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COLEOPTERA: CURCULIONIDAE OF HEARD ISLAND[1]

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Abstract: South Georgia has no species of Curculionidae, Heard Island has four. All four species belong to the same taxonomic group without being closely interrelated. They are polyphagous and flightless ground weevils with subterranean ectophytic larvae. The populations of 3 species do not seem to differ at all from Kerguelen ones, and the 4th species must be regarded at this stage as doubtfully distinct.

South Georgia and Heard Island are in similar waters within the Antarctic Convergence but Curculionidae occur only on the latter island which is the southernmost subantarctic island having any weevils.

A posthumous account by K. G. Brown on the insects of Heard Island was published in 1964, 10 years after the death of this biologist, who had spent a full year on the island. The paper lists a total of 19 non-parasitic insect forms, of which not fewer than 9 (47%) are Curculionidae. Brown's distribution table (p. 6) shows that 6 (85.7%) out of 7 endemic insect species belong to this family of Coleoptera. Furthermore, a special subgenus *Heardius* was proposed in *Ectemnorhinus* for 2 species considered to be very different. Thus Brown gave a picture of the insect fauna of the island whereby weevils were a highly dominant element with 66.6% of the endemics; being, therefore, abundantly distinct from anything outside the island.

It is rather fortunate that the misleading impression given by Brown on the Heard Island weevils can be corrected so soon after its publication, due to Dr Gressitt's enterprise in preparing a joint volume on the insect fauna of South Georgia and Heard Island. This present study reveals that only 4 species have so far been collected on Heard Island, as against 9 reported in 1964, and that the populations of 3 of these species do not seem to differ at all from those of Kerguelen. The 4th species, i.e. *Ectemnorhinus grisescens*, being somewhat variable, as is the whole *viridis*-complex to which it belongs, requires considerably more attention before we can safely state to what extent it differs from the *viridis*-populations of Kerguelen. Consequently, the Heard Island weevil fauna is represented by 4 distinct species which are connected with the Kerguelen fauna to such a high degree that populations of both islands are either identical or slightly different at best.

The 4 Heard I. species are not closely interrelated as they belong to 4 distinct generic taxa. Nonetheless, these 4 genera, apart from 2 others of the same general South Indian Ocean area, share a number of peculiar characters that group them together in 1 distinct higher taxon firstly proposed by Lacordaire and placed by him among long-nosed weevils (Phanerognatha). G. R. Waterhouse, the original author of the genus *Ectemnorhinus*, mentioned similarities between this genus and *Phyllobius*, an association that was generally followed by subsequent authors, notably by Enderlein, Jeannel, and van Emden. It would appear then that Ectemnorhinini could also come under Otiorhynchinae alongside Phyllobiini among the short-nosed weevils (Adelognatha). Where the real affinity of Ectemnorhinini lies however, is hard to say with any precision at present. All I could, perhaps, state at this stage is that the sister-group of Ectemnorhinini does not seem to be on other subantarctic islands, or in Australia or South America and that the most probable areas to search for the closest relatives are the high mountains of East Africa or the South African subregion and that a very likely group to consider in this connection is Tanyrhynchinae.

[1]Results of fieldwork on the South Indian Ocean Expedition to Heard I. (private), partly supported by Bishop Museum.

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Ectemnorhinini are flightless ground weevils with nocturnal habits and occur throughout the year from the coast up to the higher limits of phanerogamic vegetation. The adults feed upon live tissues of leaves and soft stems of Angiosperm plants. The gut contents show quite a diversity of plants so that we can assume rather polyphagous feeding habits. The fragments seen in the intestinal tractus were *Pringlea* (Cruciferae), *Azorella* (Umbelliferae), *Tillaea* (Crassulaceae), a species of Gramineae, and occasionally even some moss; Kerguelen specimens frequently contained *Acaena* (Rosaceae) as well. No pollen was ever encountered. Larvae are ectophytic, feeding on subterranean parts of flowering plants. Because of the damp conditions as a whole and the thick mats covering the ground, larvae can also become subaerial, and feed upon leaves and exposed parts of stems that are in the mats or in contact with the dense ground cover.

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Key to species

1(2). Pronotum with broad median groove. Mucro of tibiae distinct although very small. Tergite 8 of ♀ normal, i.e. entirely hidden under 7. More than 8.5 mm..... .....**Canonopsis sericeus** C. O. Waterhouse

2(1). Pronotum without median groove. Mucro of tibiae absent. Tergite 8 of ♀ similar to that of ♂, i.e. well exposed beyond 7. Not more than 7.0 mm.

3(6). Labial palp 3-segmented.

