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Collections of Hibernating Ground Beetles (Coleoptera: Carabidae)

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COLLECTIONS OF HIBERNATING GROUND BEETLES
(COLEOPTERA: CARABIDAE)

The mild, snowless winter weather of late December 1982 and early January 1983 made it easy to obtain litter and soil samples for extraction of overwintering ground beetles. Collections of this nature are desirable in order to positively confirm the hibernating status of Michigan carabid beetles. As an added benefit, the collections also produced several specimens of rare species which had not been previously collected by other methods (blacklighting and hand collecting) in the same areas during the spring and summer of 1982.

In order to capture the beetles, various quantities of leaf litter, soil (up to a depth of 15 cm), and rotten wood were placed into plastic bags and taken to the laboratory. The beetles were separated from the leaf litter by placing the contents of each bag into a large container filled with warm water. The beetles floated to the surface of the water and were easily picked out with forceps.

All of the following collections were made in Michigan. On the days the collections were made there was no snow cover and virtually no soil frost. The ambient air temperature ranged between 2° and 15°C. Numbers in parentheses are the number of individuals collected.

Clinton County, Rose Lake Wildlife Research Area (T.5N, R.1W, S.26); habitat: leaf litter, rotten wood, and organic soil near edge of Rose Lake; 23 Dec. 1982: *Platynus decentis* Say (1), *Agonum palustre* Goulet (1), *A. melanarium* Dejean (10), *A. propinquum* Gemminger & Harold (3), *A. gratiosum* Mannerheim (26), *Bradycellus neglectus* LeConte (1), *Anisodactylus kirbyi* Lindroth (2), *Pterostichus luctuosus* Dejean (12), and *P. patruelis* Dejean (2).

Clinton County, Rose Lake Wildlife Research Area (T.5N, R.1W, S.23); habitat: leaf litter in lowland woods; 24 Dec. 1982: *Platynus decentis* (1), *Pterostichus mutus* Say (4), and *Lebia viridis* Dejean (1).

Ingham County, Delhi Township (T.4N, R.2W, S.2); habitat: leaf litter and sand-mixed clay in floodplain of Sycamore Creek; 24 Dec. 1982: *Agonum extensicolle* Say (16), *A. puncticeps* Casey (5), *A. sordens* Kirby (1), *A. palustre* (4), *A. melanarium* (3), *Acupalpus rectangulus* Chaudoir (1), *Bembidion castor* Lindroth (4), *B. graciliforme* Hayward (3), *B. patrulele* Dejean (1), *B. frontale* LeConte (71), *Lebia viridis* (1), and *Dyschirius pilosus* LeConte (1).

Clare County and Osceola County line, Muskegon River at Rte. M 115; habitat: leaf litter and sand at margin of an oxbow lagoon; 6 Jan. 1983: *Omophron tessellatum* Say (1), *O. americanum* Dejean (8) (*Omophron* taken from pure sand at a depth of less than 20 cm), and *Bembidion frontale* (2).

Osceola County, 6.5 km E of Tustin (T.2ON, R.9W, S.22); habitat: leaf litter at margin of small woodland pond; 6 Jan. 1983: *Bembidion muscicola* Hayward (4).

Ingham County, Delhi Township. (T.4N, R.2W, S.2); habitat: leaf litter and soil from floodplain of Sycamore Creek; 10 Jan. 1983: *Platynus decentis* (1), *Agonum puncticeps* (8), *A. palustre* (2), *Loricera pilicornis* Fabricius (1), *Bembidion frontale* (79) and *Acupalpus canadensis* Casey (1).

These collections from five Michigan localities yielded 282 specimens and illustrate imaginal hibernation for 25 species of Michigan ground beetles.

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