

# REDESCRIPTION OF MARINE *THALASSOSMITTIA NEMALIONE* (TOKUNAGA, 1936) (DIPTERA, CHIRONOMIDAE, ORTHOCLADIINAE) FROM THE EAST COAST OF CHINA

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## Abstract

*Thalassosmittia nemalione* (Tokunaga, 1936) is redescribed based on a male from the east coast of China. This is the first record of marine *Thalassosmittia* from the coast of China.

## Introduction

The genus *Thalassosmittia* was established by Strenzke and Remmert (1957) for *Camptocladius thalassophilus* Bequaert and Goetghebuer, 1914 from the North Atlantic coasts (Cranston et al. 1989). Thus far, this genus comprises ten species including eight marine species and two inland species (Tang et al. 2023). Most marine species were recorded in the North Pacific, with 2–3 members from the Atlantic Ocean and the Mediterranean Sea. Larval stages of marine species usually dwell in algal mats and barnacles of intertidal zones (Andersen et al. 2013, Gibson and Choong 2021).

*T. nemalione* (Tokunaga, 1936) was erected by Tokunaga (1936) based on Japanese material from Seto, Wakayama Prefecture. The author comprehensively described the male and female adults of this species; however, the details of some important diagnostic characters were ignored, such as the antenna, the genital sclerites and volsella of adult males. Although *T. nemalione* was established nearly 90 years ago, it has been rarely recorded in subsequent studies except for a few records listed in Yamamoto (2004), Kawai et al. (2011), and Yamamoto and Yamamoto (2014). One likely reason is that *T. nemalione* can easily be misidentified as a *Pseudosmittia* species due to the morphological similarity with species in this genus. To better distinguish the species, we here redescribe *T. nemalione* based on a single male collected on the East Coast of China.

## Material and Methods

One adult male was collected over rock surfaces in the intertidal zone with a sweeping net. The specimen was dissected and mounted in Euparal on a microscopy slide. Morphological terminology and abbreviations follow Sæther (1980), except for the

lobe posterior to tergite IX, which is termed proctiger according to the definition of the homologous structure in *Diamesa* (Hansen & Cook 1976). Digital photographs were taken under an Olympus CX41 compound microscope with phase-contrast optics, during which images were manipulated with Mshot™ software to automatically acquire the focused parts of exposures at different depths. The slide is deposited in the Department of Ecology, Jinan University, China (EJNU).

## Results

*Thalassosmittia nemalione* (Tokunaga, 1936).

*Spaniotoma (Smittia) nemalione* Tokunaga, 1936: 305.

*Thalassosmittia nemalione* (Tokunaga, 1936), Yamamoto (2004: 102, list); Kawai et al. (2011: 251, record); Yamamoto & Yamamoto (2014: 302, list).

**Material examined.** CHINA. 1 male adult, Fujian Province, Pingtan County, Dalian Island, Yueju village, 25°39'58.72" N, 119°42'43.07" E, 02.v.2019, ltd. W. Han, (EJNU).

**Diagnostic characters.** *T. nemalione* can be separated from its congeners by the combination of the following characters: antenna with 8 flagellomeres, anal point pubescent, long-triangular, base with 4–5 long setae laterally; proctiger obviously; gonocoxite with spindle-shaped patch at the outer margin of subapex, virga composed of two apically bifid spines; gonostylus tapering towards apex; megaseta present.

## Description

Male (n = 1). Total length 2.33 mm, abdomen 1.63 mm long. Wing length 1.33 mm.

**Coloration.** Generally brown to dark brown. Thoracic vittae light brown, with dorsocentrals arising from pale brown spots. Wings greyish brown. Legs generally light brown to brown, the two tibial spurs of middle and hind legs with contracting coloration, the shorter one is dark brown while the longer one is light brown.

*Antenna* (Fig. 1B). Eight flagellomeres, with distinct sensilla chaetica, plumose reduced with sparsely distributed setae, terminal flagellomere tapered, apical seta absent. Length of flagellomeres (in  $\mu\text{m}$ ): 45, 25, 30, 30, 33, 35, 35, 100–105. AR 0.40.

