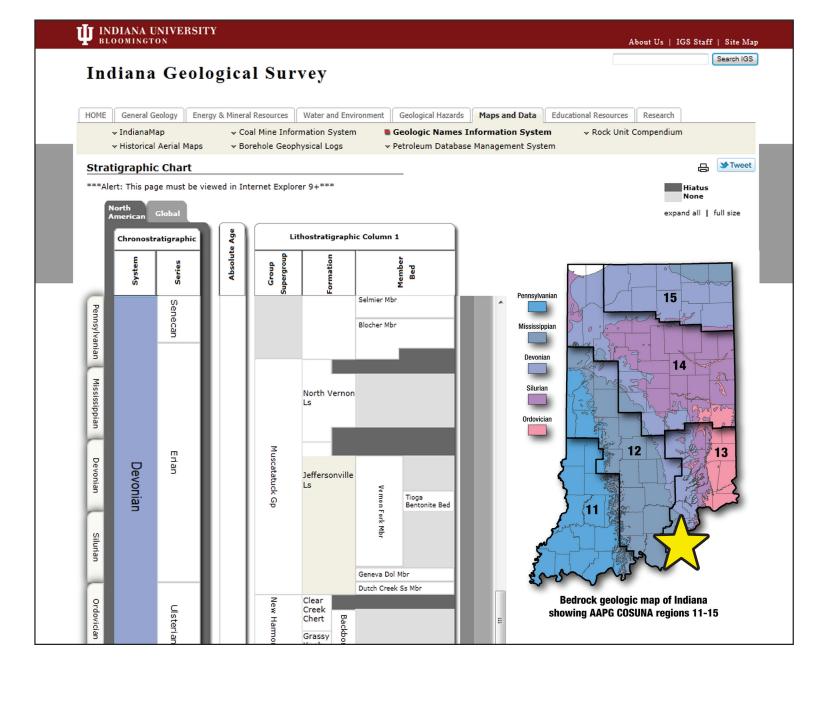
In the future, the IGNIS will be further expanded to include databases on structural features, physiographic provinces, and economic and environmental significance of stratigraphic units. The IGNIS will also be linked to additional IGS and external database management systems. Thus, these sites and data sets can draw on the most current geologic names information.

