

The Northernmost Population of the Scorpionfly  
*Brachypanorpa jeffersoni* Byers  
(Mecoptera: Panorpididae)

Richard L. Hoffman

Virginia Museum of Natural History  
Martinsville, Virginia 24112

*Brachypanorpa* is one of the insect genera represented by closely related species in the southern Appalachians and the Pacific Northwest, obviously surviving fragments of a former transcontinental distribution. The genus was erected by F. M. Carpenter (1931) for the Appalachian endemic first named *Panorpidodes carolinensis* by Banks in 1905 and *P. oregonensis* McLachlan. At the time - 26 years after Banks' (1905) description - *B. carolinensis* was still known only from the Black Mountains, North Carolina, and a single collection from Linville Falls, on the Blue Ridge escarpment some 22 mi/35 km northeast of the Black Mountains.

Carpenter (1953) treated the species again, giving new records which extended the known range south into northern Georgia and northwest to Roan Mountain on the North Carolina-Tennessee border. In the same year, a specimen of *Brachypanorpa* was collected on Mount Rogers by E. C. Turner of the VPISU Entomology Department, and one year later, I obtained another at the same locality, but at a somewhat higher elevation in the spruce-fir forest. This latter specimen was identified by Sophy Parfin (USNM) and reported by her (1955) as *B. carolinensis*, with some differences from more southern material being noted. This record extended the known range nearly 45 mi/72 km north of Linville Falls, and added Virginia to the list of states of record.

There the situation rested for another decade, until George W. Byers commenced his long tenure as summer instructor at the Mountain Lake Biological Station, and initiated an ongoing study of the Mecoptera of southwestern Virginia. During the summers of 1967-69, Professor Byers investigated the northern populations of *B. carolinensis* and became convinced they were specifically distinct from nominate *B. carolinensis*, sensu Banks, reporting his findings in 1976 with the

description of *B. jeffersoni*. This new form, named for the third president of the United States, was found to be allopatric with *B. carolinensis*, with localities in Ashe Co., North Carolina, Johnson Co., Tennessee, and Grayson Co., Virginia. Byers (1976) commented that *Brachypanorpa* "...has not been found in the Great Smoky Mountains or on other major Appalachian ridges west of the Blue Ridge."

The range of the genus, and *B. jeffersoni* in particular, can now be extended no less than 65 mi/104 km further to the northeast, at least tripling the area known to date (Fig. 1). On 6 June 1993, Carl Hoffmann and I collected a number of scorpionflies in a moist, shady site on Sugar Run Mountain, 8.6 mi/14 km SW of Narrows, Giles County, Virginia; four of them (2 VMNH, 2 USNM) proved to be males of *B. jeffersoni*. On large-scale maps, the site is identified as Big Horse Gap, at the intersection of Forest Service road P612 and the access road to Sugar Run lookout tower. The elevation is approximately 3890 ft (1185 m) ASL. Insects were collected primarily by sweeping low herbs and ferns, notably large stands of *Osmunda cinnamomea* in a seepage area.

This northernmost locality for *B. jeffersoni* is also the first for the Ridge and Valley physiographic province and presages discovery of the species elsewhere along the Clinch-Walker mountain complexes. Specific searches that I have made to date at Burkes Garden, Tazewell Co., have been unsuccessful, but perhaps the time or biotope was not optimal. Byers (1976) found *B. jeffersoni* to be very abundant at several stations along the forest service road up Whitetop Mountain in June of three successive years, but determined efforts by VMNH staff to duplicate his success have been fruitless, despite attention to the habitats (and probably some of the same sites) detailed in his paper. Perhaps population densities fluctuate in this

