

Notes on *Necroschia haanii* Kirby, 1904 from Borneo, including a new synonym.

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Abstract

The female of *Necroschia haanii* Kirby, 1904 is briefly redescribed, the male and egg are described for the first time; all are illustrated. The type material of *N. haanii* is discussed, and a lectotype is selected. *Aruanoidea schoenbergi* Redtenbacher, 1908 is a new synonym of *N. haanii*.

Key words

Phasmida, *Necroschia haanii*, *Aruanoidea schoenbergi*, Lectotype, New synonym, Borneo.

Introduction

In 1842 de Haan described three variants of *Necroschia punctata* (Gray, 1835). In 1904, Kirby named two new species based on de Haan's descriptions and material in the collection of the Natural History Museum, London (BMNH): *Necroschia haanii* from Borneo, and *N. horsfieldii* from Java. The only subsequent record of *Necroschia haanii* is my own record for Kalimantan (Bragg, 2001). Redtenbacher (1908) treated all de Haan's material as *punctata*. The status of *punctata* in Borneo has recently been reviewed (Bragg, 2007).

Kirby did not redescribe *Necroschia haanii*, he indicated it as a new replacement name (by using *n.n.* – an abbreviation of *nomen novum*) for de Haan's *Phasma* (*Necroschia*) *punctata* variation a; he indicated there was material in BMNH but did not indicate that it was type material. However, there is no evidence that Kirby had seen de Haan's material, so he was really basing the new species on the BMNH specimen and de Haan's written description. Kirby's specimen, which is clearly labelled, in BMNH must therefore be considered a type specimen, along with de Haan's material; both specimens are female.

When I isolated and catalogued the type material (Bragg, 1996) in the Leiden Museum (RMNH) some types presented particular difficulty. Many of de Haan's specimens did not have locality labels; in most cases this was not a problem because his specimens were easily recognisable as the only specimens of a particular species, or the only old specimens. However, in the case of *N. haanii*, there were a number of specimens of an appropriate age but without any data, these were grouped, with specimens from several Indonesian islands, under the heading of *punctata*. De Haan's description of his *punctata* variations are so brief that it was not possible to identify the individual specimens with certainty. It is possible that the specimen that I selected may not even be from Borneo. In view of the uncertainty regarding the identification of the RMNH type, and the fact that Kirby's species is really based on the BMNH specimen, I am selecting the BMNH specimen as the lectotype.

