

# *Thalassophthirius auster* gen. et spec. nov., a halacarid mite (Acari) suspected of being a parasite

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*Thalassophthirius auster* gen. et spec. nov., collected off Staten Island, South Atlantic Ocean, is described. The species is suspected of being parasitic in habit. This speculation is based on characteristics such as extremely long and robust recumbent dorsal setae, absence of eye pigment and bulbous idiosoma. A short survey of parasitic halacarids is given.

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Halacarids are benthic organisms. Most species are found in crevice systems in barnacle, hydrozoan and bryozoan colonies, in holdfasts and algal tufts, in sediments and on algae. A few species are known or suspected parasites.

A sample taken with a Menzies trawl in sub-littoral waters off Staten Island, South Atlantic Ocean, harboured among others a single specimen of the mite *Thalassophthirius auster* gen. et spec. nov. which is suspected of being parasitic in habit. The taxon is described below and a discussion of parasitic halacarids is provided.

## Description

### *Thalassophthirius* gen. nov.

Diagnosis: Idiosoma with dorsal plates AD (anterodorsal plate), OC (ocular plate) and PD (posterodorsal plate), and six pairs of dorsal setae, the sixth pair of setae inserted at the anal cone. Fused AE (anterior epimeral plate) with two pairs of ventral setae. PE (posterior epimeral plate) with one lateral and three ventral setae. Palps attached laterally to gnathosoma; four-segmented; one dorsal seta on P-2 (second palpal segment), no seta on P-3, three setae on P-4. Gnathosoma with two pairs of maxillary setae and two pairs of rostral setae. All genua with two setae. All tibiae with two slender ventral setae. Tarsus I with a pair of ventral seta. Solenidion on tarsus I in dorsolateral position, on tarsus II in dorsomedial position.

Type species: *Thalassophthirius auster* spec. nov.

*Thalassophthirius* is placed in the subfamily Halacarinae. It is most similar to *Arhodeoporus* and *Winlundia*, but differs from both genera in presence of solely two ventral setae on both tibia I and II, and lack of lateral setae on AE.

### *Thalassophthirius auster* spec. nov.

Material and collecting data: One male, holotype, deposited in United States National Museum of Natural History, Washington, D.C.; off Staten Island, 54°47'S, 64°42'W, 13–34 m depth, 28 April 1971. HERO cruise 712, station 658, United States Antarctic Research Program.

Idiosoma: Length 212 µm. Idiosoma bulbous. AD longer than wide; posterior margin rounded. OC partly concealed beneath PD, with two pores at lateral margin. Neither cornea nor eye pigment present. PD large and wide; anterior portion smooth; middle portion with large median and two small lateral grooves which are separated by longitudinal cuticular ridges (Fig. 1F). Median and lateral grooves filled with secretory cuticle. Posterior PD foveate (Fig. 1A). Most dorsal setae extremely long and robust. Ds-1 (first pair of dorsal setae) inserted on AD; ds-2 arising from small cones adjacent to OC; ds-3 half as long as idiosoma, inserted on prominent cones; ds-4 inserted on sclerites adjacent to PD; ds-5 robust; ds-6 slender, located on anal plates.

Ventral plates with a rough surface. The two pairs of ventral setae on AE slender. Lateral seta

