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NOTES ON THE TRIBE HYORRHYNCHINI (COL., CURCULIONIDAE, SCOLYTINAE)

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ABSTRACT

The characters and biology of the three genera included in the scolytine tribe Hyorrhynchini are briefly reviewed, and a key to them was provided. The diagnosis of *Sueus* Murayama was broadened to include species with six or seven segments in the funicle. *Hyorrhynchus obesus* Browne was transferred to *Sueus*. *Hyorrhynchus blandfordi* Sampson, and *Hyorrhynchus flavopannus* Huang & Yin, were transferred to *Pseudohyorrhynchus* Murayama. The xylomycetophagous habit of *Pseudohyorrhynchus wadai* Murayama was confirmed. New distribution records were given for six species in the tribe.

ABSTRAK

Ciri-ciri dan biologi ke atas tiga genus yang termasuk di dalam scolytine, trib Hyorrhynchini disemak secara ringkas, dan kekunci ke atasnya juga disertakan. Diagnosis kepada *Sueus* Murayama dilebarkan dengan memasukkan spesies yang mempunyai enam

atau tujuh segmen ke dalam 'funicle'. *Hyorrhynchus obesus* Browne ditukarkan kepada *Sueus*. *Hyorrhynchus blandfordi* Sampson, dan *Hyorrhynchus flavopannus* Huang & Yin, ditukarkan kepada *Pseudohyorrhynchus* Murayama. Lakuan xylomycetophagous bagi *Pseudohyorrhynchus wadai* Murayama di sahkan. Taburan rekod baru diberikan bagi enam species di dalam trib tersebut.

INTRODUCTION

The small scolytine tribe Hyorrhynchini includes three genera, *Hyorrhynchus* Blandford, *Sueus* Murayama, and *Pseudohyorrhynchus* Murayama (Wood 1986). They form an isolated, apparently relict group confined to the region from India, through China and Southeast Asia, to Japan in the North and Australia and Fiji in the East. The tribe is most easily recognised by the divided eyes, the upper part of which is on the anterior face of the frons. The procoxae are moderately widely separated. In addition, the protibia is prolonged into a conspicuous spine, and its outer margin lacks socketed teeth, although small spines are present. Twelve species of *Hyorrhynchus*, three species of *Sueus*, and a single species of *Pseudohyorrhynchus* are listed in the catalogue of Wood and Bright (1992) and its supplements (Bright & Skidmore 1997, 2002). Further details of the taxonomy and distribution, and references to the individual species can be obtained from these publications. The species are xylomycetophagous (Beaver, 1984; Wood, 1986), the adults and larvae feeding on an ambrosia fungus, transported by the adult, and growing in the gallery system.

REVIEW OF GENERA

Hyorrhynchus Blandford, 1894

Hyorrhynchus is the least specialised of the three genera. It is characterised by antennae with a seven-segmented funicle (not six-segmented as given in Wood's (1986) key), and an elongate club with two sutures. The species have approximately equal numbers

of males and females, and the male is subequal in size to the female. The male frons is concave, and lacks a median carina; the female frons is convex, with a median carina. Twelve species are included in the genus by Wood and Bright (1992), but two of these must be transferred to *Pseudohyorrhynchus*, and one to *Sueus* (see below). The biology has not been studied in detail, although host tree records are available for several species. According to Nobuchi (personal communication in Wood 1986), the Japanese species are ambrosia beetles, cultivating an ambrosia fungus on which the larvae feed in the parental gallery system.

Pseudohyorrhynchus Murayama, 1950

This genus at present includes only a single species, *Pseudohyorrhynchus wadai* Murayama. It is distinguished from *Hyorrhynchus* by the solid antennal club without sutures, and the flattened male frons with a median carina. The elytral interstriae are more strongly tuberculate than in *Hyorrhynchus*. As in *Hyorrhynchus*, the ratio of males to females is approximately equal, and the males of equal size to the females. The habits of the species are almost unknown. The type series was taken from the wood of *Cornus controversa* (Cornaceae) (Murayama 1950). According to Wood (1986), presumably based on unpublished information, the species attacks living *Cornus* twigs, and is xylomycetophagous. *P. wadai* was found in Taiwan in dead, decayed branches (8-10cm diameter) lying on the ground and together with *S. niisimai* in decayed twigs (2-3cm diameter). The gallery first penetrates radially into the wood, and then forms longitudinal branches running up and down the stem. Either one or two (male and female) parent beetles were found in each gallery system, together with up to five larvae, and some eggs. The tunnel systems were lined with a white, filamentous fungus which imparted a dark discoloration to the walls. Larvae were observed grazing on the fungal hyphae. These observations confirm the xylomycetophagous habit of *P.wadai*, but leave it unclear whether the species normally attacks living branches, or, like *S.niisimai* (Beaver 1984), usually breeds in old and partly decayed material.

