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Centroptilum ozarkensum (Ephemeroptera: Baetidae) a New Long-Clawed Baetid from Missouri

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ABSTRACT: *Centroptilum ozarkensum*, new species is described from distinctive adult males collected from springs within the Ozark National Scenic Rivers area of southeastern Missouri. The adult male of this species is similar to the widespread species *C. album*, but is easily distinguished from it by color and morphological characters.

In North America the long-clawed baetid genus *Centroptilum* Eaton has been the subject of considerable attention recently (e.g., McCafferty and Waltz, 1990; Lowen and Flannagan, 1990). Previous to these works it had been over thirty years since the last taxonomic contribution to the genus was provided in North America. Currently, adult males of *Centroptilum* can be distinguished from all other baetids with single marginal forewing intercalaries by their distinctive genitalia (i.e., the presence of relatively long and robust terminal segments of the genital forceps and a distinct spine-shaped process between the basal segments of the forceps, which may be secondarily reduced or completely lost in some species). Additional diagnostic characters and a key to all Nearctic long-clawed baetids will be presented as part of a complete revision in the near future (Wiersema, McCafferty, and Waltz, in prep).

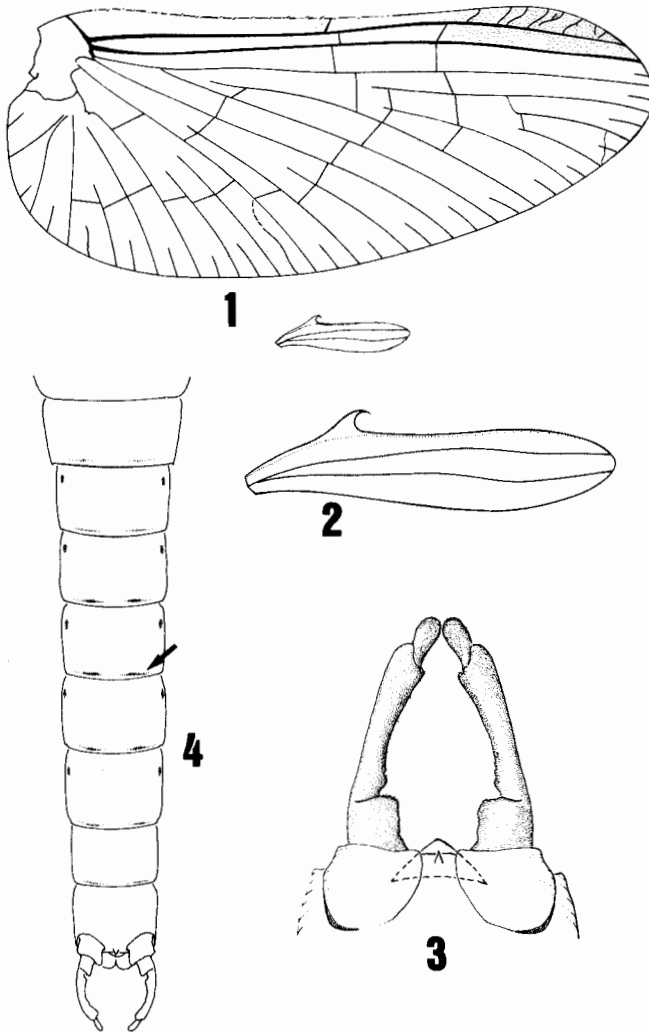
Adult specimens of this distinctive new species of *Centroptilum* were collected in 1991-1992 as part of a study of the spring-dwelling aquatic insects of the Ozarks. Specimens were collected from Round Spring, Alley Spring and Blue Spring in the Ozark National Scenic Rivers area. Round Spring and Blue Spring both flow directly into the Current River. Alley Spring flows into the Jacks Fork River, which is a tributary of the Current River. Specimens were collected by sweep net, light trap, emergence trap, and aspirator. All spring sites had well-developed aquatic macrophyte and algal communities (M. A. Blackwood, pers. comm.). We herein provide an illustrated description of this new species described as *Centroptilum ozarkensum* in reference to the region of North America in which this species was found, in addition to providing a detailed diagnostic comparison of related species.

