

---

---

# GEOLOGIC PROJECTS IN NORTH DAKOTA - 1998

Compiled by Linda Johnson

In the Spring issue of the *NDGS Newsletter*, we requested information about areas in North Dakota - and nearby areas of adjoining States and Provinces - currently being studied by government, university, and industry geoscientists. The reasons for the request were simple: *To keep one another apprised of current geologic projects and to stimulate interaction among geologic researchers in North Dakota.*

We intend to solicit this information in the Spring and publish it in the Winter on a biennial basis. Thank you to everyone who responded to the survey.

## COUNTY CODES

Adams ..... AD  
Barnes ..... BA  
Benson ..... BE  
Billings ..... BI  
Bottineau ..... BO  
Bowman ..... BW  
Burke ..... BU  
Burleigh ..... BL  
Cass ..... CA  
Cavalier ..... CV  
Dickey ..... DI  
Divide ..... DV  
Dunn ..... DU  
Eddy ..... ED  
Emmons ..... EM  
Foster ..... FO  
Golden Valley ..... GV  
Grand Forks ..... GF  
Grant ..... GR  
Griggs ..... GG  
Hettinger ..... HE  
Kidder ..... KI  
LaMoure ..... LM  
Logan ..... LO  
McHenry ..... MH  
McIntosh ..... MI  
McKenzie ..... MK  
McLean ..... ML  
Mercer ..... ME  
Morton ..... MO

Montrail ..... MR  
Nelson ..... NE  
Oliver ..... OL  
Pembina ..... PE  
Pierce ..... PI  
Ramsey ..... RA  
Ransom ..... RN  
Renville ..... RE  
Richland ..... RI  
Rolette ..... RO  
Sargent ..... SA  
Sheridan ..... SH  
Sioux ..... SI  
Slope ..... SL  
Stark ..... SK  
Steele ..... ST  
Stutsman ..... SM  
Towner ..... TO  
Traill ..... TR  
Walsh ..... WA  
Ward ..... WD  
Wells ..... WE  
Williams ..... WI  
  
Statewide ..... SW  
Montana ..... MT  
Minnesota ..... MN  
South Dakota ..... SD  
Manitoba ..... MB  
Saskatchewan ..... SK

## TYPES OF STUDY

Economic Geology:  
a. General ..... EC  
b. Coal ..... CG  
c. Nonfuel Minerals ..... NF  
d. Petroleum ..... PG  
Engineering Geology ..... EG  
Environmental Geology ..... EV  
Geochemistry ..... GC  
Geochronology ..... GR  
Geologic Hazards ..... GH  
Geologic Mapping ..... GM  
Geomorphology ..... GO  
Geophysics ..... GP  
Hydrogeology ..... HG  
Mineralogy ..... MN  
Paleomagnetism ..... PM  
Paleontology ..... PA  
Palynology/Paleobotany ..... PY  
Petrology ..... PT  
Quaternary Geology ..... QG  
Sedimentology ..... SD  
Soils ..... SO  
Stratigraphy ..... ST  
Structural Geology/Tectonics .... SG

<b>Investigator(s)</b>	<b>Organization(s)</b>	<b>County(s)</b>	<b>Location</b>	<b>Type of Study</b>
Jon Ellingson and John Reid	Geology and Geological Engineering Dept. UND	MO	Harmon Quad	GM, GO, NF
Trent Hubard and John Reid	Geology and Geological Engineering Dept. UND	MH	Karlsruhe Quad	GM, GO, NF
James E. Martin and J. Foster Sawyer	South Dakota Geological Survey		SD	GM
Eileen Starr and Aaron Sours	Valley City State University	BA, RN	ND	PA
John H. Hughes	Independent Geologist	BO, MR, WD	ND	PG
J.J. Brumer	Consulting Geologist		MB, SK, Ontario, B.C., and N.W.T.	GC, MN, SG
Carrie Peterson	MN Geological Survey		MN	GM, QG, ST
John Hoganson	ND Geological Survey	EM, MO, SI, BL	ND	PA
John Hoganson, Johnathan Campbell, Mike Hanson, and Dennis Halvorson	ND Geological Survey	GG	ND	PA
John Hoganson(1) and Glenn Kays(2)	(1)ND Geological Survey (2)Geology and Geological Engineering Dept. UND	BI	ND	PA
John Hoganson(1), J. Mark Erickson(2), and F.D. Holland Jr.(3)	(1)ND Geological Survey (2)Geology Dept. St. Lawrence University, Canton, NJ (3)Geology Dept. UND	MO, GR, EM, BO, BR	ND	PA
John Hoganson and Ed Murphy	ND Geological Survey	EM, MO, SI, GR, BW, SL, BL	ND	ST, PA
John Hoganson and Ed Murphy	ND Geological Survey	all counties	State wide	EC, PA

