New Publications

Catalog of North Dakota Water Chemistries Update Available on NDGS Web Site

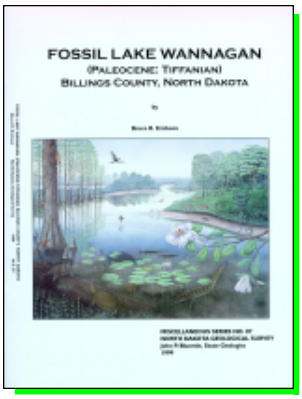
by Tom Heck

NDGS staff recently finished adding oil well water analyses to our water chemistry database. The data are available on the internet at the NDGS web site, http://www.state.nd.us/ndgs/. The database contains 7,664 analyses from 2,140 wells across North Dakota. The database is available as a self-extracting text file named **wtrchem.exe** and is accompanied by a **README.TXT** file that describes the contents of the database. When **wtrchem.exe** is executed, a comma-quote delimited ASCII text file is expanded that will import readily into a database or spreadsheet. We plan to periodically update the database as new analyses become available and we will post an updated version on our web site.

Catalog of North Dakota Water Chemistries - Update **FREE**
available at http://www.state.nd.us/ndgs/

Fossil Lake Wannagan (Paleocene: Tiffanian), Billings County, North Dakota

by Bruce R. Erickson



Fossil Lake Wannagan is a new name for a local freshwater lake of undetermined size that existed as part of a floodplain system during the Late Paleocene. It is located in the upper breaks of the badlands of the Little Missouri River in western North Dakota. Fossil Lake Wannagan is recognized from: sediments of fluvial, paludal, and lacustrine character; a section of shoreline with well-defined beach cusps; and an exceptionally well-preserved freshwater assemblage of fossils. A sequence of stratified sediments records the history of its development and termination by crevasse splay deposition. Limnogeological and paleoenvironmental aspects of this ancient lake are presented along with its age and correlations. The "Fossil Lake Wannagan" is, herein, introduced for the first time.

Miscellaneous Series No. 87 **$ 2.00**

Thick Coals in Bowman, Slope, Hettinger, and Adams Counties, North Dakota

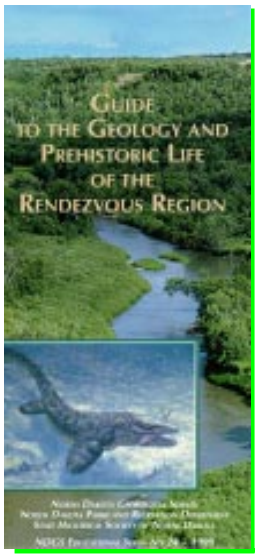
by Edward C. Murphy, Ned W. Kruger, and Gerard E. Goven,

Thick coals, the HT, Harmon, Hansen, and T Cross, were correlated across Bowman, Slope, Hettinger, and Adams counties. A half dozen or so cross-sections of Fort Union and Upper Cretaceous strata were constructed for each county. The 55-page report also includes isopachs, depth, and contour maps of the Harmon, Hansen, and T Cross coals for the four-county area.

NDGS Open-File Report 99-1 **$5.00**

Guide to the Geology and Prehistoric Life of the Rendezvous Region

by John W. Hoganson



The color brochure, *Guide to the Geology and Prehistoric Life of the Rendezvous Region*, that is Pembina and Cavalier counties in northeastern North Dakota, is meant to be a guide for educators, local residents, and visitors to that area of North Dakota. Location of sites where geologic features can be observed in the area are plotted on a geologic map. Photographs of the sites and an interpretation of the geologic features are included. A brief interpretation of the glacial and preglacial geologic history of the Rendezvous Region is provided.

On the reverse side of the brochure, a description is given of the prehistoric life (mosasaurs, sharks, other fish, and invertebrates) that lived in oceans that covered the Rendezvous Region during the Cretaceous Period from about 90 million to 80 million years ago. Photographs of fossils found in the area are included. Paintings of several of the animals by paleontological illustrator, Dan Varner, are reproduced in the brochure. A copy of the mural depicting life in the Pierre Sea exhibited at the Pembina State Museum provides a habitat reconstruction.

The brochure is a cooperative project between the North Dakota Geological Survey, the North Dakota Parks and Recreation Department, and the State Historical Society of North Dakota. John Hoganson wrote the text and provided the photographs for the brochure and Brian Austin, State Historical Society of North Dakota, created the graphics and brochure layout.

Educational Series No. 24 **FREE**

RECENT ARTICLES authored by NDGS Staff Members

Hoganson, J. W., Campbell, J. M., Hanson, M., and Halvorson, D.L., 1999, *Plioplatecarpus* (Reptilia, Mosasauridae) and associated vertebrate and invertebrate fossils from the Pierre Shale (Campanian), Cooperstown Site, Griggs County, North Dakota: Proceedings of the North Dakota Academy of Science, v. 53, p. 119-123.

Mitchell, Karen J.R., Fritz, Ann M.K., and Waldkirch, Ryan, 1999, "Evolution of Digital Mapping Techniques at the North Dakota Geological Survey" presented at the 1999 Digital Mapping Techniques Workshop in Madison, Wisconsin, May 19-22. Workshop volume edited by David Soller.

Bluemle, John P. (ND Geological Survey), Sabel, Joseph, M. (U.S. Coast Guard), and Wibjörn Karlén (Stockholm University, Sweden); Environmental Geosciences, June 1999, "Rate and Magnitude of Past Global Climate Changes", v. 6, no. 2, p. 1-14.

This article is an expanded version of a report by the authors to the American Association of Petroleum Geologists (AAPG) ad hoc Committee on Climate Change. Slightly different versions of this paper have been (or will be) given at the annual meeting of AAPG in April, 1999 (San Antonio, Texas) and at the Rocky Mountain Section Meeting of AAPG in August (Bozeman, Montana).

"Rate and Magnitude of Past Global Climate Changes" is an overview that examines the geologic record and a variety of natural causes of climatic fluctuation. Among its conclusions is the fact that natural climatic variability through geologic time has been frequent and extreme, far more than climatic changes ("global warming") projected to result from human-caused factors such as CO_2 resulting from the burning of fossil fuels.