4(5). Pronotum neither with median carina nor with smooth median line. Humeral fold or carina weak or absent. Vestiture hairy.....**Antarctonesiotes gracilipes** (C. O. Waterhouse)

5(4). Pronotum either with median carina or with smooth median line. Humeral fold or carina very distinct. Vestiture scaly.....**Mesembriorhinus brevis** (C. O. Waterhouse)

6(3). Labial palp 2-segmented.....**Ectemnorhinus grisescens** (Enderlein)

Canonopsis sericeus C. O. Waterhouse

C. O. Waterhouse, 1875, *Ent. Mon. Mag.* **12:** 55—Womersley, 1937, *Rep. B. A. N. Z. antarct. Res. Exped.* (B) **4:** 30, f. 3, 4 (pupa)—Jeannel, 1940, *Mem. Mus. natn. Hist. nat., Paris* (n.s.) 14: 158, f. 169, 176–180 (syn. *heardensis*, *obscurus*)—Brown, 1964, *A. N. A. R. E. Rep.* (B) **1:** 14, f. 4 (larva).

heardensis Enderlein, 1909, *Dt. Südpol.-Exped.* **10:** 468, pl. 40: 5b (sicut subspecies).—Womersley, 1937, *Rep. B. A. N. Z. antarc.* Res. Exped. (B) **4:** 31.—Brown, 1964, *A. N. A. R. E. Rep.* (B) **1:** 16.

obscurus Enderlein, 1909, *Deut. Südpol.-Exped.* **10:** 414 (Sicut varietas).

Enderlein had 23 specimens from Heard I., all collected by the German southpolar expedition. The Heardian individuals seemed to Enderlein smaller than those of Kerguelen and their elytra less spotted. On this basis he described the Heard I. population as a distinct subspecies. Womersley had 13 specimens from the same island before him, 6 belonging in his opinion to *sericeus* s. str., 7 to *heardensis*. At least part of the specimens of these 2 "subspecies" were obtained together on the same spot. Jeannel rightly synonymized *heardensis* and *obscurus* in his large work of 1940. Brown, however, disagreed with Jeannel, once more listing *sericeus* and *heardensis* as separate subspecies for Heard I. and, surprisingly, stating that "both... are found together throughout the year." Such a taxonomic

