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POLYKATIANNA BATCHI: A NEW SPECIES FOR NORTH AMERICA (COLLEMBOLA: SMINTHURIDAE)*

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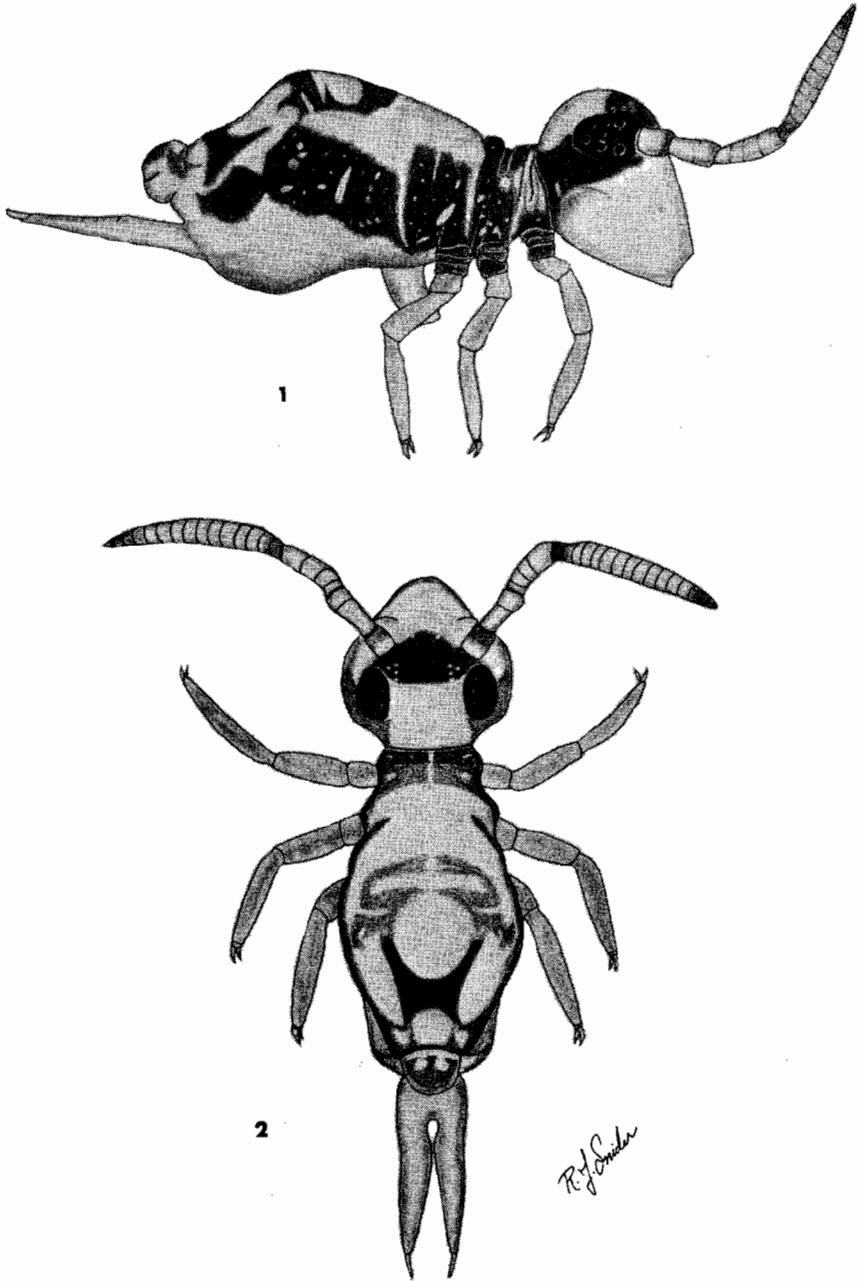
While examining a collection of Collembola from Illinois, I came across a small specimen which looked like an immature *Katiannina* (Maynard and Downs, 1951). Using Salmon's key (1964), I traced the species to the tribe Katiannini, of which *Katiannina* is not a member. The species dealt with in this paper belongs to the genus *Polykatianna* Salmon (1946).