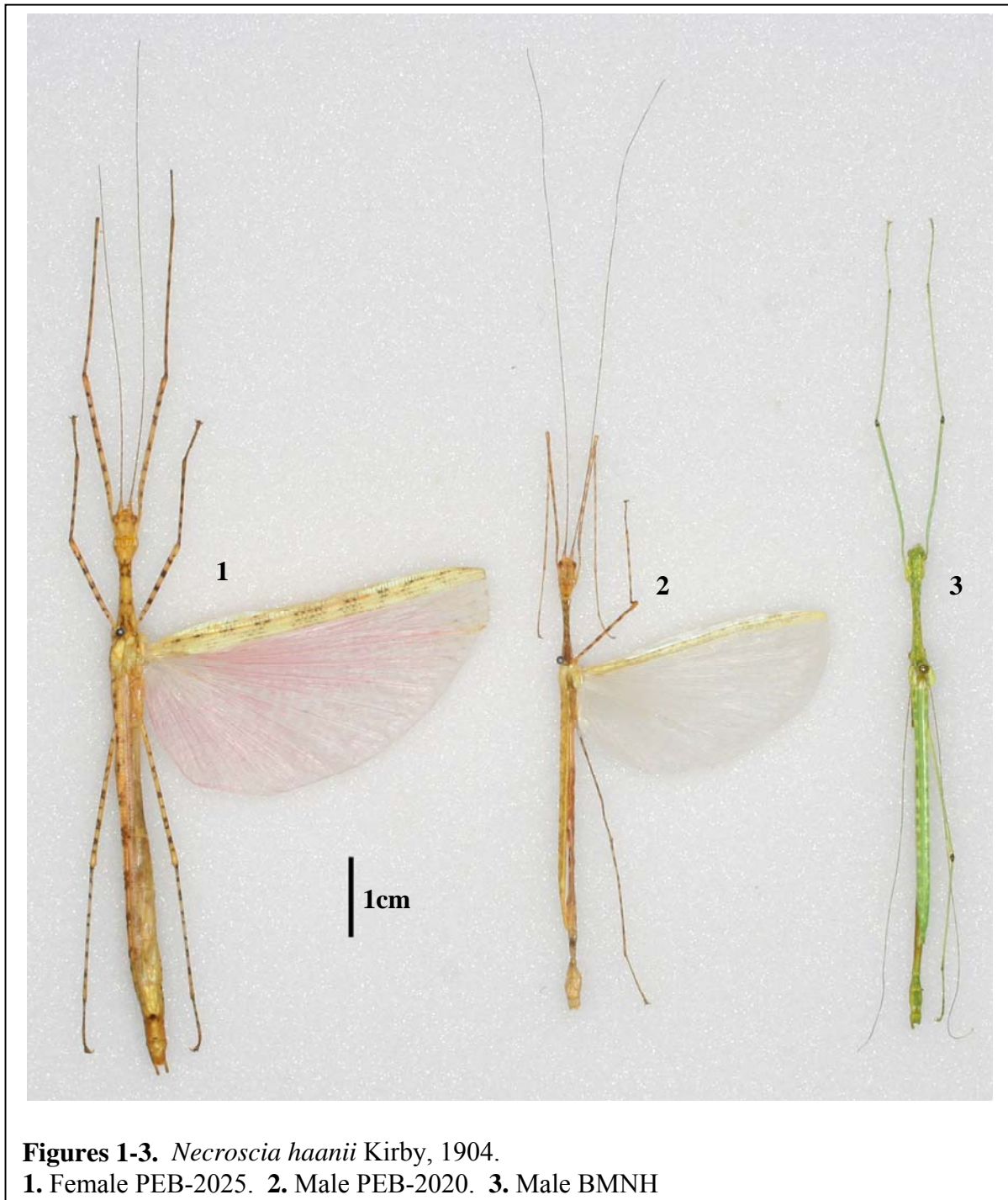
When it was described by de Haan, and when named by Kirby, only the female of *N. haanii* was known. However, on a visit to Berlin (ZMHB) I borrowed the holotype of *Aruanoidea schoenbergi* Redtenbacher, 1908. Comparison with my material from Kalimantan showed that *schoenbergi* is the male of *haanii*. Another male was located amongst some unidentified material in the BMNH collection. The adults are briefly redescribed, the egg is described, and the adults and egg are illustrated here for the first time. Specimens in my collection are prefixed PEB- and individually numbered.

***Necroschia haanii* Kirby, 1904**

Necroschia haanii Kirby, 1904: 376; Bragg, 1996: 111; Bragg, 2001: 573; Otte & Brock, 2005: 212. A replacement name for *Phasma (Necroschia) punctatum*, var. a.; de Haan, 1842: 121 [not Gray, 1835]. Lectotype [here selected] ♀ (BMNH, 56.44) Sarawak. Paralectotype: ♀ (RMNH) Kalimantan, Pontianak, coll. Diard.

Aruanoidea schoenbergi Redtenbacher, 1908: 527. Holotype ♂ (ZMHB) S.O.-BORNEO. Wahnes S., Wolf v. Schoenberg V. **New synonym.**

Necroschia schoenbergi (Redtenbacher, 1908); Bragg, 2001: 576; Zompro, 2005: 280; Otte & Brock, 2005: 215.