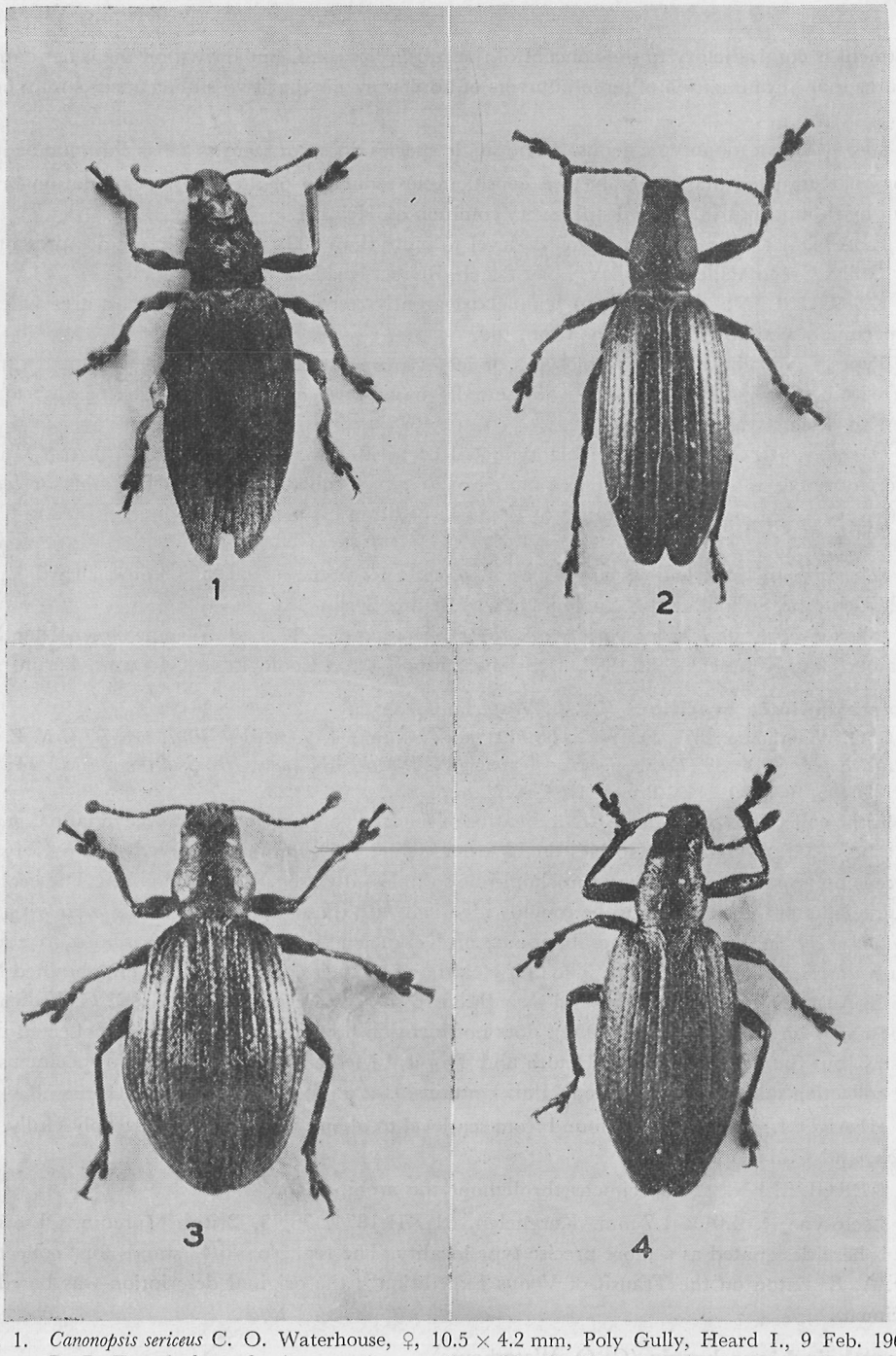

Fig. 1. *Canonopsis sericeus* C. O. Waterhouse, ♀, 10.5 × 4.2 mm, Poly Gully, Heard I., 9 Feb. 1965, R. P. Temple leg.—2. *Antarctonesiotes gracilipes* (C. O. Waterhouse), ♀, 5.2 × 1.85 mm, S. Barrier, Heard I., 300 m, 8 Feb. 1965, R. P. Temple leg. 3. *Mesembriorhinus brevis* (C. O. Waterhouse), ♀, 4.6 × 2.3 mm, Spit Bay, Heard I., 1 Feb. 1965, R. P. Temple leg. 4. *Ectemnorhinus grisescens* Enderlein, ♀, 6.2 × 2.6 mm, S. Barrier, Cliff Tops, Heard I., 300 m, 8 Feb. 1965, R. P. Temple leg. (Photo B. Eykel, Entomology Division, D.S.I.R., Nelson)

treatment is contradictory to the concept of the subspecies itself, but Brown on the other hand also remarks that "examination of large numbers of adults reveals that two sibling species may be present."

Canonopsis is a monotypic genus. The single species does not seem to be as common as it used to be on Kerguelen due probably to a considerable reduction of the *Pringlea*-population brought about by rabbits, but this weevil still is very common on Heard I.

HEARD I.: Widespread from sea-level to more than 300 m. 71 specimens are present from Poly Gully, Green Valley, Spit Bay, Long Beach, Rogers Head, and Cliff Tops.

KERGUELEN: According to Jeannel apparently restricted to the south-east area where the 12 specimens available to me came from, too.

Types. No officially valid holotypes or lectotypes exist for any of the 3 presumed different taxa within *Canonopsis*. As the taxa were actually based on syntypes, 1 specimen of each taxon is herewith selected as lectotype.

(1) *sericeus* C. O. Waterhouse: lectotype ♂, 10.4 × 4.0 mm, Kerguelen, 76/43, British Museum. Observatory Bay is here designated as a more precise type locality. Reg. No 76/43 stands for "collected by Rev. A.E. Eaton on the Transit of Venus Expedition"; the original series consisted of 8 specimens.

(2) *heardensis* Enderlein (as subspecies of *sericeus*): lectotype ♂, 9.0 × 3.3 mm, Heard I., 3.II. 1902, Deutsche Südpol. Exp., Zoologisches Museum, Berlin.

(3) *obscurus* Enderlein (as variety of *sericeus*): lectotype ♂, 11.5 × 4.1 mm, Green Island, Observatory Bay, Kerguelen, 9.I.1902, Deutsche Südpol. Exp., Zoologisches Museum, Berlin.

Antarctonesiotes gracilipes (C. O. Waterhouse)

C. O. Waterhouse, 1875, *Ent. mon. Mag.* **12:** 56 (*Agonelytra*).—Womersley, 1937, *Rep. B. A. N. Z. antarc. Res. Exped.* (B) **4:** 33 (*Ectemnorhinus*).—Jeannel, 1940, *Mem. Mus. natn. Hist. nat., Paris* (n.s.) **14:** 183, f. 134, 135, 137, 239–244.—Brown, 1964, *A. N. A. R. E. Rep.* (B) **1:** 23.