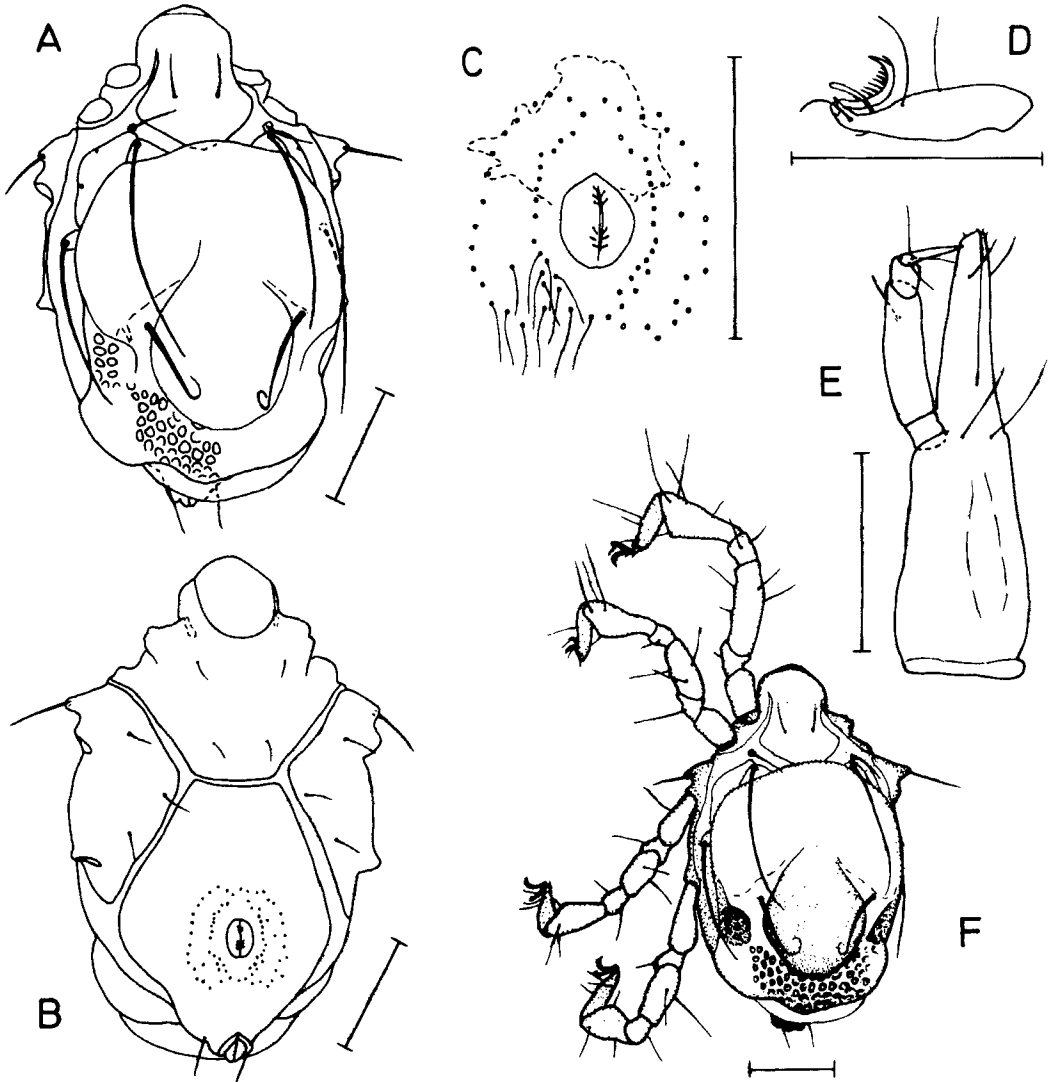


Fig. 1. *Thalassophthirius auster*, male. A. Idiosoma, dorsal view. B. Idiosoma, ventral view. C. Genital region. D. Tarsus II, medial view (lateral setae omitted). E. Gnathosoma, ventral view. F. Dorsal view (gnathosoma and right legs omitted). Scale line equals 50  $\mu$ m.

on PE robust, the three ventral setae fine (Fig. 1B). GA (genitoanal plate) large. GO (genital opening) small, surrounded by 74 perigenital setae arranged in two rings around GO. Five to six pairs of minute subgenital setae present at the genital slit (Fig. 1C). Spermapositor extending slightly beyond ring of perigenital setae.

Gnathosoma: Gnathosoma slender. Rostrum almost as long as gnathosomatic base. Two pairs of maxillary setae present, one pair inserted at

base of rostrum, the other pair in posterior third of rostrum (Fig. 1E). Two pairs of rostral setae at tip of rostrum. Palps slender.