Material examined:

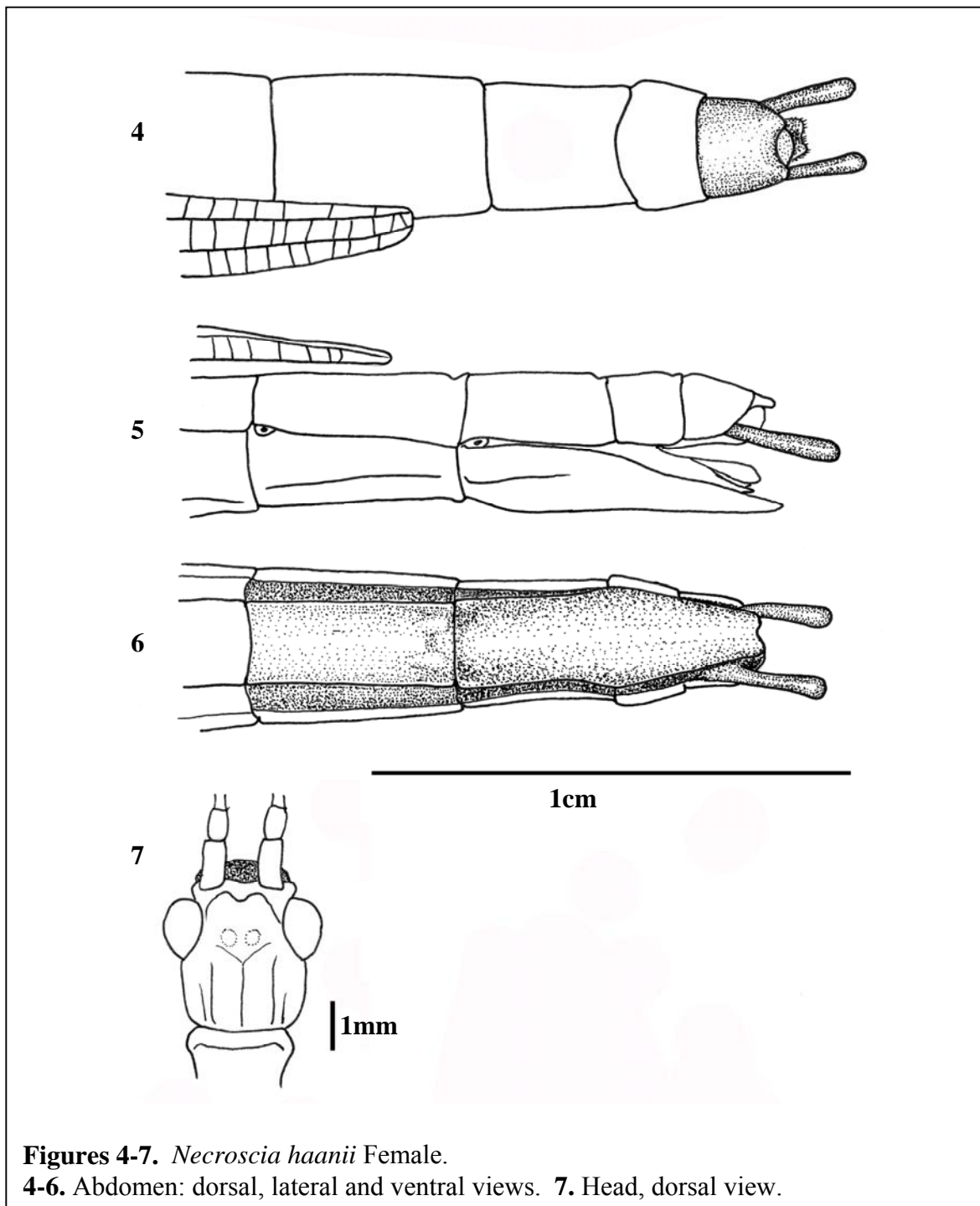
♀ Lectotype *Necrosia haanii* (BMNH 56.44) SARAWAK.

♂ Holotype *Aruanoidea schoenbergi* (ZMHB) S.O.-BORNEO, Wahnes S., Wolf v. Schoenberg V.

♂ (PEB-2020) KALIMANTAN Tengah, Sungai Sabangau, Kelambenkari. disturbed in daytime, P. Jenkins, 20.viii.1993;

♀ & eggs removed from the body (PEB-2025) KALIMANTAN Tengah, Sungai Sabangau, Kelambenkari. P.E. Bragg, 30.viii.1993.

