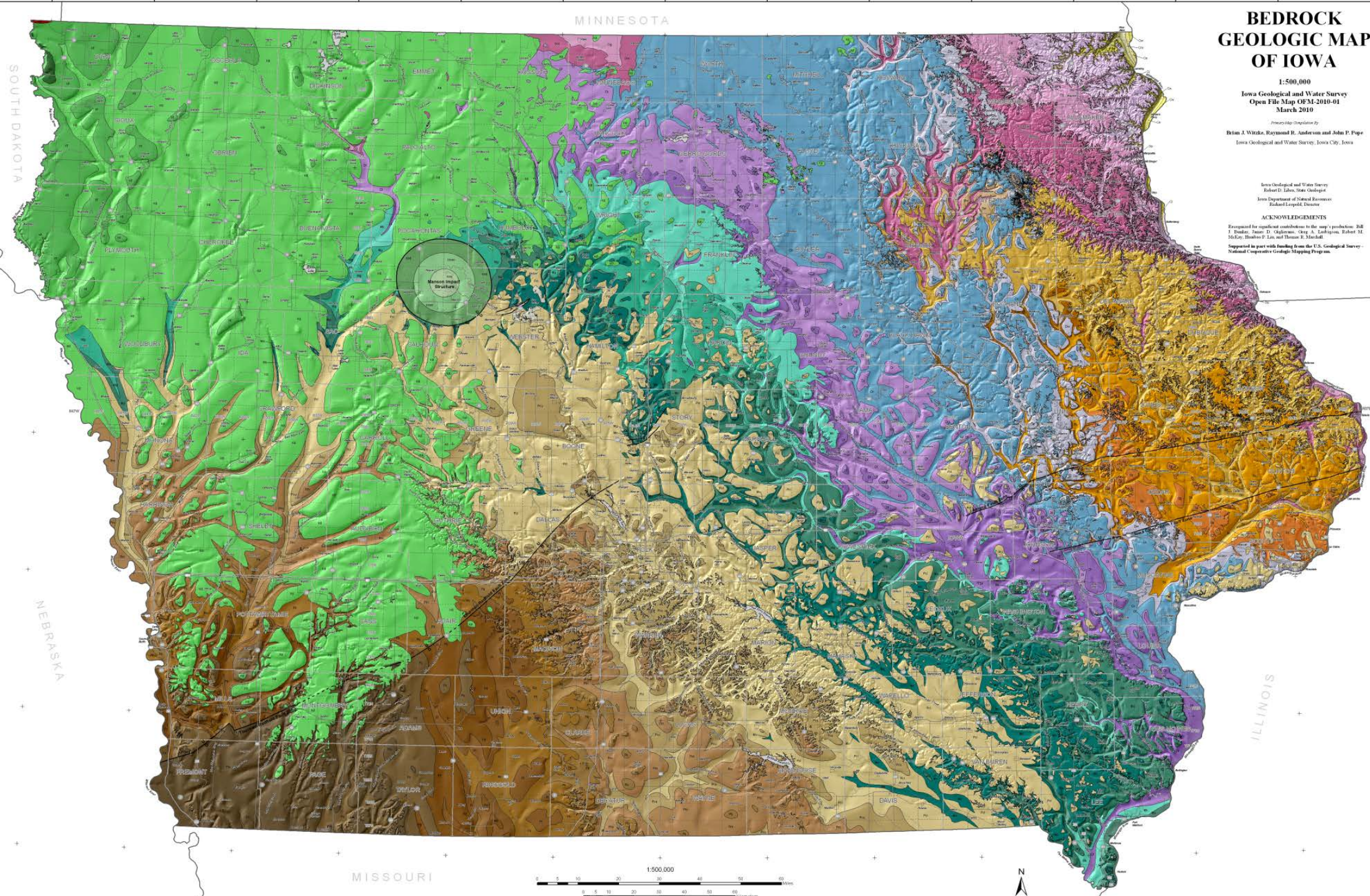


Iowa's Silurian

419 Ma
to
443 Ma

Geology of Iowa
University of Northern Iowa
Dept. of Earth and Environmental Science
Dr. Chad Heinzl



BEDROCK GEOLOGIC MAP OF IOWA

1:500,000
Iowa Geological and Water Survey
Open File Map OFM-2010-01
March 2010

Primary Map Compilation by:
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Supported in part with funding from the U.S. Geological Survey - National Cooperative Geologic Mapping Program.