Legs: All legs slender (Fig. 2B). Tibiae slightly club-shaped. Trochanters and basifemora with one seta each. Telo femora each with two strong dorsal setae. Genua with two dorsal setae (Figs. 2C–E). All tarsi with three dorsal setae. Tarsus I with two minute ventral setae and a pair of doubled parambulacral setae (pas), solenidion

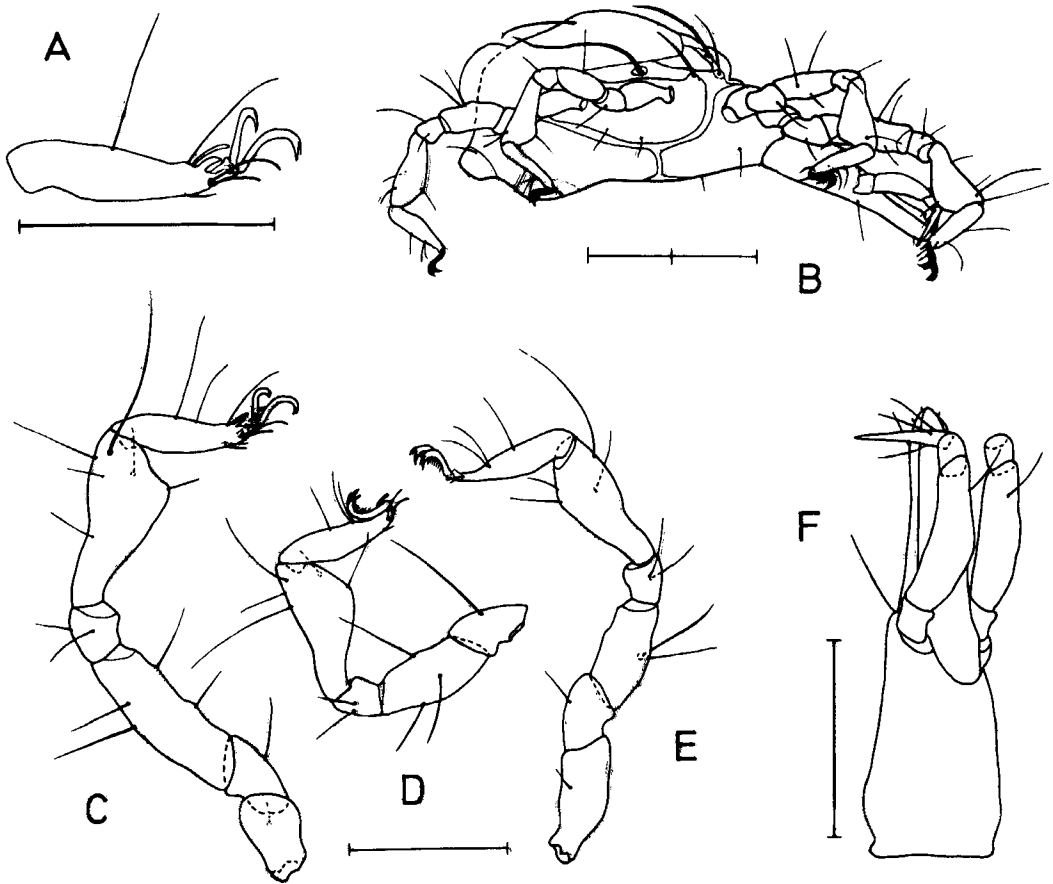


Fig. 2. *Thalassophthirius auster*, male. A. Tarsus I, lateral view (medial setae omitted). B. Lateral view. C. Leg I, lateral view. D. Leg II, lateral view. E. Leg IV, lateral view. F. Gnathosoma, dorsal view. Scale line equals 50  $\mu$ m.

and famulus in dorsolateral position (Fig. 2A). Tarsus II with one small ventral seta, a pair of single pas, and a large solenidion dorsomedial in position (Fig. 1D). Tarsi III and IV both with a pair of single pas. Lateral claws on tarsus I with a large accessory process but no claw comb (Fig. 2A); lateral claws on posterior tarsi with claw comb of strong tines (Fig. 1D).

## Biology

*Thalassophthirius auster* was taken with a Menzies trawl at 55°S, 65°W, at a depth of 13–34 m. No details of the habitat were given. Other mites present in this sample were *Agauopsis pusilla*, *Halacarellus harioti*, *H. novus*, *Agau magellanica* and an undescribed *Scaptognathus* species.