♂ (BMNH BM1978-48) SABAH, Tawai plateau, 1300ft, 8 miles South of Telupid, 8.ix.1997, M.E. Bacchus.



Figures 4-7. *Necrosia haanii* Female.

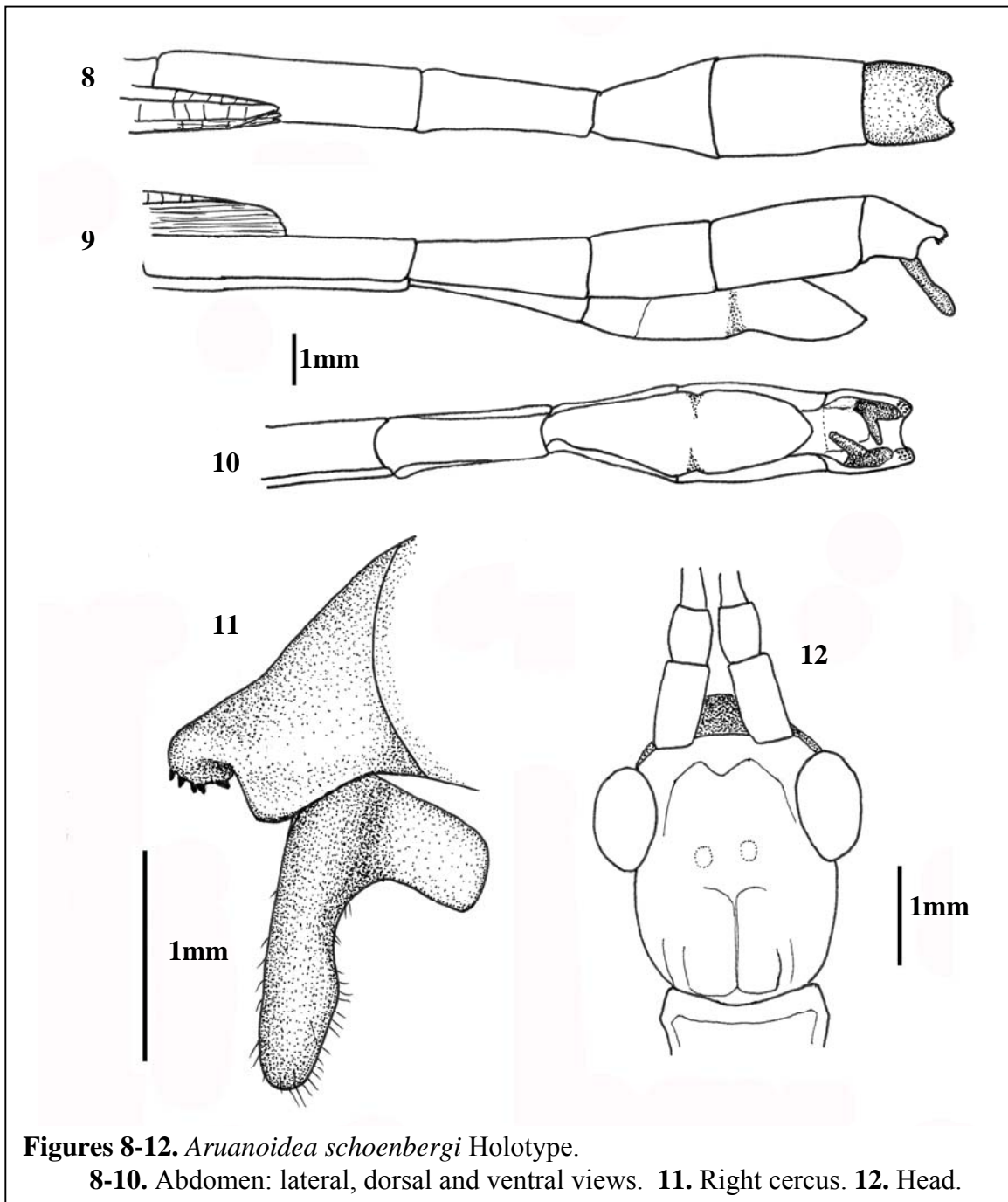
4-6. Abdomen: dorsal, lateral and ventral views. **7.** Head, dorsal view.