419 Ma
to
443 Ma

MISSOURI



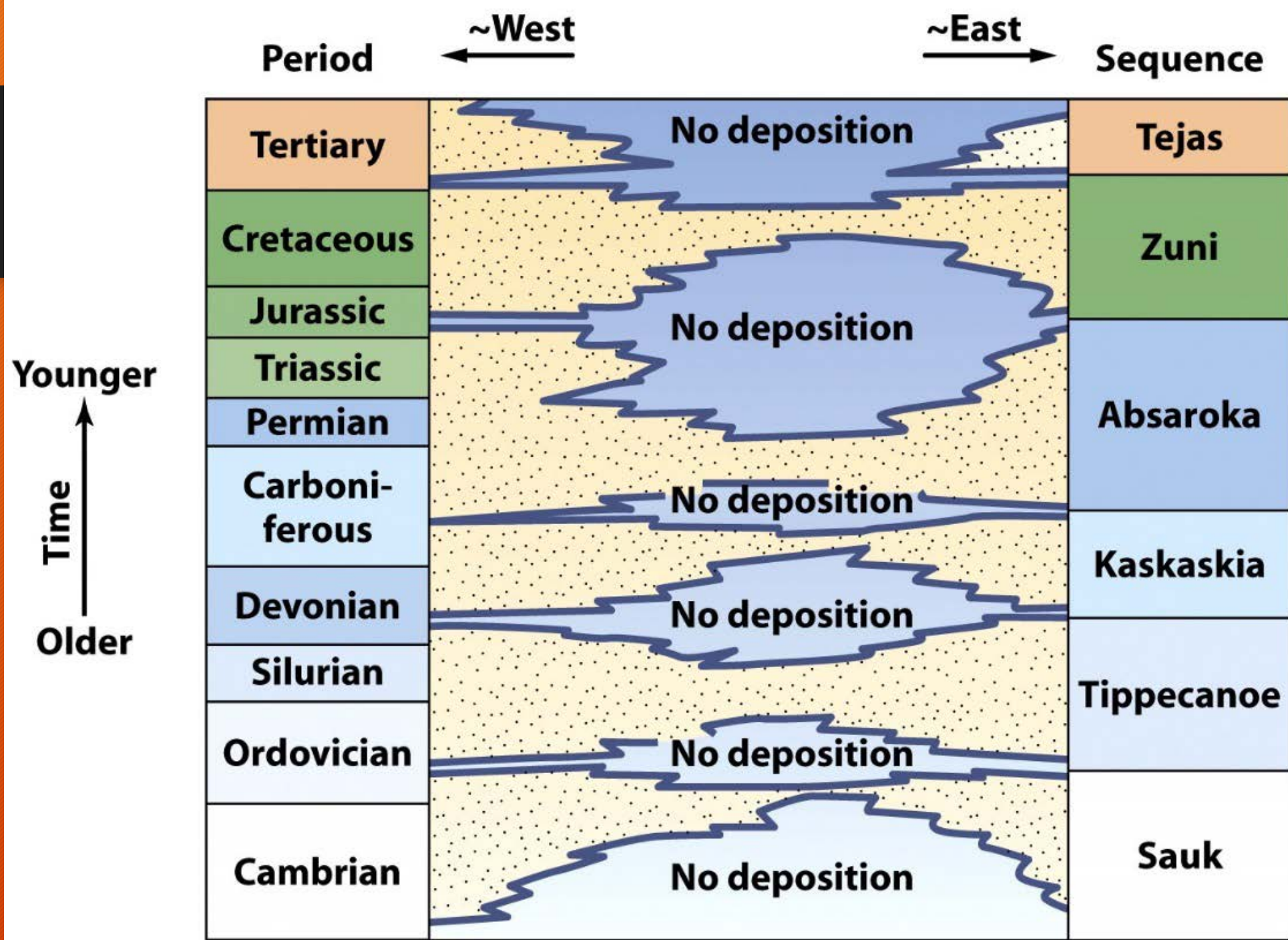
SOUTH DAKOTA

NEBRASKA

ILLINOIS

MINNESOTA

Iowa's Paleozoic



Silurian - Dolomite and Carbonate Mounds

419 Ma
To
443 Ma

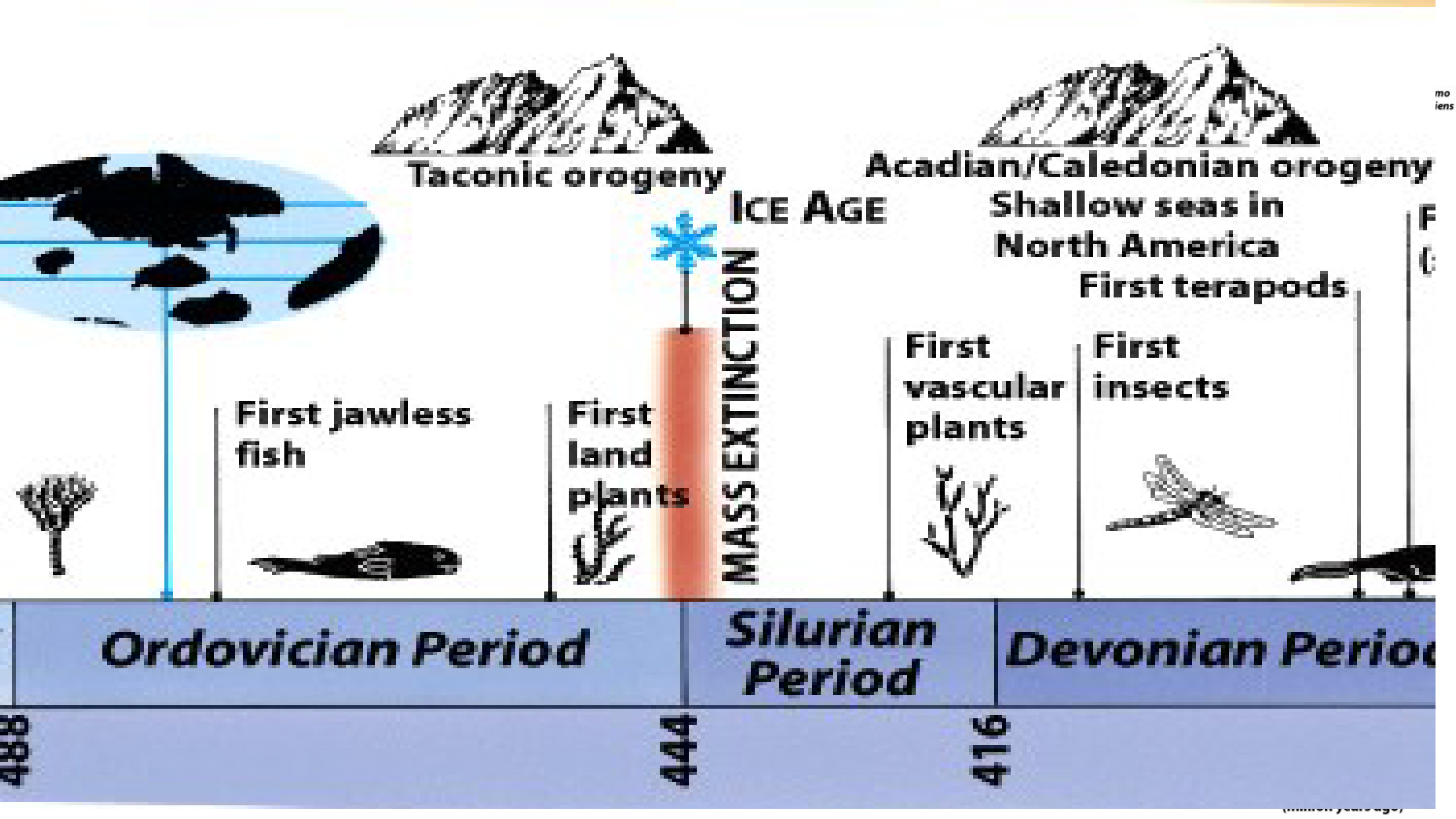
- Six Dolomite and two limestone formations, that provide the foundation for many of Eastern Iowa's State parks.
- There are five marine Transgression to Regression phases recorded in Iowa's Silurian Formations.

Silurian - Dolomite and Carbonate Mounds

419 Ma
To
443 Ma

These Silurian rocks have great economic value (agricultural lime, road aggregate, aggregate for concrete, building stone and as bedrock aquifers).

Towards the end of the Silurian there was another period of weathering and erosion that created an unconformity between the Silurian and Devonian.