*T. auster* is suspected of being parasitic in habit. This speculation is based on the combination of features such as the lack of eye pigment, bulbous idiosoma, and unusually long and robust dorsal setae. In general, halacarids inhabiting sublittoral waters have corneae and/or eye pigment. Blindness is common only in arenicolous species. Psammobiontic mode of life in *T. auster* is unlikely. Psammobiontic halacarids have an idiosoma either slender and oblong-ellipsoidal or wide and flattened, never bulbous as in *T. auster*. Similarly long and robust setae as found in *T. auster* have never been described before within the halacarids. Rather strong and stiff setae are known from several *Agau* species (e.g. *A. obscura*, *A. corollata*, *A. longiseta*); in these species, the setae stand erect and may protect the mites from predators. Long but very slender

dorsal setae are recorded from species of the genus *Anomalohalacarus*; these species are psammobionts, the setae are supposed to be tactile receptors. The setae of *T. auster* are directed backwards. One may speculate that *T. auster* inhabits filamentous structures and that its setae prevent the mites from being slipped off.

## Halacarid parasites

A number of halacarid mites have been found, or are suspected of, living as parasites (Bartsch 1987). Some of them show no or little adaption to their parasitic way of life.

Two *Copidognathus* species (*C. matthewsi*, *C. stevcici*), both parasitizing decapods (Newell 1956; Bartsch 1976) have dark-brown eye pigment. The combination of an idiosomal length, width ratio of more than 1:0.6 and lack of prominent panels and costae suggests that these species do not live in the sea on sediment, animal colonies and algae.

Other parasitic halacarid genera are *Astacopsiphagus*, *Halixodes*, *Parhalixodes*, *Enterohalacarus*, *Australacarus* and, possibly, *Thalassophthirius*. *Astacopsiphagus*, a fresh water halacarid, inhabits the gills of the decapod *Astacopsis serratus* (Viets 1931). *Halixodes* lives on gills of chitons and in the mantle cavity of gastropods, but has also been found amongst gravel and colonies of barnacles and mussels (Bartsch 1986). *Parhalixodes* has been picked off the nemertean

*Cerebratulus hepaticus* (Laubier 1960). *Enterohalacarus* has been found in and on the sea urchin *Plesiodema indicum* (Viets 1938). The hosts of *Australacarus* and *Thalassophthirius* are unknown. *Halixodes* and *Parhalixodes* have rostra with barbs at the tip, these barbs may enable the mite to stay fixed to the host. In *Enterohalacarus*, *Australacarus* and *Thalassophthirius* neither the rostrum nor the legs are markedly modified for grasping and clinging to a host.

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## References

- Bartsch, I. 1976: *Copidognathus stevcici* n.sp., eine parasitisch lebende Halacaride (Halacaridae, Acari). *Thalass. Jugosl.* 12, 399–404.
- Bartsch, I. 1986: A new species of *Halixodes* (Halacaridae, Acari) and a review of New Zealand species. *J. R. Soc. N.Z.* 16, 51–56.
- Bartsch, I. 1987: *Australacarus inexpectatus* gen. et spec. nov. (Halacaroidea, Acari), mit einer Übersicht über parasitisch lebende Halacariden. *Zool. Anz.* 218, 17–24.
- Laubier, L. 1960: *Parhalixodes travei* n. g., n. sp., un nouvel Halixodinae (Halacariens) ectoparasite de Némerte en Méditerranée occidentale. *Acarologia* 2, 541–551.
- Newell, I. M. 1956: A parasitic species of *Copidognathus* (Acari: Halacaridae). *Proc. Hawaii. Ent. Soc.* 16, 122–125.
- Viets, K. 1931: Über eine an Krebskiemen parasitierende Halacaride aus Australien. *Zool. Anz.* 96, 115–120.
- Viets, K. 1938: Eine merkwürdige, neue, in Tiefsee-Echiniden schmarotzende Halacaridengattung und -Art (Acari). *Z. Parasitenkd.* 10, 210–216.