Further reading

Anderson, F.J., 2005, Earthquake hazards and probabilities in North Dakota: North Dakota Geological Survey Newsletter, v. 32, no. 2, p. 1-6.

Anderson, F.J., 2009, USArray reference seismic station installed in North Dakota: DMR Newsletter, v. 36, no. 1, p. 10-13.

Biek, B., 1997, Earthquakes in North Dakota: North Dakota Geological Survey Newsletter, v. 23, no. 1, p. 17-23.

Bluemle, J.P., 1989, Earthquakes in North Dakota: North Dakota Geological Survey Newsletter, December 1989, p. 20-25.

And a few more words on Bision Trails …

In the previous X Marks the Spot competition (#15) readers were asked to identify the network of mostly northwest-southeast-trending lines that are visible in aerial photographs of North Dakota's grasslands. The general consensus is that these lines are bison trails, created by the movements of the great herds of these animals that once roamed the Great Plains. Shortly after this explanation was published in the January 2009 Newsletter, geologist Michael Iannicelli contacted the NDGS to offer a possible alternative origin for these features.

He suggests that the lines (trenches) may be erosional landforms carved by meltwater derived from snowdrifts oriented transverse to the margin of the Late Wisconsinan glacier and normal to katabatic winds blowing off the ice. Similar landforms have been observed in Germany and in other parts of the glaciated regions of the U.S. including Illinois, Iowa, Nebraska and South Dakota. Modern equivalents have been found on Devon, Resolute, and Cornwallis Islands in the Canadian Arctic.

Further Reading

Iannicelli, M., 2000, Snow dune erosion and landforms: Northeastern Geology and Environmental Sciences, v. 22, no. 4, p. 324-335.

Iannicelli, M., 2003, Devon Island's oriented landforms as an analog to Illinois-type paha: Polar Geography, v. 27, no. 4, p. 339-350.

STAFF NEWS

Summer Hires

The Survey has hired four summer field technicians to canvas the state for evidence of shallow natural gas in ground-water wells that may help pave the way to further exploration by the oil & gas industry. Each of the four technicians is looking for potential methane shows by field screening groundwater monitoring and stock-supply wells using a portable flame ionization detectors (FID). The study is part of the Survey's ongoing Coal-Bed Methane (CBM)/Shallow Gas Field Screening project.

Clockwise from top left: Adam Ries, Allison Christensen, Cassie Gudmunsen, Brian Hall

Geological engineering major Adam Ries is a senior at UND and is covering southwest North Dakota including the Dickinson area. Allison Christensen, a senior in the geoscience department at Minot State University, is collecting data in the north-central part of the state, and recent Dickinson State University graduate (B.S. in agricultural science and natural resources management) Cassie Gudmunsen is sampling wells in the nortwestern counties. Eastern North Dakota is Brian Hall's territory. Brian, also a geoscience major, will be a senior this fall at NDSU.

The field screening team is working under the supervision of shallow gas program principal investigator Fred J. Anderson and State Geologist Ed Murphy. We are happy to welcome them to the Survey and wish them all "good hunting and safe travels" this summer.

The Oil & Gas Division hired Matt Carns as a field temp to help in its Williston and Dickinson Districts this summer. He is based in Williston, but will do some work in Dickinson from time to time. Matt, who is studying geology at UND, will be starting his senior year fall.

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Permanent staff

In July the Oil & Gas Division bid farewell to legal assistant Marge Rixen. It also welcomed Lisa Peterson, a temporary employee who will be helping with several projects in the Bismarck office.