Polykatianna batchi, New Species

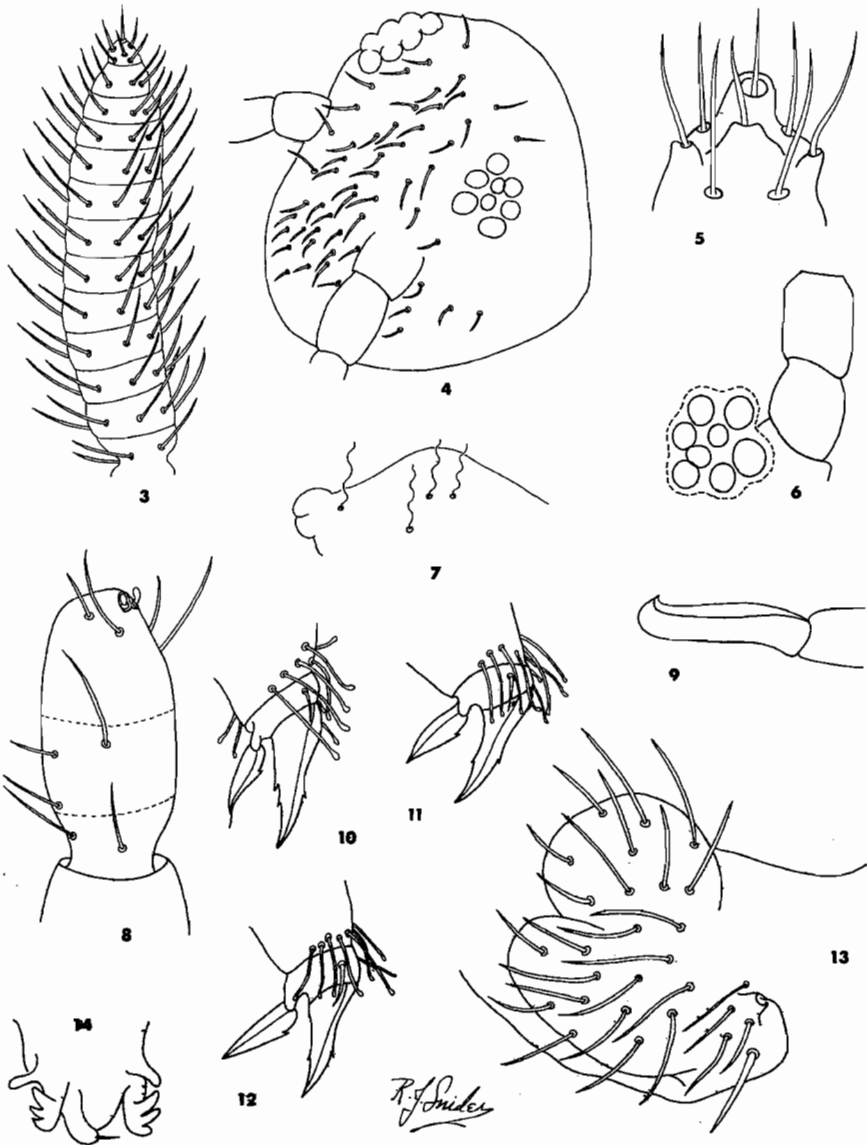
COLORATION: Body creamy white with purple markings. The pro- and mesothoracic purple fading into white posteriorly to the metathorax. A lateral, irregular purple band extends from the eye patch to the anterior edge of abdominal segment V. Mid-dorsally on the great abdomen there are two light purple bands, broken at the apex and connected weakly near the lateral band, so as to form two U-shaped maculae with their own ends turned toward each other. Just posterior to the two bands is a patch of orange pigment shaped roughly in an H, with the base of the arms becoming contiguous with the light purple of the anal papilla. Two light areas appear paramedially on the anal papilla. The head is largely white with a large orange patch between the eye patches, extending well onto the frons. The eye patches are bright orange with some slight dusting of black around the bases of the ocelli. The antennae are light purple becoming darker distally. The legs and furcula are light purple to white (Figs. 1-2).

