

**Epitoky in *Hypogastrura (Cyclograna) horrida* Yosii, 1960
(Hexapoda: Collembola: Hypogastruridae)**

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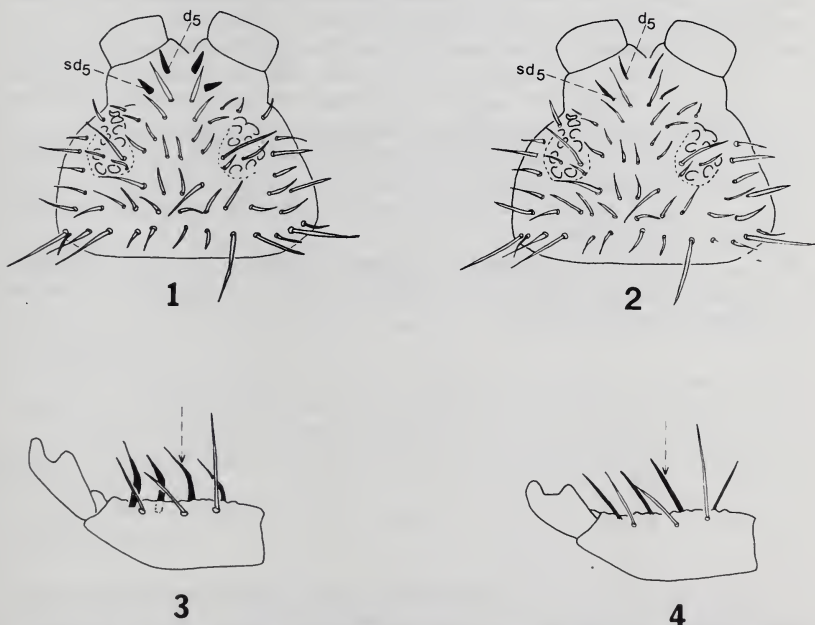
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Collembolan polymorphism of the type in which sexually immature individuals differ morphologically from mature individuals by the exhibition of unique character states that are not associated with secondary sexual characters is termed epitoky. This phenomenon has been documented previously in the collembolan families Hypogastruridae (1, 2, 3, 4), Isotomidae (5, 7), and Onychiuridae (6, 7). Fjellberg (7) suggested that epitoky was possibly a universal phenomenon in Collembola.

Morphological differences were observed in preadult and adult individuals of *H. horrida* that are attributable to epitoky including the size of the cephalic setae *sd*₅ and *d*₅ (Figures 1, 2), the size and shape of the dorsal setae (Figures 3, 4) and in the size and shape of the mucro (Figures 3, 4).



FIGURES 1-4. *Hypogastrura horrida* Yosii. 1. Head capsule of preadult specimen with expanded cephalic setae *d*₅ and *sd*₅. 2. Head capsule of adult. 3. Furcula of preadult specimen. 4. Furcula of adult specimen. [Figures modified from Fjellberg (8)]

Slides of seven males and three females of the 58 specimens studied present the best evidence for epitoky. Females were considered to be sexually mature based on

their size, the development of their genital openings and accompanying setae. Males were considered to be sexually mature when the bulbous structure of the developing spermatophores were observable internally.

Although adult specimens as defined above lack expanded cephalic setae (Figure 2), display straight unexpanded dental setae and possess small mucros (Figure 4), preadult individuals may differ radically in form. Early instars may show little or no enlargement of cephalic setae and may show variability in the size and shape of dental setae and in size of the mucro. Individuals nearing maturity (apparently one or two molts from the adult form) differ strikingly from adult forms in the possession of prominent but variably developed cephalic setae d_1 and sd_1 (Figure 1) and enlarged dental setae, of which the inner four are expanded and bent, and large mucros (Figure 3).

Such striking differences in morphology between adult and preadult forms as described above frequently have led to confused taxonomy regarding many species of Collembola in various families. It is possible that epitoky may be found in many other species of the large genus *Hypogastrura* (s.l.).

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