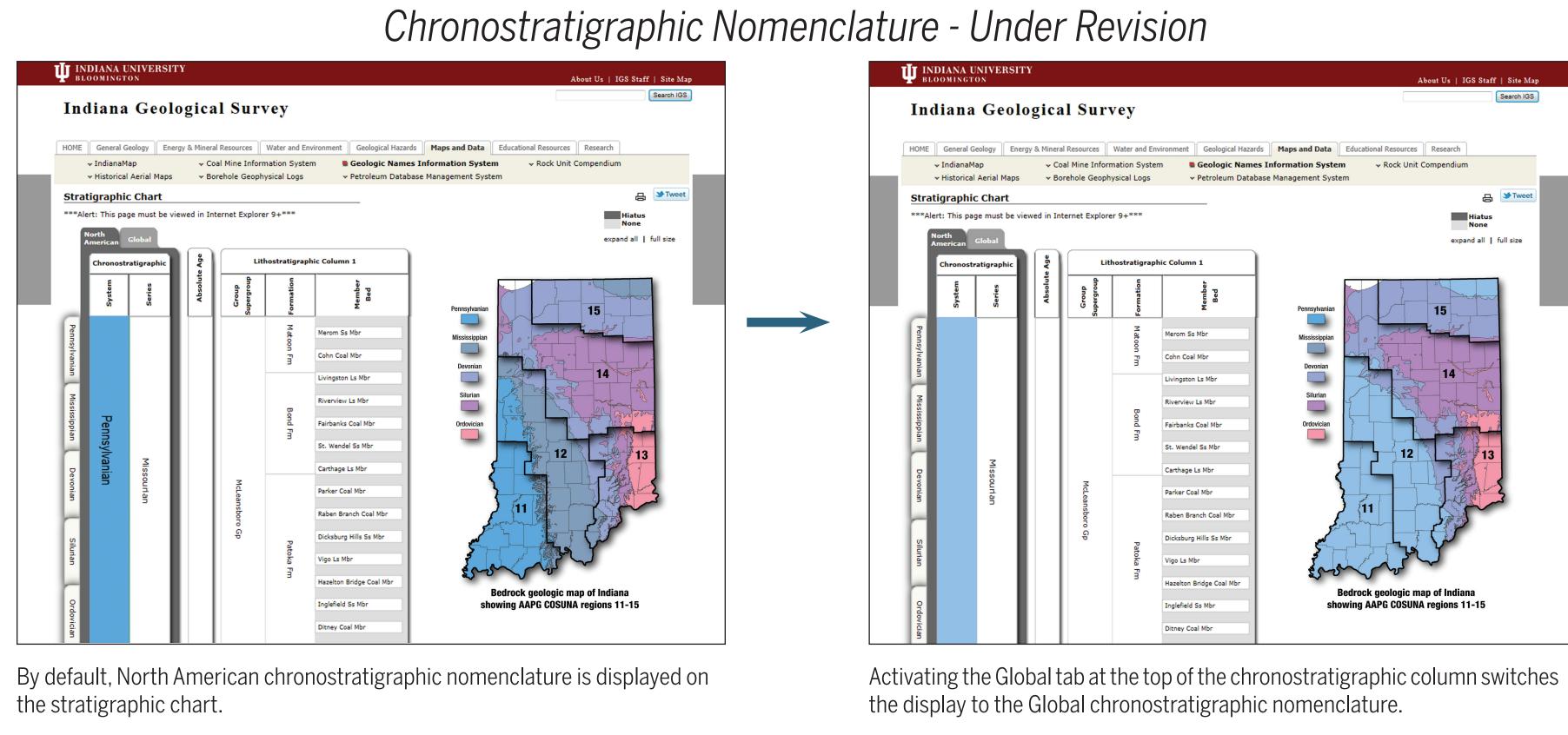
4 STRATIGRAPHIC CHART

Description—This page includes a stratigraphic chart of the abbreviated stratigraphic description page. From the abbreviated Precambrian to Pennsylvanian rock units of Indiana and a bedrock description page the user can link to: (1) a more detailed description of geologic map of the state. Both the North American and Global the stratigraphic unit from IGS Stratigraphic Names Database; and (2) chronostratigraphic nomenclature at the System and Series levels are equivalent stratigraphic units in the state. One can also scroll through designated on the chart. The chart is linked to the bedrock geologic the lithostratigraphic column to determine the relationships between map and the distribution for any selected stratigraphic unit can be the stratigraphic units. Tabs on the left of the Chronostratigraphic highlighted on the map at the System level. The COSUNA subdivisions column allow the user to move directly from one System to another for Indiana are also designated on the map.

The chart includes Paleozoic units from the supergroup to the bed level. Selecting a stratigraphic unit on the chart links the user to the





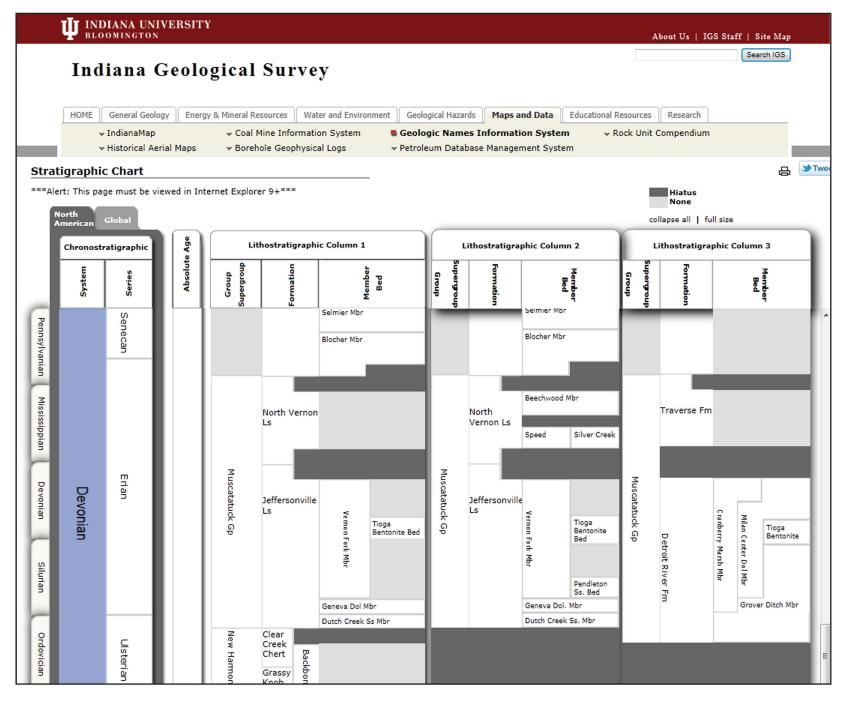


without having to scroll.