MORPHOLOGICAL DESCRIPTION: A small species, 0.5 mm in length. No females seen. The eyes 8 +8 on orange patches (Fig. 6). Antennal segments in the ratio of 1:2:3:9; antennal segment III (Fig. 8) with two annulations; basal organ lacking, with a distal sense organ, consisting of two exposed rods within a cup-shaped depression (Fig. 8), antennal segment IV (Fig. 3) with eleven to twelve annulations, a sense seta arising from a cup-shaped depression in the apex, retractile knob present (Fig. 5). Three labral papillae with setae present (Fig. 15). Thoracic segmentation evident. Pro-tibiotarsus (Fig. 10) with ten clavate tenent hairs, pretarsus with a curving inner and outer seta, unguis lanceolate with an outer tooth midway between base and tip, inner margin with two teeth, unguiculus with an inner tooth directed basad and an apical needle. Mesotibiotarsus (Fig. 11) with nine clavate tenent hairs, pretarsus with a curved inner and outer seta, unguis with an inner and outer tooth, unguiculus with an inner basad pointing tooth; meta-tibiotarsus (Fig. 12) with nine clavate tenent hairs, pretarsus with a curved inner and outer

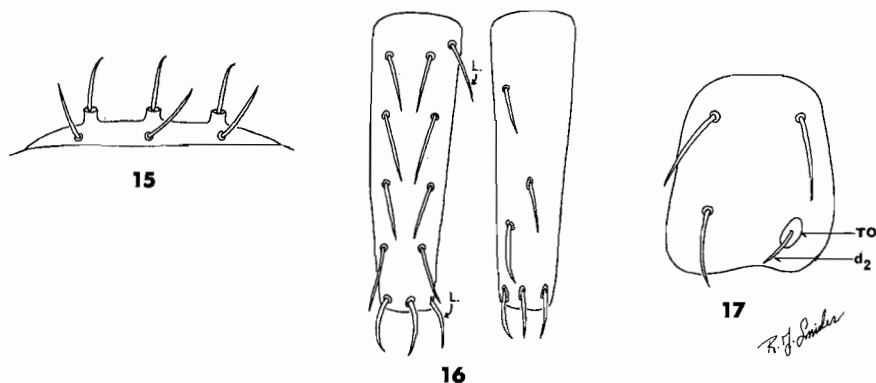
*This paper was supported by U.S. Public Health Service Research Grant CC00246, from the National Communicable Disease Center, Atlanta, Ga. The study was made possible by the Soil Biology Group, Michigan State University. My thanks go to Dr. James Butcher for his cooperation, and to the Michigan Agricultural Experiment Station, for which this is journal number 4582.



Figures 1 and 2. *Polykatianna batchi*, new species. Fig. 1, lateral view; Fig. 2 dorsal view.



Figures 3-14. *Polykatianna batchi* new species. Fig. 3, antennal segment IV; Fig. 4, chaetotaxy of head; Fig. 5, apex of antennal segment IV; Fig. 6, right ocellar patch and base of antenna; Fig. 7, distribution pattern of bothri-trichia on great abdomen; Fig. 8, antennal segment III; Fig. 9, mucro; Fig. 10, claw of proleg; Fig. 11, claw of mesoleg; Fig. 12, claw of metaleg; Fig. 13, anal papilla; Fig. 14, retinaculum.