Centroptilum ozarkensum, NEW SPECIES (Figs. 1-4)

Male adult. Body lengths: 4.8-5.4 mm, forewings: 4.6-5.2 mm, hindwings: 0.8-1.0 mm, cerci 9.0-10.0 mm. *Head*: Medium to light brown, darkest around frontal clypeal shelf; ocelli encircled with light brown basally. Antennae light brown. Turbinate portion of eyes ellipsoidal, slightly divergent anteriorly and occasionally near contiguous posteriorly; orangish yellow in coloration rimmed with brown; stalks with lighter yellowish orange upper portions and reddish brown basally. *Thorax*: Thoracic nota reddish brown, paler adjacent to pleural and medial sutures; sterna

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Figs. 1-4. *Centroptilum ozarkensum*, n. sp., male adult. 1. Forewing and hindwing. 2. Hindwing (enlarged). 3. Genitalia (ventral view). 4. Abdominal sterna, arrow indicates dark submedial dashes.

similar to *nota* in color. Forewings (as in Fig. 1). Hindwings relatively narrow with two longitudinal veins and elongate hooked costal process (Figs. 1 and 2). *Abdomen*: Terga one shaded with reddish brown anteriorly, particularly noticeable laterally. Segments 2-6 and posterior half or greater of segment one semi-hyaline, segment 7-10 opaque. Terga 1-6 unmarked except as noted above, terga 7-10 reddish brown to medium brown; terga 9-10 lighter in color than 7-8. Pleural areas of segments 1-7 with dark outlined tracheation marks, most distinctive in the form of short dashes in the anterior half. Sterna 3-7 with or without paired submedial black dashes adjacent to the posterior margin (Fig. 4), may be weakly present on sterna 2 and 8. Genitalia (Fig. 3) with coniform to subconical penes cover, small spine-shaped process

between basal forcep segments, and apicomediaally expanded second forcep segment. Cerci pale whitish.

Material examined. HOLOTYPE: male adult, Missouri: Shannon Co., ONSR, Round Spring, 04 March 1992, M. A. Blackwood (deposited at the Purdue University Entomological Research Collection). PARATYPES: eight adult males same data as holotype, but 4 males at Wilber Enns Museum, University of Missouri. Three male adults and one subimago, some parts mounted on slide (wings dry mounted, genitalia and legs in euparal) same data as holotype, but deposited in personal collections of NAW. One adult male and one male subimago, same data as holotype, but 02 August 1992 deposited in the personal collection of SKB.

Additional material examined. Missouri: Shannon Co., ONSR, Alley Springs (1 adult female collected on each of the following: 05 March 1992, 03 April 1992, 21 October 1991); Blue Spring at Owl's Bend (6 male and 3 female subimagos collected on 08 February 1992); Round Spring (1 adult female collected on each of the following: 09 September 1992 and 04 March 1992); Round Spring, 24 September 1991 (1 male subimago). All material listed above was collected by M. A. Blackwood and is deposited at the Wilber Enns Museum, University of Missouri.

Diagnosis. *Centroptilum ozarkensum* shares symorphic genitalia characteristics with *C. album* McDunnough. However, the two species are at once distinguishable by the darker thoracic and posterior abdominal segments of *C. ozarkensum*. In addition to the above features, the orangish yellow eyes with brown outer rims are unique among the Nearctic species of *Centroptilum* with hindwings, and are more typical of some *Procloeon* species (e.g., *P. rivulare* (Traver), *P. rufostrigatum* (McDunnough), etc.). Paired, sublateral, black dashes adjacent to the posterior margins of some abdominal sterna will also distinguish this species from *C. album* when present. The western species *C. bifurcatum* McDunnough and the north-central to north-eastern species *C. victoriae* McDunnough also have thoracic and abdominal coloration similar to *C. ozarkensum*, but are easily distinguished by having genitalia with large, well-developed, spine-shaped process between the basal forcep segments; larger more prominent penes cover, which often appears to have a concave posterior margin; poorly developed apicomediaal protrusion of forcep segment 2, and much broad hindwings.

Remarks. Although records presented here seem to restrict *C. ozarkensum* to spring habitats of the Ozarks, it is quite possible that its range could include much of the surrounding plateau areas of the south-central United States. Springs where *C. ozarkensum* occurred all had waters of high quality (M. A. Blackwood, pers. comm.). This agrees with the general trend for North American *Centroptilum* and suggests that variables affecting regional water quality may also serve to restrict the distribution of this species. If future studies support this relationship then *C. ozarkensum* as well as other species of *Centroptilum* could be useful as indicators of high quality aquatic habitats.

Although collection records were available for one year only, they indicate a Spring and Fall/bivoltine emergence pattern, with alates collected from February through April then again from August through October.

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