SMINTHURUS FISCHERI, NEW SPECIES
FROM GEORGIA (COLLEMBOLA: SMINTHURIDAE)

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ABSTRACT

A new species, Smintthurus (Smintthurus) fischeri Snider, is described from Georgia. This species is closely allied to Smintthurus banksei Christiansen and Bellinger, and Smintthurus butcheri Snider, but can be separated on the basis of color pattern, presence of 2 corner teeth on the meta-unguiculus, absence of apical bulb on ANT. IV, number of antennal subsegments, and setal lengths related to the ungis. The type locality is Hart County, Georgia. Specimens were taken from leaf litter.

RESUMEN

Se describe una nueva especie de Georgia, Smintthurus (Smintthurus) fischeri Snider. Esta especie está íntimamente relacionada con Smintthurus banksei Christiansen y Bellinger, y con Smintthurus butcheri Snider, pero puede

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Recently I have been collecting and studying the Collembola of the southeastern United States. A surprising number of new species in the family Sminthuridae have turned up in samples taken from grass and low vegetation. The purpose of this paper is to describe a new species from forest leaf litter in north Georgia.

*Sminthurus fischeri* Snider, *New Species*

**Color and Pattern (♀):** (Fig. 1-2). Background white. Color distributed as polygons. Head with rubiginous dorso-median stripe extending from behind eyepatches to frons, ending in line with bases of antennae; rubiginous stripe originating posterior to eyepatch, becoming dark purple as it extends to labrum; oral area yellowish; base of antenna surrounded with dark purple, antennal segment I dark purple, segments II and III lighter, darker distally, segment IV dark. Body with dark purple dorso-median stripe originating at anterior of abdome and extending 3/4 its length; rubiginous and purple paramedial stripe originating on thoracic segment I and ending near medial stripe; laterally with irregular stripe beginning at base of mesocoxa and extending diagonally behind dorsal stripe, appearing as a broad “V” dorsally; postero-lateral areas with purple maculae; abdominal segment V with dorsal macula, base of bothriotrichium D surrounded with purple; abdominal segment VI with broad dorsal macula, and latero-ventral spot. Legs with irregular purple maculae and lighter purple dusting. Furcula white with purple inner base ridges (Fig. 1-2).

**Head:** Eyes 8 + 8 with dark pigment; ocelli D and C 1/2 diameter of A and B (Fig. 3). Antennal segment ratio 1:2:3:8; ANT IV with 19-20 subseg-

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**Fig. 1-2. Sminthurus (Sminthurus) fischeri** n. sp. Habitus. 1) lateral view; 2) dorsal view.
Fig. 3-18. Sminthurus (Sminthurus) fischeri n. sp. 3) Ocellar pattern, left side; 4) ANT IV; 5) ANT III; 6) Detail of ANT III organ and setae; 7) ANT II; 8) ANT I; 9) Setal pattern of frons, arrows indicate anterior oval organs, posterior dotted; 10) Procoxa; 11) Protrochanter; 12) Profemur; 13) Mesocoxa; 14) Mesotrochanter; 15) Mesofemur; 16) Metacoxa; 17) Metatrochanter; 18) Metafemur.
ments, apical papilla, sense rods and no bulb, subsegments with or without fine setulae in the following distribution: I and XIX with none; II-VII, IX, XII with 1; VIII, X, XI, XIII-XVIII with 2 (Fig. 4); ANT III with 8 heavy, outstanding setae (Fig. 5), subapical sensillae in deep invagination, accessory seta short, lanceolate and lying in shallow depression (Fig. 6); ANT II with 4 ventral setulae (Fig. 7); ANT I with 3 fine distal setae and 3 dorsal setae (Fig. 8). Interocular cephalic setae A-G typical of genus, seta D small, lanceolate and ciliated; rows F and G spine-like; 2 unpaired frontal setae.

Frons with 2 oval organs near antennal base, 1 close to seta D, other in line with seta A, a 3rd located on lower frons in line with 2nd unpaired frontal seta; 3 posterior oval organs forming right triangle on lower gena (Fig. 9).

