



Revision of the types of male Sciaridae (Diptera) described from Australia by F.A.A. Skuse

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Table of contents

Abstract	402
Introduction	402
Materials and methods	407
Results	408
Descriptions of species	408
Genus <i>Austrosciara</i> Schmitz & Mjöberg, 1924	408
<i>Austrosciara infrequens</i> (Skuse, 1888) comb. n.	410
<i>Austrosciara montivaga</i> (Skuse, 1888) comb. n.	410
<i>Austrosciara spectabilis</i> (Skuse, 1888) comb. n.	413
<i>Austrosciara winnertzi</i> (Skuse, 1888) comb. n.	413
Genus <i>Bradysia</i> Winnertz, 1867	416
<i>Bradysia amabilis</i> (Skuse, 1888) comb. n.	416
<i>Bradysia conjuncta</i> (Skuse, 1890) comb. n.	416
<i>Bradysia crassicornis</i> (Skuse, 1890) comb. n.	419
<i>Bradysia exsequialis</i> (Skuse, 1890) comb. n.	421
<i>Bradysia frequens</i> (Skuse, 1888) comb. n.	421
<i>Bradysia froggatti</i> (Skuse, 1888) comb. n.	424
<i>Bradysia luctifica</i> (Skuse, 1888) comb. n.	424
<i>Bradysia maesta</i> (Skuse, 1888) comb. n.	427
<i>Bradysia mastersi</i> (Skuse, 1888) comb. n.	429
<i>Bradysia ornata</i> (Skuse, 1888) comb. n.	429
<i>Bradysia pernitida</i> (Skuse, 1888) comb. n.	432
<i>Bradysia pictipes</i> (Skuse, 1888) comb. n.	432
<i>Bradysia unica</i> (Skuse, 1888) comb. n.	435
Genus <i>Corynoptera</i> Winnertz, 1867	436
<i>Corynoptera minutela</i> (Skuse, 1888) comb. n.	437
Genus <i>Pseudolycoriella</i> Menzel & Mohrig, 1998	437
<i>Pseudolycoriella cavatica</i> (Skuse, 1888) comb. n.	437
<i>Pseudolycoriella ignobilis</i> (Skuse, 1888) comb. n.	441
Genus <i>Pseudozygoma</i> Mohrig, 2004	442
<i>Pseudozygoma maculipennis</i> (Skuse, 1890) comb. n.	442
Genus <i>Sciara</i> Meigen, 1803	444
<i>Sciara tryoni</i> Skuse, 1890	444
Genus <i>Scythropochroa</i> Enderlein, 1911	446
<i>Scythropochroa macleayi</i> (Skuse, 1888) comb. n.	446
Species list	447
Acknowledgements	449
References	449

Abstract

A total of 27 male sciarid types described by Skuse (1888 and 1890), held in the Australian National Insect Collection, Canberra, and the Australian Museum, Sydney, were remounted and examined microscopically. Of these, 25 species were described as *Sciara* Meigen, one as *Zygoneura* Meigen and one as *Trichosia* Winnertz. Revision of these species revealed the following: 13 species belong to the genus *Bradysia* Winnertz (*B. amabilis*, *B. conjuncta*, *B. crassicornis*, *B. exsequialis*, *B. frequens*, *B. froggatti*, *B. luctifica*, *B. maesta*, *B. mastersi*, *B. ornatula*, *B. pernitida*, *B. pictipes*, *B. unica*), 1 species to the genus *Corynoptera* Winnertz (*C. minutela*), 4 species to the genus *Austrosciara* Schmitz & Mjöberg (*Aus. infrequens*, *Aus. montivaga*, *Aus. spectabilis*, *Aus. winnertzi*), 2 species to the genus *Pseudolykoriella* Menzel & Mohrig (*Psl. cavatica*, *Psl. ignobilis*), 1 species to the genus *Pseudozygomma* Mohrig (*Pseudoz. maculipennis*), 1 species to the genus *Sciara* Meigen (*Sc. tryoni*), and 1 species to the genus *Scythropochroa* Enderlein (*Scyth. macleayi*). In total 26 species were new combinations. Eight species names were declared as new synonyms: *Bradysia pictipes* (Skuse, 1888) = *Sciara notata* Skuse, 1888 **syn. n.** and = *Bradysia seticornis* Vilkamaa, Hippa & Mohrig, 2012 (from New Caledonia) **syn. n.**; *Bradysia conjuncta* (Skuse, 1890) = *Sciara serenipennis* Skuse, 1890 **syn. n.**; *Pseudolykoriella cavatica* (Skuse, 1888) = *Sciara familiaris* Skuse, 1888 **syn. n.** and = *Sciara festiva* Skuse, 1888 **syn. n.**; *Bradysia luctifica* (Skuse, 1888) = *Bradysia planistylata* Vilkamaa, Hippa & Mohrig, 2012 **syn. n.**; *Sciara tryoni* Skuse, 1890 = *Sciara insulana* Vilkamaa, Hippa & Mohrig, 2015 **syn. n.** (both species are from New Caledonia); *Austrosciara winnertzi* (Skuse, 1888) = *Sciara rufulenta* Edwards, 1927 **syn. n.** (from New Zealand). Lectotype specimens were designated for 17 species in order to fix the names.