If the collections so far made are indicative of the true composition of the weevil fauna, *gracilipes* must be regarded as a rare species on Heard I. while very common everywhere on Kerguelen. There is no apparent reason why this should be so unless it were a young colonizer. The ecological requirements of the species must be roughly identical with those of *Mesembriorhinus brevis* with which *gracilipes* agrees in distribution and abundance on Kerguelen but on Heard *brevis* is far more common than *gracilipes*, at a ratio of 4 to 1. The first Heardian specimens, 3 altogether, were obtained by the British, Australian, and New Zealand expedition to the Antarctic, 1929–1931. K. G. Brown, who spent a year on Heard I. (1951–1952), does not mention how many specimens he collected during his stay, but the School of Public Health and Tropical Medicine, Sydney houses 6 specimens only. The collection made by P. Temple in 1965 contains 9.

HEARD I.: 9 specimens found from sea-level to about 300 m. Localities: Poly Gully, Long Beach, and Cliff Tops.

KERGUELEN. 23 specimens throughout the archipelago.

Lectotype ♂, 4.0 × 1.7 mm, Kerguelen, 31.XII.1874, 76/43, British Museum. Observatory Bay is here designated as a more precise type locality. The reg. No. 76/43 stands for "collected by Rev. A. E. Eaton on the Transit of Venus Expedition"; the original description was based on 9 specimens.

Mesembriorhinus brevis (C. O. Waterhouse)

C. O. Waterhouse, 1875, *Entomologist's mon. Mag.* **12:** 57 (*Agonelytra*).—Womersley, 1937, Rep. *B. A. N. Z. antarc. Res. Exped.* (B) **4:** 32, f. 5, 6 (pupa; sub *Ectemnorhinus crozetensis*).—Jeannel, 1940 *Mem. Mus. natn.*

Hist. nat., Paris (n.s.) **14:** 187, f. 250, 251, 255–260 (adults, larva).—Brown, 1964, *A. N. A. R. E. Rep.* (B) 1: 24.

It has already been remarked above that this species is dominant over *Antarctonesiotes gracilipes* by a ratio of about 4 : 1 on Heard I., while both are equally abundant on Kerguelen. Womersley listed the species for the first time from Heard I., although under the wrong name of *Ectemnorhinus crozetensis* Enderlein.

I should like to call attention to an error which Jeannel incurred while assembling fig. 250 to 256. The figures 252–253 and 255–256 represent a lateral and dorsal view of the aedeagi of *M. brevis* and *parvulus*, but the aedeagi of these 2 species were somehow interchanged, thus 252–253 said to be of *M. brevis* (C. O. Waterhouse) actually belong to *M. parvulus* (C. O. Waterhouse) while 255–256 labelled as of *parvulus* really apply to *brevis*. Also Jeannel's text describing the aedeagi is accordingly interchanged, because his notes on the genitalia were, undoubtedly, based on the figures.

HEARD I.: Apparently common from sea-level to at least 450 m. 43 specimens are present from Poly Gully, Spit Bay, Long Beach, Capsize Bay, Cliff Tops, and Cairns at South Barrier.

KERGUELEN: 20 specimens, common throughout.

Type. Lectotype ♂, 4.2 × 2.0 mm, Kerguelen, 76/43, British Museum. Observatory Bay is herewith named type locality. The reg. No. 76/43 stands for the specimens (6 of this species) collected by Rev. A. E. Eaton in the Transit of Venus Expedition.

Ectemnorhinus grisescens (Enderlein)

Enderlein, 1909, *Dt. Südpol.-Exped.* **10:** 389, 416, 469 (Sicut varietas).—Womersley, *Rep. B. A. N. Z. Antarc. Res. Exped.* 1937, (B) 4: 33 (sub *viridis*), 34 (sicut varietas).

