

Title	A New Species of the Genus Sminthurinus (Collembola) from Japan (Special Papers in Honor of late Professor Ryozo Yoshii)
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Citation	Contributions from the Biological Laboratory, Kyoto University (2000), 29(2): 89-93
Issue Date	2000-03-31
URL	<a href="http://hdl.handle.net/2433/156123">http://hdl.handle.net/2433/156123</a>
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Type	Departmental Bulletin Paper
Textversion	publisher

## A New Species of the Genus *Sminthurinus* (Collembola) from Japan.

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**ABSTRACT** A new species of sminthurid Collembola, *Sminthurinus (Katiannina) subalpinus* sp. nov. is described and illustrated from central Japan.

**KEY WORDS** Collembola / *Sminthurinus* / *Katiannina* / New species / Japan.

### Introduction

This paper is dedicated to the late Professor Ryozo Yoshii, who facilitated the development of Collembola studies in Japan and world. The present paper deals with description of a new species of sminthurid Collembola. The materials were collected by the beating of tree branches of *Pinus pumila* which occurs as patchy communities under severe climatic conditions in high mountainous region of central Japan. The specimens used in the present study, including the holotype and allotype, will be deposited in the collection of National Science Museum (Nat. Hist.), Tokyo, but a paratype will be retained in the Biological Laboratory, Showa University. This study is partially supported by the Oze Scientific Research Group supported by Joint Fukushima/Gunma/Niigata Projects.

### *Sminthurinus (Katiannina) subalpinus* sp. nov. (Figs. I-II)

Body totally orange yellow except black eye patch.

Head: Eye-patch with 8 eyes of nearly equal size and 2 simple setae (Fig. I-3). Vertical and facial chaetotaxy as in Fig. I-2; vertical tubercles well developed, higher than top of eye, with 3+3 setae; vertex with 11 simple setae arranged as 1, 4, 4, 2; facial field also with simple setae as vertical setae. Antenna shorter than body length; Ant. I with 4 dorsal anterior and 2 ventral setae (Fig. I-4); Ant. II normal; Ant. III with subapical sense pegs lying in shallow depression, and with an accessory sense rod lying slightly oblique and posterior to the pair of sense pegs; papilla of third antennal segment small but clearly developed and single (Fig. I-5); Ant. IV without subsegments, with a well-developed median apical bulb and lateral apical papilla (Fig. I-6). Labral setae as 6/5,5,4 (Fig. I-7).

Thorax: Fore, mid and hind trochanter each bearing 5 setae. The mid and hind D<sub>2</sub> are modified into trochanteral organs (Fig. II-1). All tibiotarsi with 6 tenent hairs,