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End of Ordovician – Mass extinction

443 Ma

- 60+% of marine invertebrates
 - Brachiopods, bryozoans were hit the hardest along with declines in trilobite, conodont and graptolite families...
- Cause?
 - Gondwana drifts south leads to the largest glacial event of the Phanerozoic
 - Gamma ray burst
 - Volcanism
 - Metal poisoning

Silurian Formations

Gower

Restricted marine
+ hypersaline
+ major carbonate mounds

419 Ma
to
443 Ma

Scotch Grove

La Porte City

Open marine shelf
+ major carbonate mounds

Hopkinton

Waucoma

Open marine shelf
+ minor carbonate mounds

Blanding

Open marine shelf

Tete des Morts

Open marine shelf

Mosalem

Restricted marine (muddy)

Dolostone

Limestone

Hopkinton Formation

- Common in eastern Iowa
- Very-fine to coarsely crystalline dolostones with areas of nodular chert
- Contains four members
 - Sweeney
 - Marcus
 - Farmers Creek
 - Picture Rock



Hopkington Fm. and Eastern Iowa State Parks

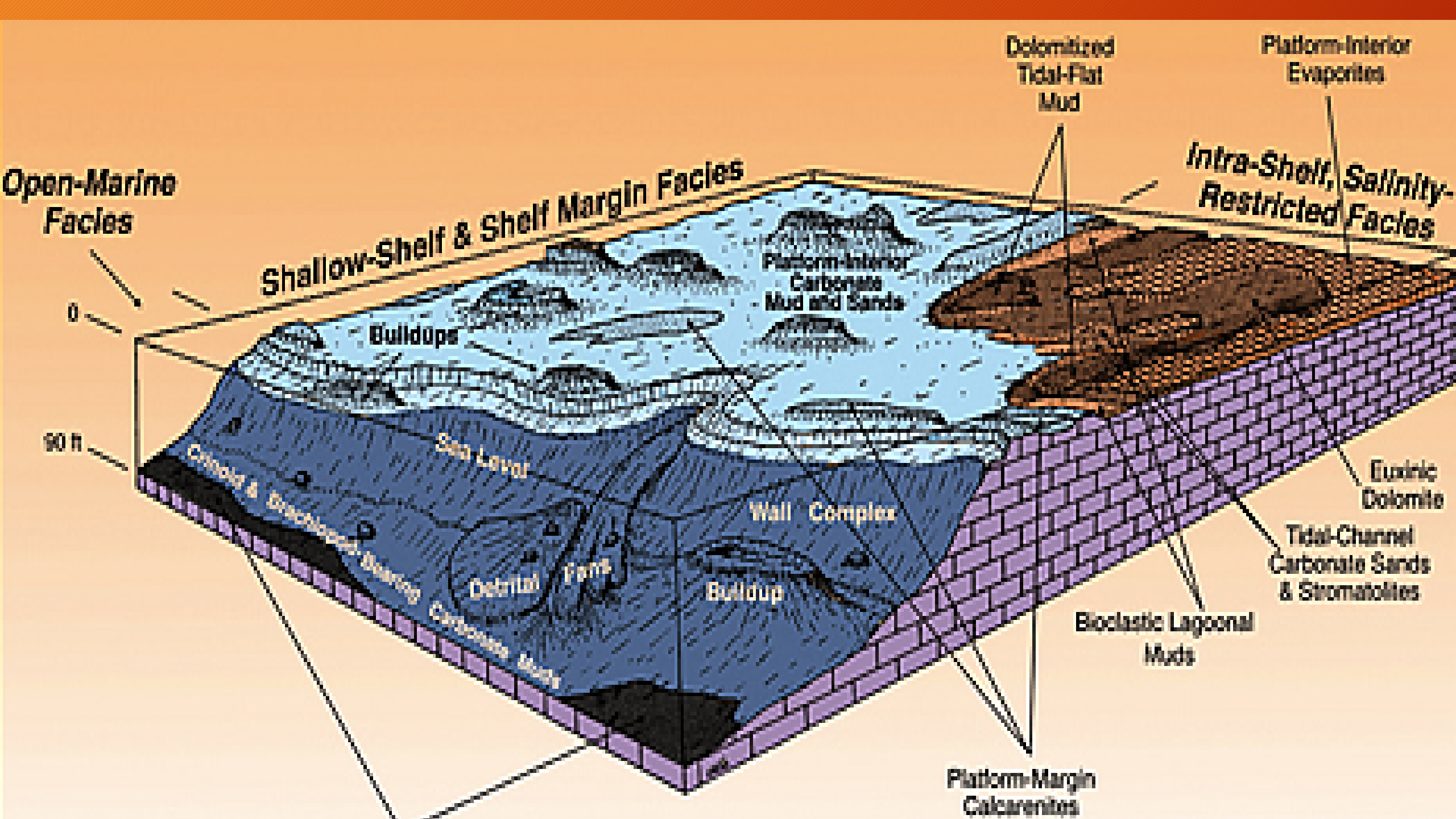
- Maquoketa Caves State Park
- Backbone State Park
- Mississippi Palisades State Park
- Picture Rock County Park (Jones Co.)