<b>Title/Subject</b>	<b>Date of Scale</b>	<b>Anticipated Inception</b>	<b>Completion Date</b>	<b>Notes/Availability</b>
EDMAP-Geology of the Harmon, ND Quadrangle	1:24,000	5/1997	5/1998	Part of dissertation on sand & gravel resources
EDMAP- Geology of the Karlsruhe, ND Quadrangle	1:24,000	5/1998	5/1999	Part of dissertation on glacial flutes
Geologic Map of South Dakota	1:500,000	1984	Spring 1999	SD Geological Survey Publication
Fossils of the Niobrara and Pierre Shale		1993	on-going	Presentation planned at 1999 ND Academy of Science meeting
Mohall Zone Entrapment		1998	1999	confidential report
Minerals Exploration	varies		on-going	Provincial agencies will house information
Upper MN River Basin Regional Hydrogeologic Assessement	1:200,000	7/1/1995	6/30/1998	MN Geological Survey publication MGS-RHA-4
Vertebrate Paleontology of the Breien Mbr., Hell Creek Fm.		1995	1999	journal publication
Paleontology of the Pierre Shale Cooperstown Site, Griggs County ND		1996	2000	NDGS publication, journal publication
Turtle Fauna of the Sentinel Butte Fm., Ash Coulee, Billings County ND		1996	1999	NDGS publication, journal publications
Vertebrate Paleontology of the Fox Hills Fm., North Dakota		1995	1999	journal publication
Stratigraphy & Paleontology of the Hell Creek Fm.		1994	on-going	NDGS publication, journal publication
Roadside Geology of North Dakota		1995	2000	Book company

Type of Investigator(s)	Organization(s)	County(s)	Location	Study
	USDA-NRCS	BI, ED, MK, RI, SA	ND	SO
Eric Brevik(1), Thomas Fenton(1) and John Reid(2)	(1)Agronomy Dept. Iowa State State University, (2)Geology Dept. UND	GF	ND	GO, SO, GM
Ben Rostron, Adam Benn, Zsolt Margitai, and Heather Lampen	University of Alberta Dept. of Earth and Atmospheric Sciences	SW, SD, MT, SK, MB	Regional	GC, HG, PG
Eric Brevik and Thomas Fenton	Agronomy Dept. Iowa State University	GF	Grand Forks County	GO, SO, GM
P.D. Warwick(1), R.M. Flores(1), D.J. Nichols(1), and E.C. Murphy(2)	(1)US Geological Survey, (2) ND Geological Survey	MO, GR, ME, AD, BW	Western ND	ST
E.C. Murphy	ND Geological Survey	BI, GV, SL, BW, AD, ME, SK, DU, MK	Western ND	ST
E.C. Murphy(1), J.W. Hoganson(1), K.R. Johnson(2), and J.H. Hartman(3)	(1)ND Geological Survey, (2) Denver Museum, (3)EERC	BW, SL, GR, SI, MO, BH, EM	Western ND	ST
E.C. Murphy	ND Geological Survey	BW, AD, DU, MK, ME, OL, ML, DV, BU	Western ND	CG, GC
John Hoganson(1) and Dean Pearson(2)	(1)ND Geological Survey, (2) Pioneer Trails Museum, Bowman	BO	ND	PA
John Hoganson and Johnathan Campbell	ND Geological Survey	BI, MK	ND	PA
M.S. Ellis, G.D. Stricker, Greg Gunther, A.M. Ochs, and R.M. Flores	US Geological Survey		Powder River and Williston Basin, ND, WY, MT	CG

---

Date of Title/Subject	Anticipated Scale	Inception	Completion Date	Notes/Availability
Soil Survey	1:12,000	various	various	Digital soil maps completed on county by county basis
Soil Maps as a Tool in Mapping Poorly Preserved Landforms: A Case Study in Grand Forks Co., ND		1997	1998	published in "Soil Survey Horizons"
Hydrogeology, Hydrochemistry and Petroleum Geology in the Williston Basin (Canada-U.S.A.)		9/1995	on-going	results published as various university thesis, papers, (etc.)
Mapping the Herman Strandline in Grand Forks County, ND, by Integrating Geological and Soil Maps		1997	1999	published in Journal of Paleolimnology
Lower Fort Union Stratigraphy in ND		1994	1999	Journal Publication
Major Coal Beds of Western ND		1998	1999	
Lithostratigraphy of the Hell Creek Formation in North Dakota		1998	1999	GSA Special paper
Leonardite in North Dakota		1998	2000	
Vertebrate Paleontology of the Chadron Fm., Medicine Pole Hills Site, Bowman County, North Dakota		1996	on-going	
Paleontology of Theodore Roosevelt National Park, ND		1995	1999	NDGS publication
The Relationship Between Coal Quality and Coal Resource Parameters of the Powder River and Williston Basin Coals			1998	Proceedings, Pittsburgh Coal Conference

