Pacific Insects Vol. 20, no. 1: 83-85 30 January 1979

ARTHROPODS IN A BOTANICAL COLLECTION FROM THE PRINCE CHARLES MOUNTAINS, ANTARCTICA

By D. E. Rounsevell[1]

Abstract: Three species of prostigmatic mites, *Nanorchestes antarcticus, Tydeus erebus* and *Stereotydeus mollis,* and a species of cryptostigmatic mite, *Antarcticola meyeri,* are recorded from soil from the Prince Charles Mountains, Mac Robertson Land. All have been recorded previously from other Antarctic localities; they are the first invertebrates reported from this mountain range in East Antarctica. Other specimens recorded, but thought to be contaminants, were a single dipteran (Family: Psychodidae), 2 larval exuviae of a dermestid beetle *(Antherocerus)* and 1 cryptostigmatic mite *(Camisia segnis).*

The Prince Charles Mountains lie between 70°10′S-73°20′S and 60°30′E-68°20′E. From November 1955, when they were first visited (Law & Béchervaise 1957), to 1973, they were explored by successive Australian National Antarctic Research Expeditions (ANARE). However, no detailed biological studies were carried out, and no free-living invertebrates have been reported from the region until now.

During the 1972 ANARE summer expedition to the region, botanical specimens were collected from a number of sites and forwarded to the national herbarium, Melbourne. I examined soil left after plants had been sorted.

METHODS AND MATERIALS

The botanical specimens collected were placed in small cardboard boxes and transported by ship to Melbourne, where they were sorted. Dry soil remaining after sorting was stored in glass containers.

The soil was mixed with water and the floating organic fraction was observed through a stereomicroscope. Dehydrated arthropods were separated by hand from among fragments of moss and lichen. Mites were mounted directly in Hoyer's medium for examination, and insects were bathed in a mixture of glycerol and water before being examined.

The specimens of cryptostigmatic mites and *Tydeus erebus* have been lodged in the South Australian Museum, Adelaide. The specimens of *N. antarcticus* have been sent to Dr R. W. Strandtmann, Texas Tech University, Lubbock. I have retained the *S. mollis* specimens as part of a larger collection of this species from E Antarctica, which is intended for later study.

1. Antarctic Division, Department of Science, 568 St. Kilda Road, Melbourne 3004, Australia. Present address: National Parks & Wildlife Service, Box 210, Sandy Bay, Tasmania 7005, Australia.

RESULTS

The localities of soil samples from the Prince Charles Mountains that yielded arthropod specimens and the identity and number of those specimens are listed below. All specimens found were dead and desiccated.

Mawson Escarpment (72°30′S-73°41′S, 68°10′E)

Site 13—At the northeastern end: *Stereotydeus mollis, Tydeus erebus* (Acari: Prostigmata) and *Antarcticola meyeri* (Acari: Cryptostigmata); 2 specimens of each species; from moss and fine substrate on acidic gneiss.

Site 19—On the northern side of Harbour Headland[2]: 2 exuviae of larvae of *Anthrenocerus* sp. (Coleoptera: Dermestidae).

Site 24—At the southwestern corner of trig point "L", 34 km NE of Harbour Headland: 4 specimens of *Nanorchestes antarcticus* (Acari: Prostigmata).

Site 26—At trig point "L": 2 specimens of *N. antarcticus* and 1 (unidentified) specimen of a midge (Diptera: Psychodidae).

Cumpston Massif (73°35′S, 66°50′E)

Site 44—At the northern end: 5 specimens of *N. antarcticus.*

Mount Rymill (73°00′S, 65°55′E)

Site 52—At the southeastern end: 1 (damaged) specimen of *Camisia segnis* (Acari: Cryptostigmata); in moss.

Shaw Massif (72°00′S, 66°55′E)

Site 54—At the southeastern end: 3 specimens of *N. antarcticus.*

Ten samples from other localities in the Prince Charles Mts did not yield any arthropods.

DISCUSSION

Three species of prostigmatic mites, *N. antarcticus, T. erebus* and *S. mollis,* occurred in the samples. *N. antarcticus* is a widespread and abundant mite in ice-free areas of Antarctica (Gressitt & Shoup 1967) and was found more frequently than any of the other arthropod species in the samples collected. All 3 species occur at sites along the Antarctic coastline between King Edward VIII Gulf (67°00′S, 56°55′E) and the Vestfold Hills (68°35′S, 77°58′E) (Rounsevell 1977).

The occurrence of the cryptostigmatic mite *A. meyeri* at site 13 is an interesting new record. This species was previously known only from specimens found near Molodezhnaya Station (67°48′S, 46°00′E), 940 km to the NW, in 1965, by G. Meyer (Wallwork 1967). The present locality in the Prince Charles Mountains significantly extends the known range of this species.

The single specimen of the cryptostigmatic mite *Camisia segnis* from site 52 is extensively damaged and incomplete. *C. segnis* has not previously been found in Antarctica or the Subantarctic islands, but it does occur in New Zealand (Hammer 1966) and Bolivia, where its preferred habitat is moss (J. A. Wallwork, pers. commun.). Without further evidence it

2. Name subject to confirmation.

must be concluded that the specimen of *C. segnis* obtained is a contaminant and does not represent a record of the species from Antarctica.

The psychodid from site 26 and the beetle larvae from site 19 are temperate species and are presumed also to have contaminated the samples, either from the containers or during sorting. It is highly unlikely that either of these species could complete its life cycle under natural Antarctic conditions.

Exotic arthropods are accidentally introduced to Australian Antarctic stations in food and other stores brought by ship, and live specimens of some species can survive and reproduce in the heated buildings (Rounsevell 1978). It is thus possible that the suspected contaminants infested the samples examined in this report before they left Antarctica.

Acknowledgment: I thank Mr R. B. Filson of the National Herbarium, Melbourne, for providing the samples of substrate; Dr J. A. Wallwork of Westfield College, London, for identifying the cryptostigmatic mites; and Drs E. B. Britton and D. N. Colless of the CSIRO, Division of Entomology, Canberra, for identifying the insects. The results were made possible by Mr J. Manning of the National Mapping Division, Department of National Resources, who collected the botanical specimens while working in the Prince Charles Mountains with the Australian National Antarctic Research Expeditions (ANARE).

LITERATURE CITED

Gressitt, J. L. & J. Shoup. 1967. Ecological notes on free-living mites in North Victoria Land. p. 307-20. *In:* Gressitt, J. L., ed., *Entomology of Antarctica.* Antarct. Res. Ser. Vol. 10. Am. Geophys. Union Acad. Sci.—Natl. Res. Counc., Washington, D. C.

Hammer, M. 1966. Investigations on the oribatid fauna of New Zealand, Part I. *Biologiske Skrifter* **15:** 108.

Law, P. G. & J. Béchervaise. 1957. *A.N.A.R.E. Australia's Antarctic outposts.* Oxford University Press. 152 p.

Rounsevell, D. E. 1978. Geographic variation in the size of an Antarctic mite *Tydeus erebus* Strandtmann (Acarina: Prostigmata). *Acarologia* **19:** 209-19.

1978. Introduced arthropods at Australian Antarctic Stations. *Pac. Insects* **18:** 199-202.

Wallwork, J. A. 1967. Cryptostigmata (Oribatid Mites). p. 105-22. *In:* Gressitt, J. L., ed., *Entomology of Antarctica.* Antarct. Res. Ser. Vol. 10. Am. Geophys. Union Acad. Sci.—Natl. Res. Counc., Washington, D. C.