Female (figs 1 & 4-7)

Body, legs, and costal region of wings yellow with brown blotches (fig 1); anal region of wings pale pink. Measurements in table 1 are from my specimen only.

Head with two distinct ocelli. Mesonotum roughly granulose. Mesosternum and anterior half of metasternum granulose. Mesopleura and metapleura slightly granulose. Wings reaching to half way along seventh abdominal tergite. Seventh tergite about $\frac{3}{4}$ as long as 6th; 8th $\frac{1}{2}$ as long as 6th; 9th only slightly more than $\frac{1}{2}$ length of 8th; 10th about same length as 9th.

Tenth tergite with a semicircular apical notch; lamina supraanalis clearly visible, apex almost straight. Praeopercular organ consisting of a small pair of rounded, elongated, tubercles: almost a pair of short parallel ridges (fig 6). Operculum setose throughout its length, with only a very slightly notched apex. Cerci slightly clubbed.



Figures 8-12. *Aruanoidea schoenbergi* Holotype.

8-10. Abdomen: lateral, dorsal and ventral views. **11.** Right cercus. **12.** Head.

Male (figs 2-3 & 8-16)

Body coloration as in female, except BMNH male which is green with pale yellow blotches and black knee joints (fig 3). Anal region of the wing of *schoenbergi* HT has pink veins and a very faint pinkish tinge between the veins (region may have been pink originally); PEB-2020 has been decolourised by alcohol; anal region of BMNH male not examined.

Head with two distinct ocelli. Mesonotum roughly granulose. Mesosternum and anterior half of metasternum granulose. Mesopleura and metapleura slightly granulose. Wings reaching almost to end of 6th tergite.

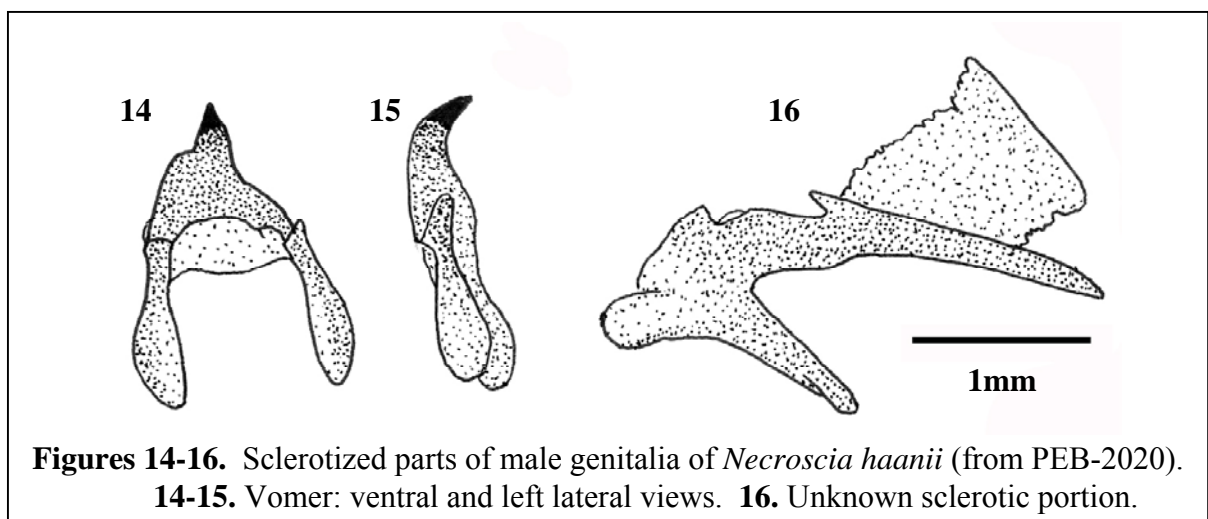
Tergites 2-5 of about equal length; 6th about $\frac{3}{4}$ length of 5th; 7th about two thirds length of 6th; 8th only slightly more than $\frac{1}{2}$ length of 7th; 9th almost as long as 7th; 10th slightly shorter than 8th. Anal segment with apical margin deeply indented so the segment appears to have two apical projections (figs 8 & 10).