Sueus Murayama, 1951

Neohyorrhynchus Schedl, 1962 (synonymised by Wood, 1983)
Parasphaerotrypes Murayama, 1963 (synonymised by Wood, 1992)

The genus *Sueus* was erected by Murayama (1951) for the new species, *S.sphaerotrypoides* Murayama. This species was later shown to be conspecific with *Hyorrhynchus niisimai* (Eggers 1926) by Wood (1983). Schedl (1962) had earlier erected a new genus, *Neohyorrhynchus*, for *H.niisimai*. However, *Sueus* has priority. The genus is characterised by an unequal sex ratio, with females greatly outnumbering males (Wood 1986). The male was described in only a single species, *S.niisimai*. It is much smaller than the female, and although it possesses wings, does not normally leave the gallery system in which it develops and then mates with its female siblings (Beaver 1984). Wood (1986) suggests that the species reproduces by arrhenotokous parthenogenesis, but no studies have been made, and a different breeding system is possible, as is found in the cryphaline genus *Hypothenemus* Westwood (Brun et al. 1995). Murayama (1951) considered that the antennal funicle of *S.niisimai* was five-segmented. He described the antennal club of the male as having two transverse sutures, and that of the female as four-segmented, with three sutures. Examination of antennal preparations of specimens of *S.niisimai* collected in Fiji (Fig. 1) shows that in fact the funicle of the female is six-segmented, the apical segment being partly incorporated into the club, which has, like the male, two sutures and three segments. In other species (see below), the female funicle can be seven-segmented, again with the apical segment partly incorporated into the club. The diagnosis of the genus needs to be expanded to include species in which the female funicle is six- or seven-segmented. It is expected that the undescribed males of other species will have one segment fewer than the females. *S.niisimai* is a twig borer, with a wide range of host trees, and xylomycetophagous. The larvae feed on an ambrosia fungus transported by the female parent, and develop

in the maternal gallery, not in separate larval galleries (Beaver 1984).

TAXONOMY

Hyorrhynchus ebianensis Huang & Yin, 1983

The antenna of this species is shown by Huang and Yin (1983, Figure 2.2) to have six funicle segments, and an antennal club with four segments. The English summary of the paper refers to 'the 4 articled large antennal club'. These characters would place the species outside the range of *Hyorrhynchus*. However, the Chinese description of the species (kindly translated by K.Scott), states that there are seven funicular segments, and that the antennal club consists of three segments, the middle one being the largest and appearing to be divided into two so that the whole club appears to have four segments. Thus the figure and English summary are misleading. The species belongs in *Hyorrhynchus*. It is known only from the male holotype collected in China – Sichuan from *Schima superba* (Theaceae).

Pseudohyorrhynchus blandfordi (Sampson), new combination

Hyorrhynchus blandfordi Sampson, 1913

The male holotype (BMNH) shows the defining characters of *Pseudohyorrhynchus*. The antennal club is solid, and the frons flattened with a central carina. The species was described from the southern slopes of the Himalayas (India – West Bengal), and has also been recorded from China – Xizang (Tibet), where it attacks *Acer* sp. (Aceraceae) and *Prunus* sp. (Rosaceae) (Yin and Huang 1981).

Pseudohyorrhynchus flavopannus (Huang & Yin), new combination

Hyorrhynchus flavopannus Huang & Yin, 1983

We have been unable to examine specimens of this species, but the original description (again translated from the Chinese by K. Scott), and figures leave no doubt that the species belongs in *Pseudohyorrhynchus*. It is related to *P.blandfordi*, but Huang and Yin (1983) give distinguishing characters (in English as well as Chinese). The species was described from China – Sichuan, from *Rhododendron* sp. (Ericaceae).