*Head*. Eye pubescent, without dorsomedian extension. Temporal setae 7, including 2 inner verticals, 2 outer verticals and 3 postorbitals. Clypeus with 6 setae bilaterally symmetrical. Palp 5-segmented, length (in  $\mu\text{m}$ ) of segments 1–5: 25, 35, 55, 58, 70.

*Thorax*. Antepronotal lobe without seta. Acrostichals 10, dorsocentrals 6, prealars 2. Scutellum with 4 uniserial setae.

*Wing* (Fig. 1A). Wing membrane with fine granulation.  $R_{2+3}$  very close to  $R_{4+5}$ ,  $R_{4+5}$  ending distal to end of  $M_{3+4}$ . Anal lobe present, weak. VR 1.20. Brachiolum with 1–2 setae, R with 7,  $R_1$  with 3, and  $R_{4+5}$  with 8 setae. Costal extension 75  $\mu\text{m}$  long. Squama bare.

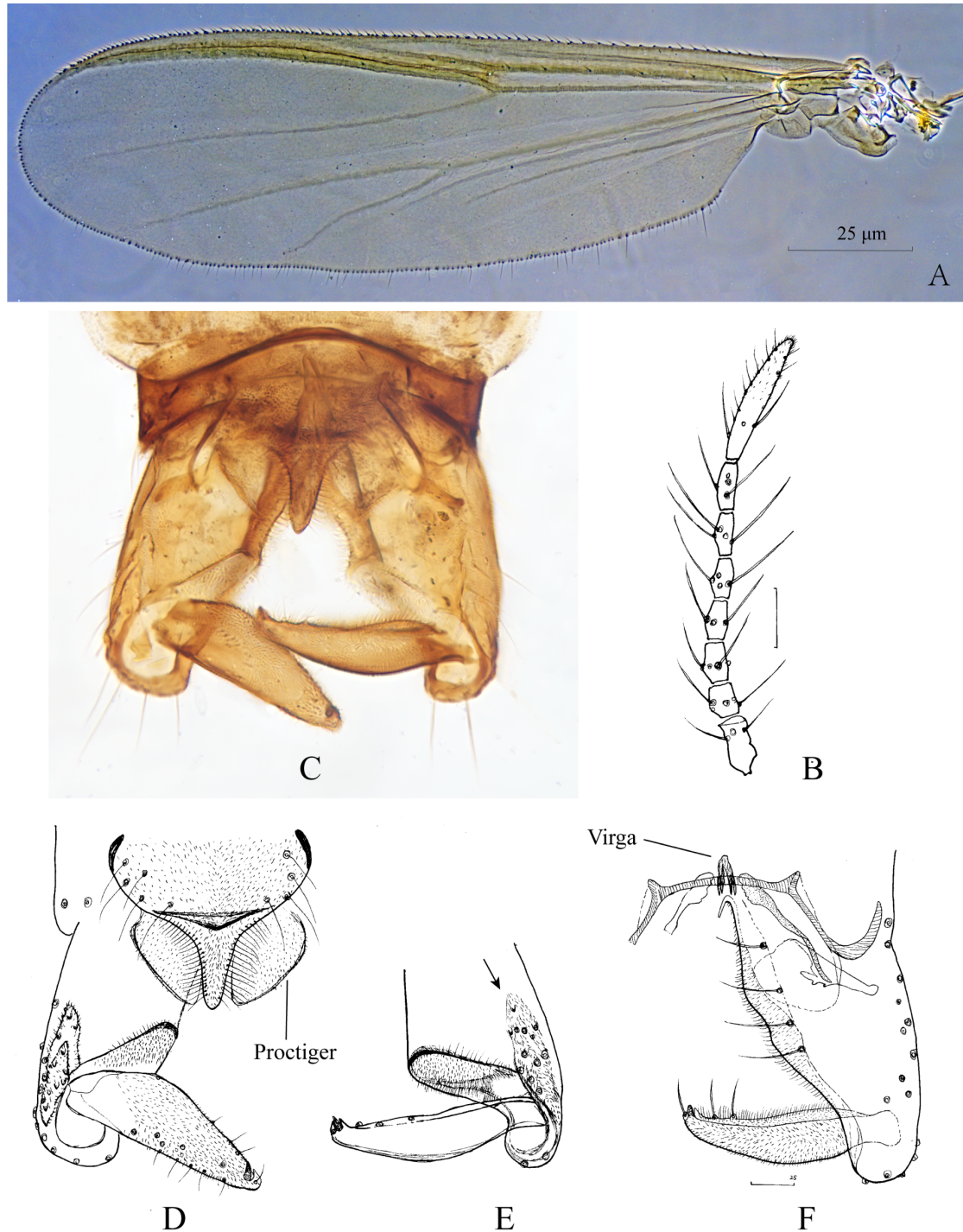


Figure 1. *Thalassosmittia nemalione* (Tokunaga, 1936), male. A, Wing; B, Antenna; C–E, hypopygium, dorsal; F, hypopygium, ventral. (Scale: B, 50  $\mu\text{m}$  ; A, C–F, 25  $\mu\text{m}$ ).

Table 1. Length (in  $\mu\text{m}$ ) and proportions of legs of *Thalassosmittia nemalione* (Tokunaga, 1936), male. (n = 1).

|                | fe  | ti  | ta <sub>1</sub> | ta <sub>2</sub> | ta <sub>3</sub> | ta <sub>4</sub> | ta <sub>5</sub> | LR   | BV   | SV   |
|----------------|-----|-----|-----------------|-----------------|-----------------|-----------------|-----------------|------|------|------|
| P <sub>1</sub> | 520 | 610 | 300             | 185             | 115             | 65              | 60              | 0.49 | 3.36 | 3.76 |
| P <sub>2</sub> | 600 | 670 | 320             | 170             | 120             | 70              | 65              | 0.47 | 3.74 | 3.97 |
| P <sub>3</sub> | 670 | 810 | 350             | 170             | 150             | 70              | 60              | 0.43 | 4.07 | 4.23 |