Apical projections of anal segment with small spines on the ventral surface (HT of *schoenbergi* left 17, right 14; BMNH left 14 (some minute), right 10; PEB-2020 left 19, right 18). This species has very distinctive branched cerci (figs 10 & 11), the left and right cerci are the congruent. Vomer unispinose: the spine is strongly curved towards the dorsal surface and is offset to the right (figs 14 & 15). Another sclerotized part of the genitalia (fig 16) was isolated during preparation of the vomer, this was not visible externally and the original orientation is unknown.

Body length: 56-60mm (HT of *schoenbergi* actually measures 61mm but the abdomen has been lengthened by about 1mm by a repair). Measurements given in table 1 are from the HT of *schoenbergi*, except for the hind tarsi which are missing, this measurement was taken from PEB-2020.



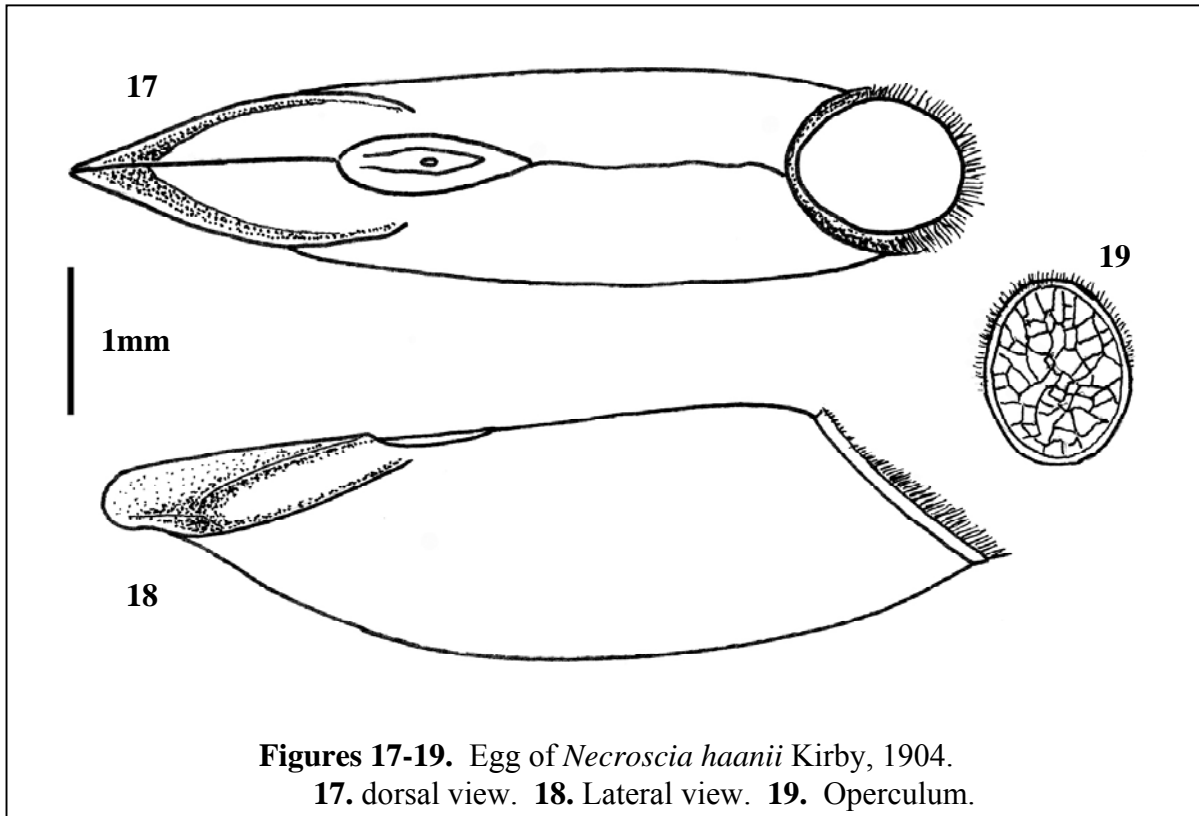
Figure 13. Holotype of *Aruanoidea schoenbergi*.