Body: Forecoxa with 1 seta and no oval organ (Fig. 10); trochanter with 3 anterior and 2 posterior setae (Fig. 11); femur with anterior oval organ, 9 anterior and 7 posterior setae (Fig. 12). Mesocoxa with oval organ and 3 setae (Fig. 13); trochanter with 2 oval organs, 5 anterior and 1 posterior setae (Fig. 14); femur with 1 posterior oval organ, 2 posterior setae (Fig. 15). Metacoxa with oval organ, 4 setae (Fig. 16); trochanter with 2 anterior oval organs, 5 anterior and 1 posterior setae (Fig. 17); femur with 1 posterior oval organ and 2 setulae (Fig. 18); anterior surface of tibiotarsus with 1 subapical pseudopore, AE file with 9 setae, AL file with 8 setae (AL2 missing), AI file with 8 setae (AI2 missing), seta E1 1.50-1.79x as long as outer edge of unguis, seta AI1 0.75-0.85x as long as outer edge of unguis (Fig. 19); posterior surface with 4 pseudopores near external edge, PI file with 8 setae (PI2 missing), L file with 5 setae (L2 and L3 missing), tenent hairs acuminate (Fig. 20). Pretarsus with anterior and posterior setulae; unguis with tunica and anterior and posterior pseudonychia, with 2 basal outer teeth, small inner tooth; unguiculus with 2 corner teeth on meso- and metatarsi, lacking on fore-tarsus, subapical filament tapering, meta-unguiculus ca. 5 times (4.4-6.0) as long as its filament (Fig. 21-23). Collopore with 1 + 1 subapical anterior setae, 1 + 1 lateral setae, sacs warty (Fig. 24). Corpus of tenaculum with 4-5 setulae, ramus with 3 teeth (Fig. 25-26). Manubrium with 8 + 8 dorsal setae, 1 + 1 ventral (Fig. 27). Dens with seta Id present, seta V0 0 + 1, otherwise typical for genus (Fig. 28-29). Mucro with wavy outer edge, inner edge with 9-14 teeth, outer edge 2.6-3.2 times length of its seta (Fig. 30). Female circumanal setae A5-6, P and Q typical for genus (Fig. 31); subanal appendage acuminate, strongly curved in lateral view, glidiform in ventral view (Fig. 32-33); bothriotrichum D slightly longer than accompanying VN seta (Fig. 34). Body setae spindlike (Fig. 35). Length 1.0-1.25 mm.

DIAGNOSIS: Sminthurus fischeri Snider keys out nearest to Sminthurus fitchi (Folsom) and Sminthurus packardi (Folsom) in Stach (1956). In Christiansen and Bellinger (1981) it is identified closest to Sminthurus butcheri Snider and Sminthurus banksii Christiansen and Bellinger. Separation from S. fitchi and S. packardi is based on the meta-unguicular filament; both of those species have filaments 0.4 or more times as long as the unguiculus. Sminthurus fischeri has a filament length of less than 0.3 (0.17-0.22). However, key separation of S. banksii and S. butcheri is based on the relative length of the muconal seta to the length of the mucro: for S. banksii it is 0.15-0.35, for S. butcheri it is 0.40-0.50, and for Sminthurus fischeri it is 0.31-0.36. Clearly, this character will not always separate these 3 species.
Fig. 19-35. *Sminthurus* (*Sminthurus*) *fischeri* n. sp. 19) Metatibia, anterior view; 20) Metatibia, posterior view; 21) Metaleg, claw; 22) Metaleg, detail of unguiculus; 23) Proleg, detail of unguiculus; 24) Colophore, anterior view; 25) Corpus of retinaculum, atypical; 26) Retinaculum, normal; 27) Manubrial setae; 28) Dens, left dorsal view; 29) Dens, left ventral view; 30) Mcuro; 31) ABD VI of female; 32) Female subanal appendage, ventral view; 33) Female subanal appendage, lateral view; 34) Bothriotrichum D complex, right side; 35) Body seta of great abdomen drawn to same scale as Fig. 31.
Sminthurus fischeri can easily be distinguished from S. banksei and S. butcheri by its characteristic striped color pattern. The latter 2 species have scattered mosaic patches or mottled configurations on the body. Further, the following morphological characteristics will separate the 3 species:

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\begin{array}{lll}
\text{S. fischeri} & \text{S. banksei} & \text{S. butcheri} \\
apical bulb of ANT IV absent & bulb present & weak bulb \\
apical papilla of ANT IV present & papilla absent & papilla absent \\
ANT IV with 19 subsegments & 14-17 & 17-18 \\
strong pseudonuchia & absent & fine \\
\text{seta } E_3 \times 1.50-1.79 \times \text{as long as outer edge of unguis} & E_3 \times 1.50-1.80 & E_3 \times 1.10-1.40 \\
\text{seta } A_1 \times 0.75-0.83 \times \text{as long as outer edge of unguis} & A_1 \times 1.10-1.30 & A_1 \times 1.05-1.20 \\
\text{unguiculus with 2 corner teeth} & 1 \text{ corner tooth} & 1 \text{ corner tooth} \\
\end{array}
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Because the type material was unavailable, Christiansen and Bellinger (1981) did not include the 3 southeastern species described by D. L. Wray from North Carolina. They are: Sminthurus virginidori Wray (1948), Sminthurus yonahlossee Wray (1948), and Sminthurus adamsi Wray (1967). Color pattern and unguicular morphology will separate them from S. fischeri.

It is my pleasure to name this colorful species for Dr. Roland L. Fischer of Michigan State University, who encouraged me to begin the study of Collembola almost 25 years ago.

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**REFERENCES CITED**