Key words: *Austrosciara*, *Bradysia*, *Corynoptera*, *Pseudolykoriella*, *Pseudozygomma*, *Sciara*, *Scythropochroa*, Australia, biogeography, China, New Caledonia, new synonyms, new combinations, New Zealand, Papua New Guinea, taxonomy

Introduction

Sciaridae of Australia. The Sciaridae of Australia, commonly known as dark-winged fungus gnats, have received little attention from entomologists compared with most other groups of nematoceran flies (e.g. Culicidae, Ceratopogonidae), except perhaps for a few pest species that attack cultivated mushrooms and plants (e.g. see Loudon 1978; Clift 1979; Loudon 1980; Clift & Larsson 1984; Greenslade & Clift 2004). Adult sciarids are small dark flies of uniform appearance that typically inhabit damp shady areas near the soil surface, and larvae of the majority of species are primary decomposers of decaying plant material. In forest habitats they are one of the most abundant families of Diptera (Bickel 2009), yet the Australian fauna remains virtually unknown.

The last major taxonomic work on the Australian Sciaridae was completed by Frederick Skuse nearly 130 years ago. Two of his *Diptera of Australia* publications contain detailed descriptions of a total of 59 sciarid species, based on material that was mostly collected from New South Wales (Skuse 1888; 1890). Skuse followed the classification system of the German entomologist Johannes Winnertz and separated species based on characters such as differences in wing venation, colouration, and comparative lengths of antennal and tarsal segments. He placed 57 species in the genus *Sciara*; one in *Trichosia* and one in *Zygoneura*. Skuse aptly noted in the opening to his 1888 monograph: “this contribution, like its predecessor, in no way pretends to be more than an introductory review of the group; but in making immediate use of such material as has been collected, however inadequately that may represent the actual extent of the Australian Sciaridae, this beginning may at least furnish a basis for future advancement.” After Skuse’s taxonomic studies just one species, *Austrosciara termitophila* Schmitz & Mjöberg (1924), was described from the Australian mainland. This was a wing reduced female, collected from galleries of the dampwood termite *Glyptotermes brevicornis* Froggatt (= *trilineatus* Mjöberg) in Cedar Creek near Ravenshoe, Queensland (Schmitz & Mjöberg 1924).

Belgian entomologist André Tonnoir (1929) published a synopsis of the Australian Sciarinae (the family was then regarded as a subfamily of the Mycetophilidae). Tonnoir had intended to revise the Skuse types in collaboration with E.W. Ferguson, but Ferguson’s untimely death cut the project short. He published a key to Australian and New Zealand genera and reported: “I am very much indebted to Dr A.J. Nicholson for the loan of a good series of Skuse’s paratypes from the Macleay Museum. These have been most helpful in settling many points of generic importance, but I do not think that in all cases one could rely on them to get a definite idea of Skuse’s species, as in many more or less obscure forms a confusion of species is certain to have occurred, the more so because Skuse did not make any detailed study of the genitalia” (Tonnoir 1929). Indeed, sciarid taxonomy now makes use of morphological differences in the male genitalia to separate species, as proposed in a modern sense by

Johannsen (1912) and Pettey (1918) for North America, followed by Frey (1942; 1948) and Tuomikoski (1960) for the Palaearctic region.