Scotch Grove Formation

- Overlies the Hopkinton Fm. as dolostone with cherty intervals
- Represented by the natural bridge feature at Maq. Caves State Park





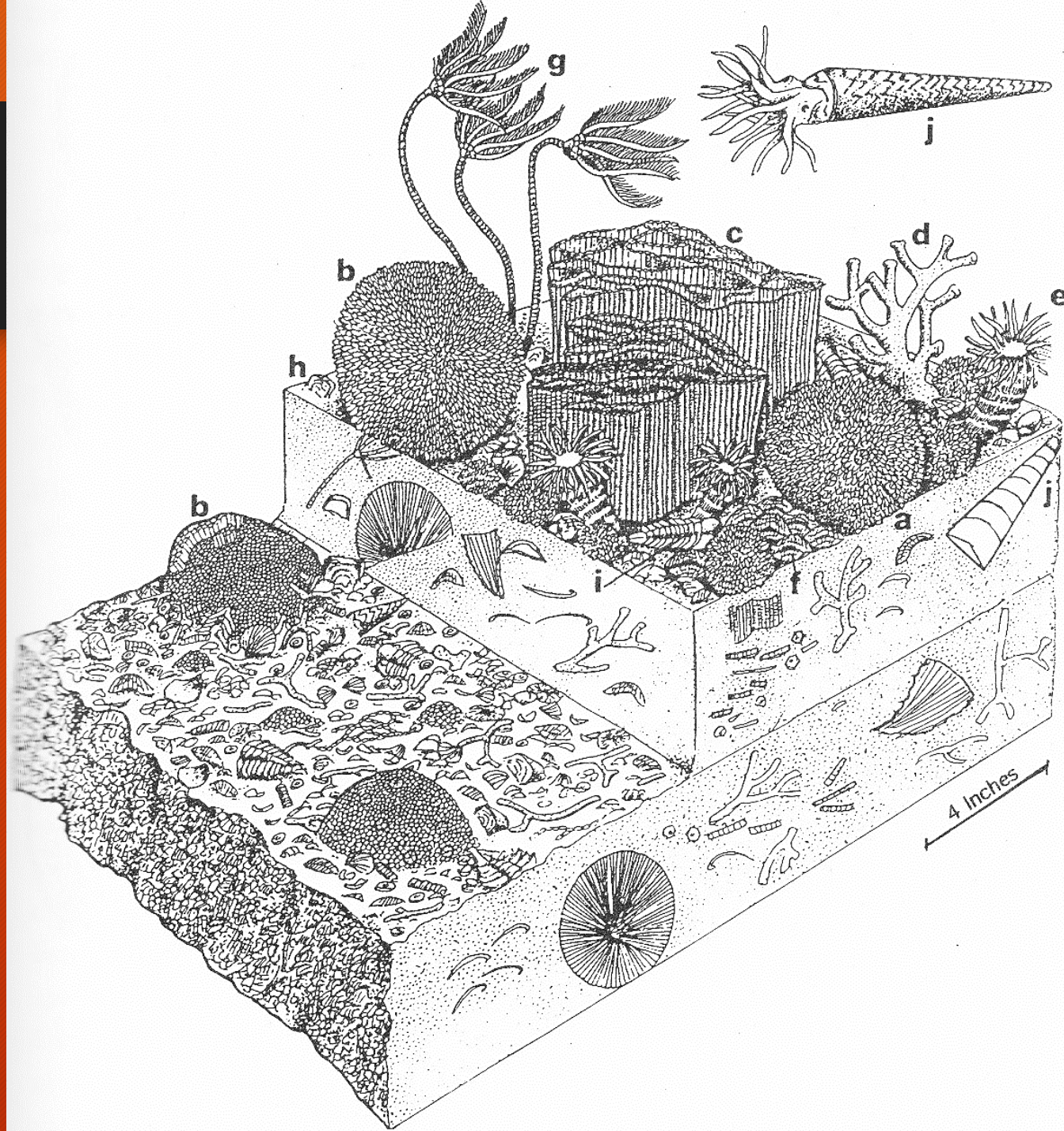
Gower Fm. - Anamosa member

- Ideal building stone
- Uniform bedding, Fine consistent texture
- Used for many of Iowa's early buildings
 - Rock Island Arsenal (IL)
 - Anamosa Prison
 - Stone City, IA
 - Cornell College



Silurian Life

- Colonial corals
 - Favosites
 - Halysites
- Solitary corals
 - Slipper
 - Horn
- Brachiopods
 - Pentamerus
- Crinoids



Applied paleontology