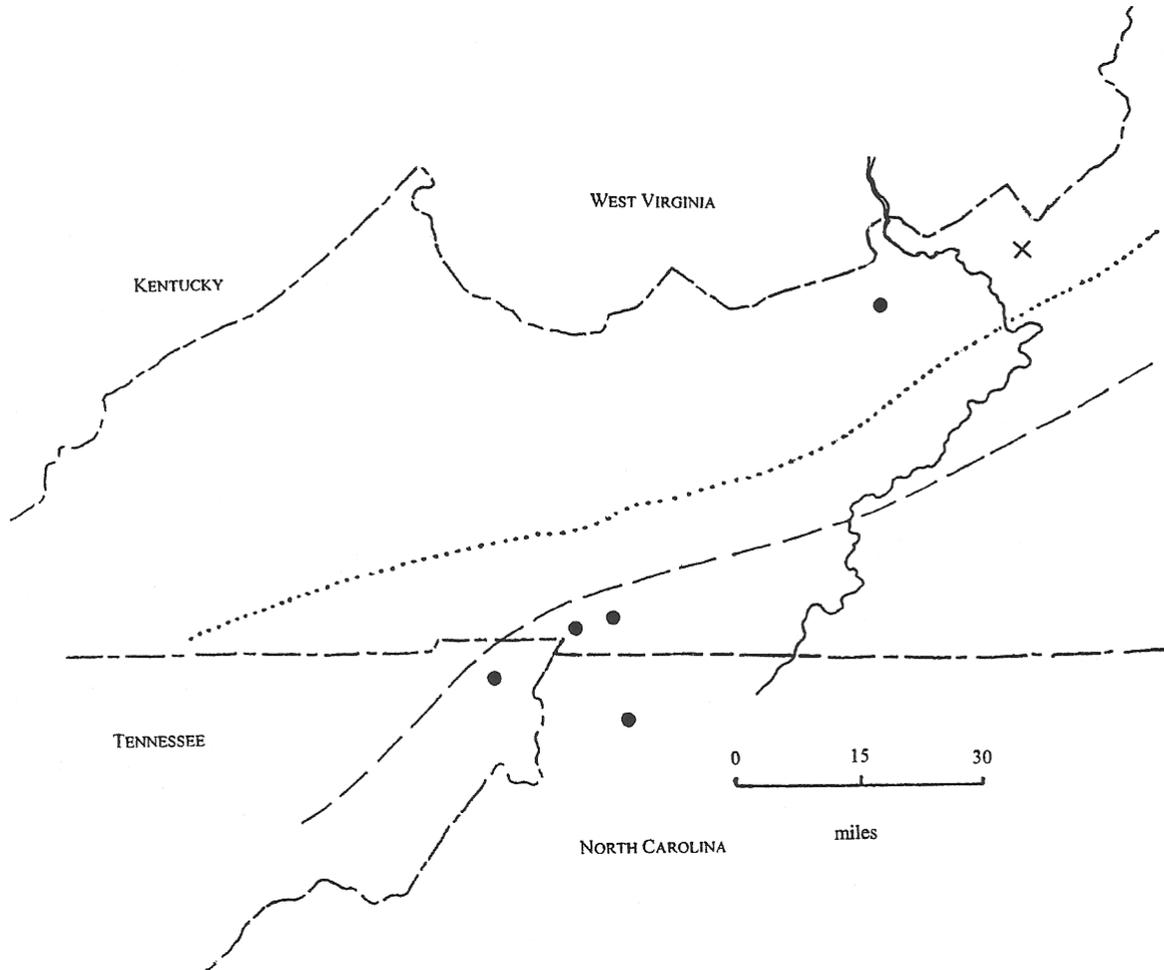


Fig. 1. Known collection sites for *Brachypanorpa jeffersoni*. The northwestern edge of the Blue Ridge physiographic province is shown by dashed lines, the eastern edge of the folded Appalachians by the dotted line. The location of Mountain Lake is indicated by the "X". The course of the New River across Virginia is also shown.

species.

Superficially, males of *B. jeffersoni* appear to be a small *Panorpa* without wing markings (females have only rudimentary wing pads), but a closer inspection shows that the head is not prolonged into the long "beak" of typical panorpids (Figs. 2, 3).

The somewhat dogmatic assertion embodied in the title of this paper is made with considerable assurance. Professor Byers' prolonged inventory of Mecoptera and Tipulidae at the Mountain Lake Biological Station has made that site one of the most intensively collected in North America for scorpionflies, and it seems utterly improbable that *B. jeffersoni* would have been overlooked

if it did occur on Salt Pond Mountain.