Sueus obesus (Browne), new combination

Hyorrhynchus obesus Browne, 1977

In the majority of the species of *Hyorrhynchus*, the antennal funicle is clearly distinct from the club (see Fig. 3, and figures in Maiti and Saha, 1989). However, in *Hyorrhynchus obesus* Browne (paratype and other specimens in my collection examined), the apical segment of the funicle is widened and partly incorporated into the club, giving the appearance of a six-segmented funicle. The antennal club is much shorter and less flattened than in other *Hyorrhynchus* species, and more closely resembles that of *Sueus niisimai* (Fig. 1), and *Sueus borneensis* Bright (paratypes, and conspecific specimens from Sulawesi examined). Although Bright (1994) states that the funicle of *S.borneensis* is five-segmented, antennal preparations indicate that there are seven segments, the apical segment partly incorporated into the club (Fig. 2). In addition, no males are known for either of these species, although more than 20 specimens of *S.borneensis* have been found. Only a single female parent was found in galleries of *H.obesus* in twigs of an unidentified host tree (Beaver and Browne 1979). The evidence suggests that the males are likely to be reduced in size and rare, as in *S.niisimai*. This combination of morphological and biological characters indicates

that *H.obesus* should be transferred to the genus *Sueus*. The species is known only from the original collection in West Malaysia, and a single specimen from the South of Thailand (Beaver 1999).

NEW RECORDS

The following records extend the known distribution of the species.

Hyorrhynchus lewisi Blandford, 1894

Locality: BRUNEI: E 115º 7', N 4º 34', Kuala Belalong FSC, Dipterocarp forest, 270m, Aerial FIT, 4.vii.1991 (N.Mawdsley) (1 female).

This species was previously recorded from Japan, Indonesia (Java), and Taiwan. Recorded hosts include five species from five different plant families (Wood and Bright, 1992).

Hyorrhynchus birmanus Eggers, 1939

Locality: THAILAND: [Mae Hong Son], Soppong, 19.27N, 98.20E, 1550m, 10.-13. v.1993 (Vít Kubáň) (1 female).

The species was described from Myanmar (Burma). It is probable that *Hyorrhynchus tuberopectus* Huang and Yin, 1983, described from China – Sichuan is a synonym of this species, but we have been unable to borrow the female holotype for comparison. It is the largest known species of *Hyorrhynchus* with a body length of 6 – 8 mm.

Hyorrhynchus unicornis Nobuchi, 1966

Locality: TAIWAN: Alishan, 2000m, 19.v.2000 (H.Gebhardt) (1 male, 1 female).

This is apparently only the second record of this species, originally described from Japan.

Pseudohyorrhynchus wadai Murayama, 1950

Locality: TAIWAN: Taipei, Yangmingshan, c.400m, 16.v.2000 (2 males,1 female); Yangmingshan, Tatunshan, 500-650m, 1.v.2002 (H.Gebhardt) (1 male, 1 female); Yangmingshan, Chihsingshan, c.400m, 2.v.2002 (H.Gebhardt) (2 males, 6 females).

The species was previously known only from Japan, from *Cornus controversa* (Cornaceae).

Sueus niisimai (Eggers), 1926

Locality: AUSTRALIA: N. Queensland, Malanda Falls, 750m, 9.xii.1989 (Monteith, Thompson and Janetzki) (1 female); Queensland, Kuranda, Baron Gorge, 400m, 26.i.2000 (Jordal and Sequeira) (3 females).

TAIWAN: Taipei, Yangmingshan, 400m, 16.v.2000 (H. Gebhardt) (2 females).

The geographical range of this species is from Sri Lanka to Fiji. It is a polyphagous species (Beaver, 1984).

Sueus borneensis Bright, 1994

Locality: INDONESIA: Sulawesi Utara, Dumoga-Bone N.P., lowland forest, 200 – 300m, ii-v, xi.1985 (8 females).

This is the second record of this species, described from East Malaysia – Sabah. No host trees are known.

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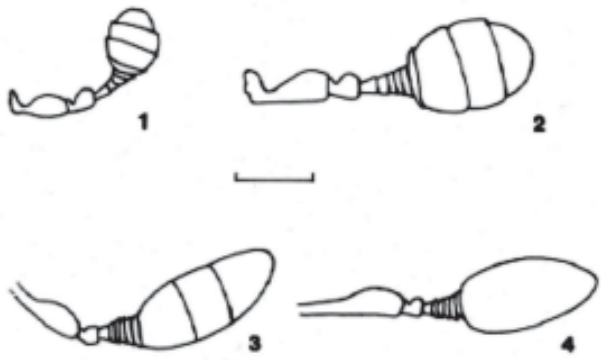

Figs. 1-4 Antennae (setae omitted). 1, *Sueus niisimai*; 2, *Sueus borneensis*; 3, *Hyorrhynchus unicornis*; 4, *Pseudohyorrhynchus wadai*. Scale line = 0.13 mm (Figs. 1-2); 0.2 mm (Figs. 3-4).