crassipes Jeannel, 1940, *Mem. Mus. natn. Hist. nat., Paris* (n.s.) **14:** 162, 168, f. 191–93.—Brown, 1964, *A. N. A. R. E. Rep.* (B) **1:** 18. **New Synonymy.**

forbesi Brown, *ibid.* 22, f. 7a-c. **New Synonymy.**

hoseasoni Brown, *ibid.* 20, f. 6c-F. **New Synonymy.**

jelbarti Brown, *ibid.* 20, f. 6b. **New Synonymy.**

niger Brown, *ibid.* 19, f. 6a. **New Synonymy.**

Enderlein (1909) mentioned the species from Heard I. under the names *viridis* sensu stricto and *viridis* var. *grisescens*, without restricting either of the 2 forms to Heard Island. Jeannel, however, considered the populations of Heard I. as sufficiently distinct from those of Kerguelen and proposed the new name *crassipes*. The *viridis*-complex, that also included Jeannel's *crassipes* and *curtus*, displays morphological and structural differences which are quite striking. As the externo-morphological characters as well as the genitalia seem to be very variable in the present complex and the apparent differences have yet to be sorted out and evaluated I am uncertain at this stage whether we are dealing with 2 or more sibling species, or with 1 polytypic species, or with just 1 polymorphic species. Such a problem cannot be solved without adequate material and considerable dedication.

The variation of the Heard I. populations is not unduly high in spite of the various names that have been applied. Male and ♀ genitalia at least are fairly constant here as compared with those of Kerguelen individuals.

HEARD I.: Very common everywhere from sea-level up to about 600 m. 398 specimens are present from Poly Gully, Spit Bay, Green Valley, Skua Beach, Capsize Bay, Micky Rooney Slide, Cliff Tops, Cairns, and Cinder Cone.

Data on types.

(1) *grisescens* Enderlein: lectotype ♂, 5.8 × 2.3 mm, Heard I., 3.II.1902, Deutsche Südpol. Exp., Zoologisches Museum, Berlin; originally labelled as *Ectemnorhinus viridis* var. *grisescens* Enderlein. This specimen was selected as lectotype because (a) it had the main identification label in

the handwriting of Enderlein in addition to the smaller identification labels that all syntypic specimens had, (b) it was heading the *grisescens*-series of specimens in Enderlein's original material; and (c) this specimen, together with a second one also mentioned by Enderlein from Heard Island, was in perfect condition and agreed best with the original description while those from Kerguelen were made up by a small series of quite divergent individuals.

(2) *crassipes* Jeannel: several paratypes were available; the holotype is at the Laboratoire d' Entomologie, Paris.

(3) *forbesi* Brown: holotype ♂, 5.50 × 2.35 mm, Heard I., 8.XI.1951, K. G. Brown leg., School of Public Health and Tropical Medicine, Sydney.

(4) *hoseasoni* Brown: holotype ♀, 6.8 × 3.1 mm, Heard I., Saddle Point, 20.VI.1951, K. G. Brown leg., School of Public Health and Tropical Medicine, Sydney. Brown says "length consistent at about 10 mm" which is a gross exaggeration even when rostrum included.

(5) *jelbarti* Brown: holotype ♀, 5.9 × 2.9 mm, Heard I., 8.I.1952, K. G. Brown leg., School of Public Health and Tropical Medicine, Sydney. The identification label reads "*Ectemnorhinus nudus*, Type, K. G. Brown." I have added a new label with the published name *jelbarti*.

(6) *niger* Brown: holotype ♂, 5.0 × 2.2 mm, Heard I., 10.I.1952, K. G. Brown leg., School of Public Health and Tropical Medicine, Sydney.

REFERENCES

Brown, K. G. 1964. The Insects of Heard Island. *A. N. A. R. E. Rep.* (B) **1:** 3–39.

Emden, F. I. van. 1952. On the taxonomy of Rhynchophora larvae: Adelognatha and Alophinae. *Proc. zool. Soc. Lond.* **122:** 651–795 (cf 671, 681–683).

Enderlein, G. 1909. Die biologische Bedeutung der Antarktis und ihrer Faunengebiete mit besonderer Berücksichtigung der Insektenwelt. *Dt. Südpol.-Exped.* **10:** 323–60.

1909. Die Insekten des antarktischen Gebiets. ibidem: 361–528.

Jeannel, R. 1940. Croisière du Bougainville aux îles australes françaises. *Mem. Mus. natn. Hist. Nat.*, Paris (n.s.) **14:** 1–326.

1941. Au seuil de l'Antarctique. Croisière du "Bougainville" aux îles des manchots et des elephants de mer. *Publs Mus. natn. Hist. nat.* **5:** 1–236.

Lacordaire, T. 1863. Histoire Naturelle des Insectes. *Genera des Coléoptères* **6:** 538, 562–63. Librairie Encyclopédique de Roret, Paris.

Waterhouse, C. O. 1875. On the Coleoptera of Kerguelen's Island. *Entomologists mon. Mag.* **12:** 54–57.

Womersley, H. 1937. Coleoptera. *Rep. B. A. N. Z. antarc. Res. Exped.* (B) **4:** 23–36.