In some of the most spectacular terrain in the central Appalachians, the two great *massifs* of Salt Pond and Flat Top mountains, once a continuous megaridge, now confront each other at six miles across the valley of the New River in central Giles County, over which they tower by 2300 ft (700 m). The currently known distribution of *B. jeffersoni* in Virginia finds close parallels in the salamander *Plethodon jordani metcalfi* Dunn, and the millipeds *Rudiloria kleinpeteri* (Hoffman) and *Brachycybe lecontii* Wood, cumulatively attesting to the efficacy of this valley as a significant biogeographic constraint for southern Appalachian endemics.

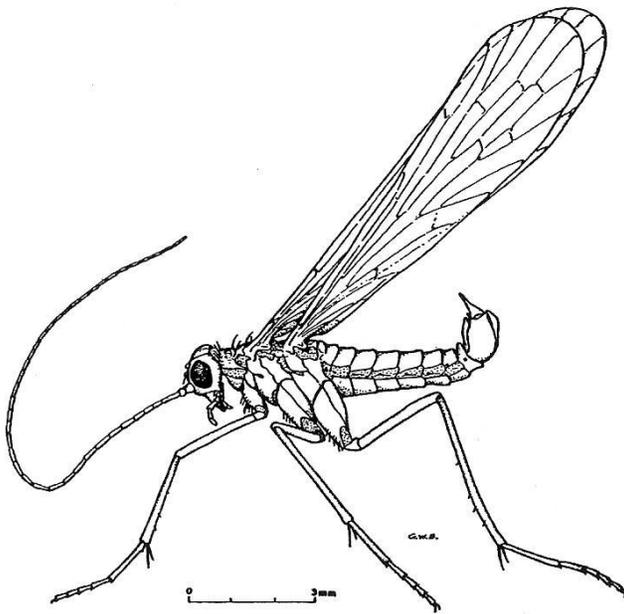


Fig. 2. *Brachypanorpa jeffersoni* Byers. Left lateral view of male paratype (from Byers, 1976).

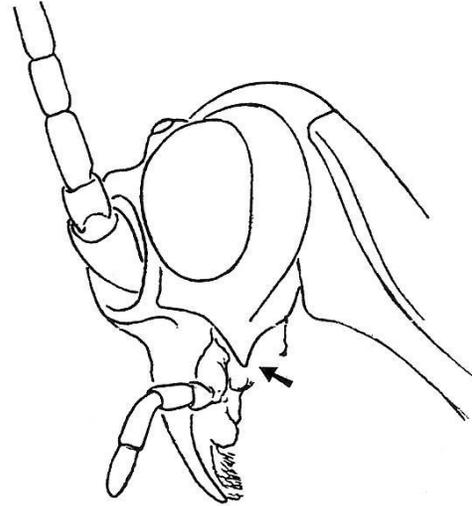


Fig. 3. *Brachypanorpa jeffersoni* Byers. Head of male from Flat Top Mountain, Virginia; lateral view to show general shape (not prolonged ventrad) and location of the genal projection typical of the genus (arrow).

#### ACKNOWLEDGMENTS

Professor George W. Byers has been so kind as to verify my tentative identification of the Giles County specimens as *B. jeffersoni*, to review a draft of this document, and to allow me to include his original drawing of this species.

#### LITERATURE CITED

Banks, N. 1905. Description of new species of neuropterous insects from the Black Mountains, N. C. *Bulletin of the American Museum of Natural History* 21: 215-218.

Byers, G. W. 1976. A new Appalachian *Brachypanorpa* (Mecoptera: Panorpididae). *Journal of the Kansas Entomological Society* 49: 433-440.

Carpenter, F. M. 1931. Revision of the Nearctic Mecoptera. *Bulletin of the Museum of Comparative Zoology* 72: 205-277.

Carpenter, F. M. 1953. Biology of *Brachypanorpa* (Mecoptera). *Psyche* 60: 28-36.

Parfin, S. 1956. Additional records for *Brachypanorpa carolinensis* (Banks). *Proceedings of the Entomological Society of Washington* 57: 204-205.