**Legs.** Foreleg with one slender tibial spur, 25  $\mu\text{m}$  long; middle leg with two tibial spurs, 12.5  $\mu\text{m}$  and 25  $\mu\text{m}$  long; hind leg with two tibial spurs, 25  $\mu\text{m}$  and 35  $\mu\text{m}$  long, and a small tibial comb comprised of approximate 10 spines. Length (in  $\mu\text{m}$ ) and proportions of legs as in table 1.

**Hypopygium** (Figs 1C–F). Tergite IX with 4–5 stout lateral setae on each side, anal tergite band absent. Anal point (Figs 1C–D) 55  $\mu\text{m}$  long, broadly triangular at base with a conical apex, densely covered with microtrichia, bearing 20–25 long setae marginally. Proctiger obvious, flanked by anal point. Virga comprised of two slender spines, apically bifid. Gonocoxite 193  $\mu\text{m}$  long; caudolateral surface bearing an oval patch with 75  $\mu\text{m}$  long spindle-like fenestra (Fig. 1E, arrow), bearing 9–11 long setae. Inferior volsella large lobe-like, projecting upward, with dense microtrichiae. Gonostylus 115  $\mu\text{m}$  long, slightly swollen in basal 1/3, attenuated toward apex, with 3 strong setae at inner margin; megaseta small.

## Discussion

The Chinese specimen mostly fits the original description of the Japanese type material, except for the shape of the inferior volsella. The inferior volsella of our specimen is tucked upward, while the lobe of the holotype projects to the inner margin of gonocoxite (Tokunaga, 1936: fig. 7). The difference is likely an artefact originating from the sliding-mounting process, actually representing the same structure in two different orientations.

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