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## First Record of *Graphoderus Liberus* (Coleoptera: Dytiscidae) in North Dakota

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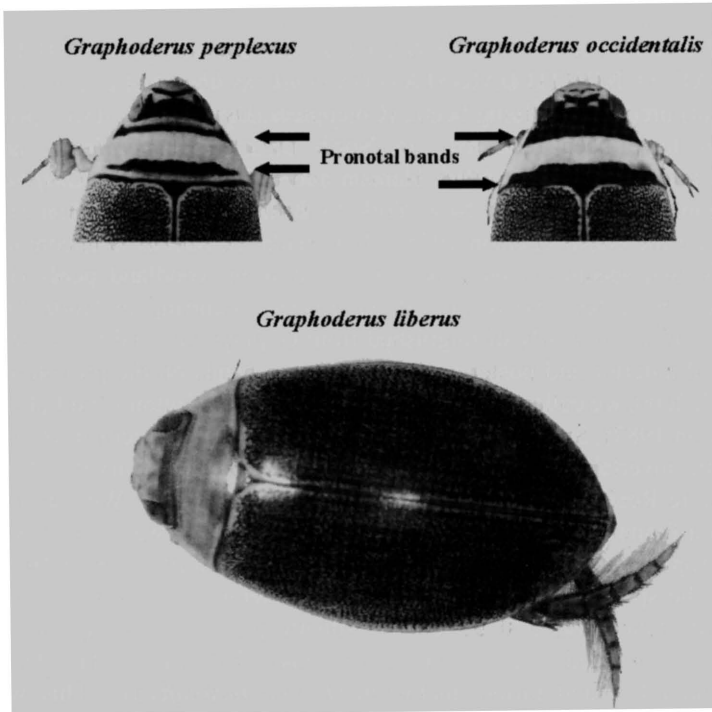
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**FIRST RECORD OF *GRAPHODERUS LIBERUS* (COLEOPTERA: DYTISCIDAE) IN NORTH DAKOTA** -- *Graphoderus liberus* is a moderate sized (11 to 12 mm) predaceous diving beetle (Coleoptera: Dytiscidae). Two species of *Graphoderus* have been recorded in North Dakota, *G. perplexus*, and *G. occidentalis* (Gordon and Post 1965, Hanson and Swanson 1989). *Graphoderus liberus* is transcontinental from New York to British Columbia, but it is more common along the coasts (Larson 1975). In Canada, *G. liberus* is uncommon; in Alberta only two specimens have been reported from woodland pools (Larson 1975). There have been no records of *G. liberus* occurring in North Dakota. *Graphoderus liberus* is easily distinguished from *G. perplexus* and *G. occidentalis* by the lack of anterior and posterior dark transverse bands on the pronotum (Fig. 1). April 17, 2000, we collected one male *G. liberus* at the Cottonwood Lake Study Area (Swanson 1987), Stutsman County, North Dakota. The specimen is archived in the aquatic invertebrate collection at the U. S. Geological Survey's Northern Prairie Wildlife Research Center in Jamestown, North Dakota. We captured the specimen in a funnel trap (Swanson 1978) set in 64 cm deep water in the shallow marsh zone (open water phase) of a seasonal wetland (Stewart and Kantrud 1971). At the time the specimen was collected, the water temperature was 9°C and the specific conductance was 370  $\mu\text{S cm}^{-1}$ . Aquatic plants in the vicinity of the collection site included coontail (*Ceratophyllum demersum*), star duckweed (*Lemna trisulca* L.), and turion duckweed (*Lemna turionifera*). This wetland cycles between wet and dry phases, as is normal in the prairie pothole region (Euliss et al. 1999), and it was in the lake phase (van der Valk and Davis 1978) with a maximum water depth of 0.94 m when we collected the *G. liberus* specimen. The hydrologic setting, geology, water chemistry, and wetland plant communities of wetlands at the Cottonwood Lake Study Area have been described by Winter and Carr (1980), Swanson (1990), LaBaugh et al. (1996), and Poiani et al. (1996), respectively.

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**Figure 1.** *Graphoderus liberus* collected at the Cottonwood Lake Study Area April 17, 2000. Both *G. perplexus* and *G. occidentalis* are shown for comparison of pronotal markings. Note the absence of pronotal bands on *G. liberus*.

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