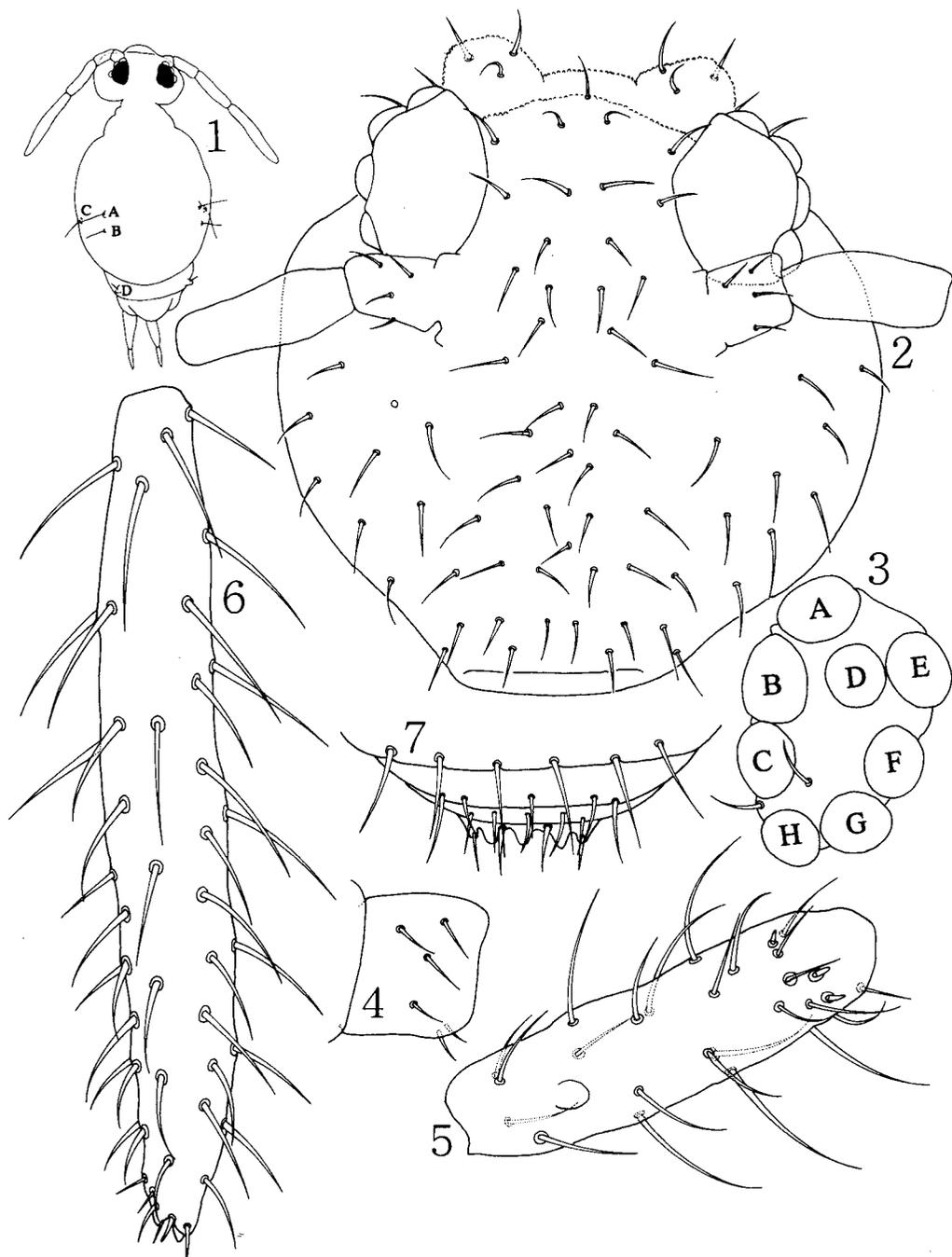


Fig. 1. *Sminthurus (Katiannina) subalpinus* sp. nov.: 1, habitus; 2, frontal and vertical setae; 3, right eye-patch; 4, Ant. I; 5, Ant. III; 6, Ant. IV; 7, labrum.



Fig. II. *Sminthurinus (Katiannina) subalpinus* sp. nov.: 1, trochanter of hind leg; 2, trochanter of fore leg; 3, fore-claw; 4, hind-claw; 5, manubrium; 6, dental chaetotaxy in dorsal view; 7, ditto in ventral view; 8, mucro in dorso-lateral view; 9, tenaculum; 10, Abd. V and VI in lateral view; 11, anogenital segment of female.

dorsal 4 more strongly clavate than ventral 2 (Figs. II-3 & 4). Pretarsus with anterior and posterior setae. All unguis curving lanceolate, with one inner tooth, about 2/3 way to apex and with tunica (both sometimes not well developed). Fore-unguiculus slender, with an axial filament extending to tip of unguis, without inner teeth. (Fig. II-3). Mid and hind unguiculus with broad inner and outer lamella, and with a distinct corner tooth and short apical filament (Fig. II-4).

Abdomen: Body integument granulate. Body setae uniformly short and slightly curving. Bothriotricha A, B and C disposed as in triangular pattern typical of the genus (Fig. I-1). Bothriotrix D short and straight, arising from prominent conical papilla (Fig. II-10). Ventral tube with smooth sacs and 2+2 distal anterior setae. Rami tenaculi quadridentate; anterior corpus with 2 apical setae (Fig. II-9). Furcula well developed. Manubrium dorsally with 6+6 setae (Fig. II-5). Dentes dorsally bearing 2 simple median setae ( $D_1$ ,  $D_5$ ), 5 outer setae ( $E_{1.5}$ ), 5 inner setae ( $L_{1.5}$ ), and 1+1 ventral subapical setae (Figs. II-6 & 7). Mucro boat-shaped with smooth outer margin and about 10 weak serrations on inner margin (Fig. II-8). Abd. V distinctly delimited from abd. IV. Anogenital segment as in Fig. II-11; dorsal flap with simple, not bifid,  $A_0$ -seta; subanal appendage on lateral flap stout, palmate with high papilla.

Body length: Female, between 0.75-0.80 mm [mean; 0.78 mm ( $n = 6$ )], Male, 0.74 mm. Proportions: Body length:antenna, 17:14; antennal segment I : II : III : IV, 9 : 14 : 21 : 38 ; antenna : head diagonal, 82 : 45; manubrium : dense : mucro, 15 : 26 : 11; unguis:unguiculus of hind leg, 8:5.

**Holotype:** female, Mt. Shibuthu, 2,255 m. above sea level, Oze, Gunma Pref., from branches of *Pinus pumila* Regel, 8-IX-1993. R. Itoh leg. **Paratypes:** 3 females + 3 males collected with Holotype; 3 females + 3 males Mt. Kisokomagatake, 2,600 m above sea level, Nagano Pref., from branches of *Pinus pumila*, 25-XIII-1999. R. Itoh leg.

**Remarks:** This new species is similar to *Sminthurinus flammeolus* from Scotland, which has the dens bearing 2 ventral subapical seta and the tenaculum with 1 apical setae (Gisin, 1957), but the former can be distinguished from the latter by having 1 and 2 setae respectively. By some respects: Ant. IV lacking annuli; Ant. III with single papilla; dorsal anal flap of female with simple  $A_0$ -seta; bothriotrix D arising from an enlarged protuberance. The cited species may represent an intermediate among *Sminthurinus*, *Katiannina* and *Gisinianus* (Betsch, 1980). In this paper, however, I tentatively treated as a new species of subgenus *Sminthurinus* (*Katiannina*) following Christiansen and Bellinger (1998).

**Etymology:** The species is named after the type locality situated in the subalpine climatic zone of central Japan.

#### Acknowledgments

I wish to express my sincere thanks to Prof. Kenneth Christiansen, Grinnell College, for his helpful advice and reading the manuscript. My thanks also due to Mr. T. Sawahata, Shinshu University, for his assistance in fieldwork at Mt Kisokomagatake.

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