

## THE FIRST RECORDS OF BOREUS (BOREIDAE, MECOPTERA) IN ILLINOIS

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The insect genus *Boreus* is peculiar in many ways. It belongs to the odd order called Mecoptera. Characteristically, members of this order have a long mouth cone, flimsy wings with primitive venation, and long slender legs. Some Mecoptera are known as scorpion-flies because the males have upturned claspers borne at the end of a slender, drawn-out abdomen which, when carried high, resembles the stinger of a scorpion. Other Mecoptera look like craneflies. But *Boreus* is unlike either of these types. In members of this genus the wings are reduced to modified pads and the abdomen is short (Fig. 1). Furthermore, *Boreus* is not active as an adult in summer as are other Mecoptera; instead, *Boreus* comes out from December to March, or earlier or later in the western mountains.

As the name implies, *Boreus* is a genus of boreal or northern insects. Species are found in northern Europe and northern North America. In North America their ranges extend southward primarily in mountains such as the Sierras, Rockies, and Appalachians.

In the eastern half of the United States, two species are known. *Boreus nivoriundus* Fitch, the larger of the two, occurs from Maine south to the Great Smoky Mountains National Park and west to Ohio (Byers,

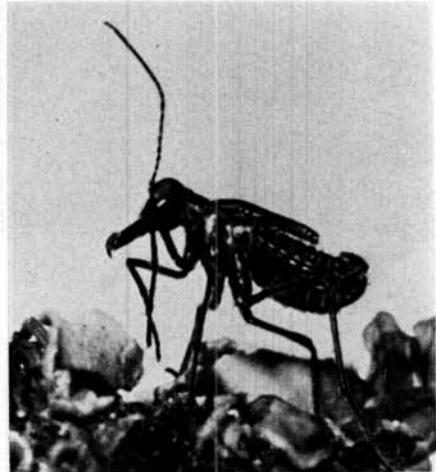


FIG. 1.—*Boreus brumalis* Fitch, lateral view, adult. (Photograph by William E. Clark, Illinois Natural History Survey.)

1954). The other species, the tiny, black *Boreus brumalis* Fitch, has been reported from Massachusetts, New York, District of Columbia, Tennessee (Great Smoky Mountains), Ohio, and Michigan (Byers, 1954), and from Pennsylvania (Frost and Brown, 1957).

The occurrence of *B. brumalis* in Illinois is here reported for the first time. These records constitute the most western localities. Originally this species was taken in Illinois by Drs. H. H. Ross and M. W. Sander-son in 1943 at Fountain Bluff, near Gorham. They discovered a single larva (Fig. 2) in a sample of debris

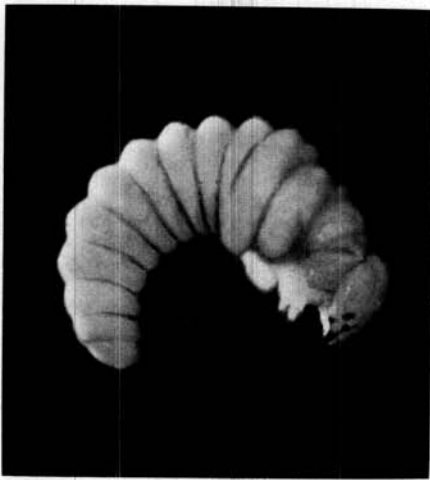


FIG. 2.—*Boreus brumalis* Fitch, larva. (Photograph by William E. Clark, Illinois Natural History Survey.)

gathered from the edge of a rotten log. Other larvae and adults were subsequently found in three southwestern counties, Alexander, Union, and Jackson. Despite repeated attempts to collect this insect from moss and forest debris gathered from spring to fall throughout the state and from numerous searches on snow and mossy hillsides in winter in much of Illinois, *B. brumalis* has not been found outside the southwestern part of the state.

In New England and other eastern states, including eastern Michigan, *B. brumalis* often inhabits areas formerly covered by Pleistocene ice sheets. In Illinois, however, its

range appears not to extend into terrain that was formerly glaciated. By way of speculation it may be that this species occurs in Illinois as a relict of ancient mesophytic forests, forests which are still tenuously connected to the Appalachian and Cumberland remnants through Kentucky but which have not completely reoccupied glaciated territory in the midwest. That *B. brumalis* is probably not a glacial relict is indicated by its absence in northern Illinois where other glacial relicts, such as *Cottus* and tamarack, still persist.

#### NEW RECORDS OF *Boreus brumalis* FITCH IN ILLINOIS

JACKSON COUNTY:—1 larva, Fountain Bluff (near Gorham), March 18, 1943, Ross and Sanderson, around rotten log; 2 ♀, 2 ♂, Fountain Bluff (near Gorham), February 13, 1957, Ross and Stannard, on moss; 6 larvae, Cora, March 12, 1946, Ross and Burks, in moss. UNION COUNTY:—2 larvae, Alto Pass, March 13, 1946, Ross and Burks, in moss; 6 ♀, 5 ♂, 11 larvae, Alto Pass, January 25, 1947, Burks, Riegel, and Stannard, in moss. ALEXANDER COUNTY:—2 larvae, Thebes, April 19, 1944, Ross and Sanderson.

#### LITERATURE CITED

- BYERS, GEORGE W. 1954. Notes on North American Mecoptera. *Annals Ent. Soc. Amer.*, 47(3):484-510.
- FROST, S. W., AND J. P. BROWN. 1957. A preliminary study of Pennsylvania Mecoptera. *N. Y. Ent. Soc.*, 63:53-58. (Dated 1955, but published March, 1957.)