<b>Type of Investigator(s)</b>	<b>Organization(s)</b>	<b>County(s)</b>	<b>Location</b>	<b>Study</b>
Paul Diehl	ND Geological Survey	BW	Western Bowman Co.	PG, ST
John P. Bluemle	ND Geological Survey	MO	ND	QG
Ann Fritz and Karen Mitchell	ND Geological Survey	WA, PE, CV	Cavalier 1:100,000 map area	GM, QG, GO
Ann Fritz and Ryan Waldkirch	ND Geological Survey	GF, WA, NE	Grafton 1:100,000 map area	QG, GO, GM
Jan Faltiesek(1) and Ken Harris(2)	(1)Minnesota Dept. of Natural Resources, (2)Minnesota Geological Survey	MN (Norman, Wilkin, Clay, Traverse, Grant, Mahnomen, Becker, Otter Tail)	MN 46-47 30' lat. 96 long. W to Red River of the North	GM, HG, QG
Harvey Thorleifson and Gaywood Matile	Geological Survey of Canada and Manitoba Geological Services Branch	Manitoba, Canada	Winnipeg region 49-51 lat. 95-98 long	EC, EG, EV, GC, GR, GH
C.W. Keighin(1), R.M. Flores(1), A.M. Ochs(1), E.C. Murphy(2), and G. Goven(2)	(1)US Geological Survey, (2) ND Geological Survey	AD, BI, BW, GV, HE, SL	Williston Basin, ND	CG
T.S. Dyman, J.W. Schmoker, J.C. Quinn, D.B. Riggan, K.W. Porter, and L.E. Davis	US Geological Survey	State wide	Williston Basin and surrounding region, MT, ND, WY	PG

<b>Date of Title/Subject</b>	<b>Anticipated Scale</b>	<b>Inception</b>	<b>Completion Date</b>	<b>Notes/Availability</b>
Petroleum Geology Reservoir Parameters of Red River "B"; Stratigraphy-Isopach of Englewood Formation	1"=4,000'	1998	mid 1999	NDGS Publication/open file report
Study of Ice-Marginal Boulders Marking Edge of Early Wisconsinan Glacier		8/1998	mid 1999	
Surficial Geology of the ND Portion of the Cavalier Quadrangle Area	1:100,000	1998	2001	
Surficial Geology of the ND Portion of the Grafton Quadrangle Area	1:100,000	1995	1999	NDGS open file report
Regional Hydrogeological Assessment, Southern Red River Valley, MN Series RHA-3, two parts	1:200,000	1992	1998	Part A-Quaternary Geology (1995), Part-B Hydrogeology and Pollution Sensitivity (in press)
Geology of the Winnipeg Region	1:100,000	1/1992	12/1999	This is a two phase project, phase one preliminary maps have been released (lat/long 49-50/95-97) and are in final map production. Maps are available from either the Geological Survey of Canada or the Manitoba Energy and Mines.
Correlation of Paleocene Harmon and Hansen Lignite Beds			1998	Proceedings, Pittsburgh Coal Conference
Production Heterogeneities as Measures of Reserve Growth Potential in Petroleum Reservoirs and Plays				Eighth International Williston Basin Symposium Meeting Abstracts

---

<b>Investigator(s)</b>	<b>Type of Organization(s)</b>	<b>County(s)</b>	<b>Location</b>	<b>Study</b>
Ken Harris	MN Geological Survey	MN (Becker, Hubbard, Todd, Wadena, Grant, Douglas, Otter Tail)	46-47 lat., 95-96W long.	GM, QG, ST
C.D. Martiniuk, H.R. Young, and H.J. Klassen	Manitoba Energy and Mines		MB	PG
D.J. Nichols	US Geological Survey		Williston Basin, ND	CG, PA
	Manitoba Energy and Mines		MB	ST, GM, PG
	Manitoba Energy and Mines		MB	PG
Ann Fritz	ND Geological Survey	RI, RN	South Eastern, ND	GO, QG

For petroleum related projects in the Williston Basin see also:

Christopher, J.E., Gilboy, C.F., Paterson, D.F., and Bend, S.L. editors, 1998, Eighth International Williston Basin Symposium: Saskatchewan Geological Society Special Publication No. 13, 290 pp.

Kreis, Kim (organizer), 1998, Eighth International Williston Basin Symposium Core Workshop Volume: Montana, North Dakota, and Saskatchewan Geological Societies, 142 pp.



---

Date of Title/Subject	Anticipated Scale	Inception	Completion Date	Notes/Availability
Otter Tail Regional Hydrogeologic Assessment-Part A, Geology	1:200,000	7/1/1996	6/30/1999	MN Geological Survey publication
Regional Overview of the Geology and Petroleum Potential, Red River Frm., Southwestern Manitoba			1998	Manitoba Internet Access -Petroleum Web Site - for more information and publication listings visit our web site at: <a href="http://www.gov.mb.ca/em/petroleum">http://www.gov.mb.ca/em/petroleum</a>
Palynostratigraphy of the Fort Union Frm. (Paleocene) in ND part of the Williston Basin and its Application to Coal Resource Assessment			1998	Geological Society of America Annual meeting Toronto
Lower Paleozoic Formation Tops-Bakken to Pre Cambrien (updated to December 31, 1997)			1998	
Lower Paleozoic Drill Stem Tests and Oil and Gas Shows - Three Forks to Pre Cambrien			1998	
Geologic Explorer's Guide to the Sheyenne National Grasslands		1997	1999	NDGS Educational Series Publication