Figures 14-16. Sclerotized parts of male genitalia of *Necroschia haanii* (from PEB-2020).
14-15. Vomer: ventral and left lateral views. **16.** Unknown sclerotic portion.

Egg (figs 17-19)

The following is based on three eggs removed from PEB-2025; they were not fully hardened, and were slightly distorted during removal. Capsule a pointed cylinder with lateral and dorsal flanges on the polar end; surface rugulose. Micropylar plate about one third of the way from the polar end. Operculum flat, surrounded by a ring of setae on the collar. Length 6.1mm, height 1.6mm, width 1.4mm.



Figures 17-19. Egg of *Necroschia haanii* Kirby, 1904.
 17. dorsal view. 18. Lateral view. 19. Operculum.

Table 1. <i>Necroschia haanii</i> Kirby, 1904. Measurements in mm.					
	♂ ZMHB	♀ PEB-2025		♂ ZMHB	♀ PEB-2025
Total length	60	69	Fore femur	20.7	20.3
Antennae	62	>59	Fore tibia	19.6	19.6
Head	2.9	3.3	Fore tarsus	8.8	(5.6**)
Pronotum	2.4	3.4	Mid femur	12.6	11.6
Mesonotum	9.2	9.4	Mid tibia	10.9	10.6
Metanotum	4.3	6.0	Mid tarsus	5.4	5.4
Median segment	4.3	5.3	Hind femur	17.3	18.8
Fore wing	4.1	6.0	Hind tibia	16.7	17.0
Hind wing	34	44	Hind tarsus	(6.7*)	6.7

* hind tarsus of HT missing, measurement taken from PEB-2020.

** basal segment only, rest missing.

Distribution

The difficulty in identifying de Haan's specimen means there is no certainty that it is the same species as the lectotype, so Pontianak cannot be regarded as a known locality for *N. haanii*. The holotype of *schoenbergi* is from a rather vague "S.O.-Borneo" [Eastern Kalimantan], and the lectotype of *haanii* is an equally vague "Sarawak". Although there are only two specific localities known for this species, the five confirmed specimens of this species show a very wide distribution: Eastern Kalimantan, Central Kalimantan, Sabah, and Sarawak. The distribution map (fig 20) shows only the two specific localities: Kelambenkari and Telupid.

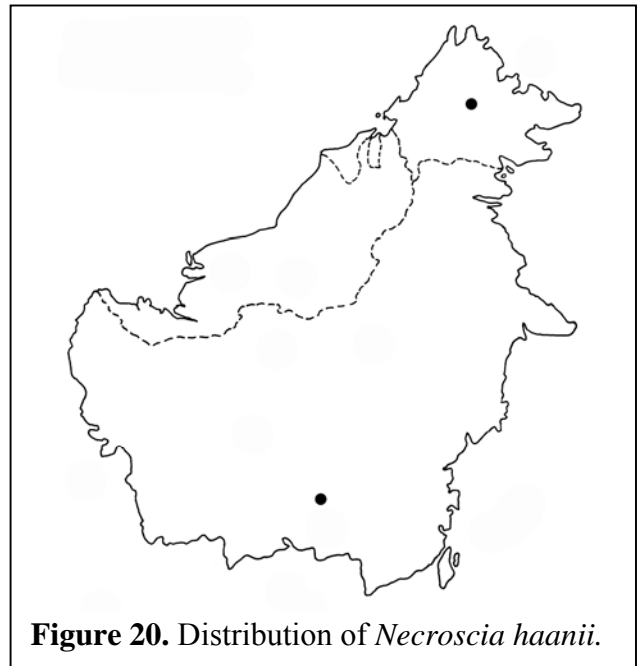


Figure 20. Distribution of *Necrosia haanii*.

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