Figures 15-17. *Polykatianna batchi* new species. Fig. 15, labral papillae; Fig. 16, posterior and anterior view of dens; Fig. 17, metatrochanter, trochanteral organ (TO) and seta d_2 .

seta, unguis with an inner and outer tooth, unguiculus with an inner basad pointing tooth; all claws lack a tunica. Meta-trochanter with a trochanteral organ (TO), seta D_2 not highly modified (Fig. 17). Sacs of the ventral tube smooth. Corpus of the retinaculum (Fig. 14) with quadridentate rami, the basal pair being the largest; a single seta present on the apical lobe of the corpus. Manubrium and dentes heavy, in a ratio of 2:3, dentes with six anterior setae, nine posterior setae and two lateral setae (Fig. 16); mucrones simple, (Fig. 9) edges untoothed. Fifth abdominal segment not fused to the great abdomen. Three bothriotrichia on each side of the great abdomen (Fig. 7). A single bothriotrichium arising from cup-shaped protuberances on either side of the anal papilla (Fig. 13). Setae most dense between the antennae and eyes (Fig. 4), body setae, short, curving, sparse anterior to the apex of the abdomen and increasing in density posteriorly. Integument granular.

DIAGNOSIS: *Polykatianna* keys out in Snider (1967) with *Katiannina*, couplet 38, page 191. It is easily separated from that genus by the absence of the large pear-like protuberances on abdominal segment V. Recently Richards (1968) has placed *Katiannina* into synonymy with *Metakatianna* Denis. *Polykatianna* keys out in Richards' monograph on page 22, couplet 6.

Polykatianna batchi is unique in the genus because of the concentration of short, curving setae on the posterior of the abdomen. Also of note is the trochanteral organ of leg III; it is not modified into any specific shape. The unguis lacks a tunica which is usually found within the genus.

TYPES: Holotype, Illinois, Piatt County, Robert W. Allerton Park, located four and one-half miles southwest of Monticello, April 18, 1964; Donald L. Batch, collector. The holotype was recovered from leaf litter in upland forest dominated by white oak, sugar maple, mockernut hickory, shagbark hickory, and slippery elm. Paratypes, 15 specimens, same data as the holotype. Thirteen additional paratypes were collected from leaf litter in Brownfield Woods, situated three miles northeast of Urbana in Champaign County; Donald L. Batch, collector. Brownfield Woods is a mixed hardwood stand composed of sugar maple, blue ash, American elm, hackberry, white ash, chinquapin oak, and red oak. Two additional paratypes were collected by George

Klee from beneath the bark of dead American elm trees in Toumey Woodlot, Ingham County, Michigan, on the Michigan State University campus. The dominant trees in the woodlot are beech and sugar maple. It is humid most of the year. The holotype and paratypes are deposited in the Michigan State University collection. Seven paratypes are deposited in the Illinois Natural History Survey collection.

It is my pleasure to name this species for Dr. Donald L. Batch, who sent the first specimens to me for determination.

ACKNOWLEDGMENTS

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REVIEWS OF RECENT LITERATURE

THE MOTH BOOK: A POPULAR GUIDE TO A KNOWLEDGE OF THE MOTHS OF NORTH AMERICA. W. J. Holland. Edited by A. E. Brower. New York: Dover Publications, 1968. xxiv, 479 pp. 48 colored plates. \$5.00.

Despite its obvious limitations, Holland's *Moth Book* has been the standard amateur guide to the Heterocera of the United States since its original publication in 1903. Its remarkable popularity has largely been due to its colored plates, which illustrate a good selection of American moths, including a large proportion of such widely collected families as the Sphingidae and Saturniidae, as well as many of the Noctuidae. Holland's work has been the great standby of young collectors for many years, although the text could not really pass muster in 1903, and is so badly out of date in 1968 that republication of the work furnishes a two-edged sword to amateur lepidopterists.

Holland, who was a specialist on the Rhopalocera, followed his immensely successful *Butterfly Book* (1898) with this work on the moths. He had the help of many specialists and the advantage of his own private collection, which was one of the most complete of its day. Yet Holland's remarks on the species he