Lithostratigraphic Nomenclature - Under Revision

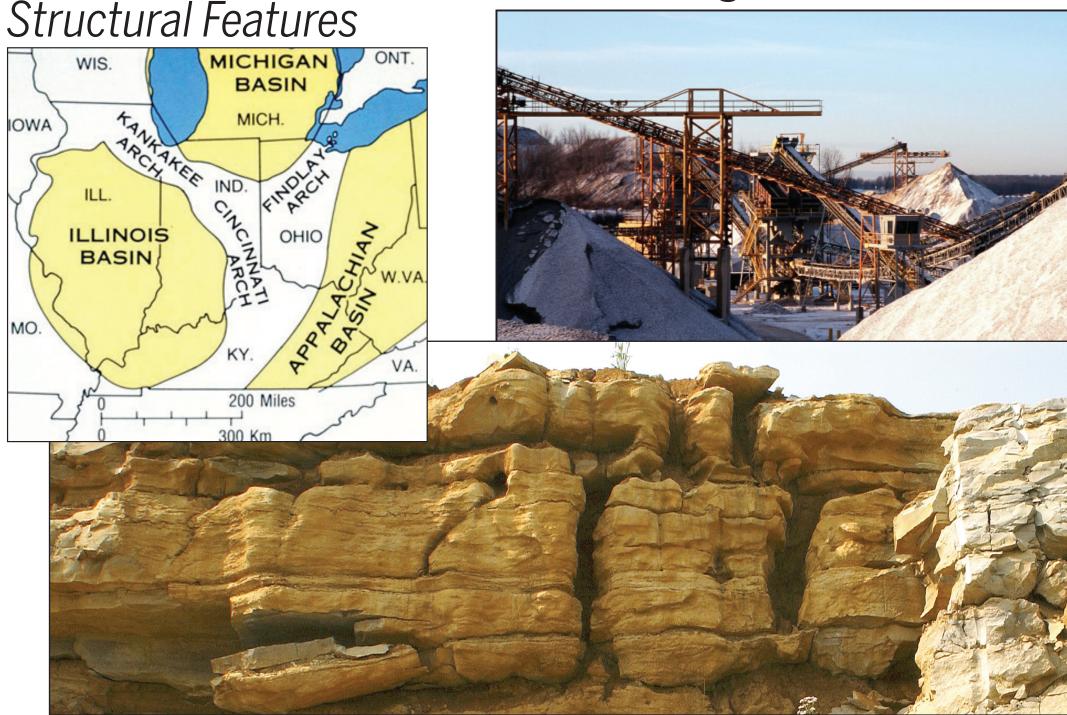
By default, a single lithostratigraphic column is displayed on the stratigraph chart. A single column is generally all that is required to characterize stratigraphic subdivisions and lateral equivalents.

6 CONCLUSIONS



Stratigraphic subdivisions and lateral nomenclature changes are sometimes too complex to show in a single column. Activating the lithostratigraphic column tabs at the right side of lithostratigraphic column 1 displays additional columns.

Economic Significance



Physiographic Provinces & Environmental Significance

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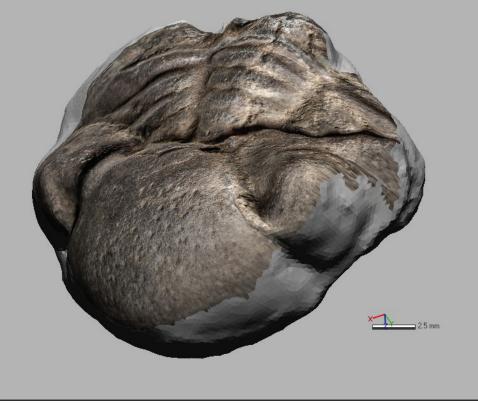
5 IU PALEONTOLOGY COLLECTION

The Indiana University Paleontology Collection (IUPC) is an international research repository at Indiana University Bloomington that houses fossil materials for the purposes of research and teaching. Its 1.3 million specimens document past research projects and serve as a resource for new synthetic research on stratigraphy,



of field notebooks, collecting locality photographs, and specimen photographs and data sets generated by past researchers who have used the collection.

serves as a resource for paleontological research at Indiana University and the Presently, we are working to link the Indiana Geologic Names Information System international scientific community. It contains more than 1,300 nomenclatorial to the IU Paleontology Collection database to allow the display of diagnostic fossils type specimens that are accessible to the scientific community. The collection is from the various stratigraphic units in Indiana. We aim to make photographs and currently undergoing a large-scale digitization effort to make available many of 3-D digitized models of these specimens available for future research, education, its resources online, including 3-D scanning of important fossil specimens, scans and outreach activities that focus on the history of earth and life in Indiana.

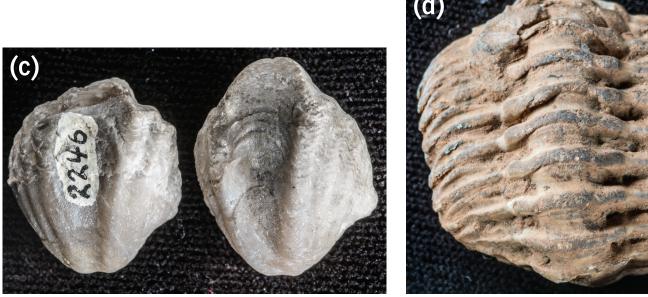


Phacops bufo

(a) IUPC 452 - *Phacops bufo* (b) IUPC 2249 - *Rhipidomella vanu* (c) IUPC 2246 - Spirifer gregarie (d) IUPC 4464 - Phacops bufe Devonian. Jeffersonville L







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