Our knowledge of the Australian Sciaridae has progressed little since Skuse's time, the main impediment being the lack of a modern revision and redescription of his types. Here we present a short biography on Frederick Skuse together with a revision of his male types, in the hope that the latter will serve as a foundation for a comprehensive future study of Australian Sciaridae. The remaining 32 of the 59 species that Skuse described were based on female type specimens alone. We aim to review and redescribe the female types at a later stage, although this will be of limited use because female sciarids cannot often be classified at the species level using traditional morphology-based taxonomy.



FIGURE 1. Portrait photograph of Frederick Skuse, Australian Museum, dated December 1890. Image courtesy of the State Library of New South Wales.

Frederick Skuse—a biography. Frederick (né Frederic) Arthur Askew (F.A.A.) Skuse (Fig. 1) was born on the 3rd of February 1866 in Poplar, East London, England. From 1882 onwards, during his teenage years, Skuse regularly placed ads in the 'Wanted' and 'Exchanges' sections of the monthly science magazine *Hardwicke's Science-Gossip*, where he sought to correspond with others and trade natural history specimens and supplies. His enthusiasm and aptitude for the subject must have been noticed early on as he soon became a student in the British Museum of Natural History (Alexander 1932). During this time, in 1886, at the age of just 19 or 20, he wrote an

illustrated book on British stalk-eyed crustaceans and spiders, published as part of the then-popular *The Young Collector* series (Skuse 1887). According to Walter Froggatt in a letter written to Alexander (1932), whilst at the Museum Skuse was unable to secure a position with the entomologist Charles Waterhouse, so he approached Sir Daniel Cooper, the Agent-General in London for New South Wales. Sir Daniel advised him to try Australia where there could be opportunities for zoologists (Alexander 1932). According to ship passenger records, Skuse arrived in Sydney on the 22nd of February 1887 as a 2nd class saloon passenger on the R.M.S. "Orient" (Warner 2011).

Soon after arriving in Sydney, Skuse was engaged by the Board of Technical Education to give a series of popular lectures on economic natural history, on a range of diverse topics including "Cattle as Producers of Food, Hides", "The Deer and Antelope Tribes", "Fur-bearing Animals", "The Horse and Thick-skinned Animals", and "Fish and their Products". According to Froggatt, Skuse was introduced to the Hon. William Macleay, "a wealthy landowner and founder of the Linnean Society of New South Wales (Alexander 1932). Macleay was a wonderful man and the leading amateur scientific worker in Australia. He helped everybody who wanted to work at Science and kept open house for all visiting scientists." On Froggatt's return from a trip to London in early 1889 "I found Skuse installed in the Macleay Museum, working up the Diptera. This was a very fine collection, built up at Macleay's expense, who also sent Skuse on collecting trips (e.g. see Fig. 2) round the country for fresh material."



FIGURE 2. Frederick Skuse, pictured here standing second from left, during an excursion by members of the Linnean Society of N.S.W. to the Nepean River, dated 29 September 1888. Sir William Macleay is sitting on the far right. Photograph (cropped) by Henry King, Sydney. Image courtesy of the State Library of New South Wales.

"Skuse and I worked side by side in the old Museum, with Macleay in one corner describing beetles up till 12 o'clock every day. Skuse and I spent all Saturday's and holidays collecting and wandering through the wonderful Hawkesbury sandstone scrub. He was the son of a Church of England parson, he told me . . . A very well educated, handsome, charming young fellow. He was a great worker all the time he was with us in the Macleay Museum, where all his good work was done, and he had a free hand from Macleay to work as he liked. He was there three years" (Alexander 1932).

Skuse was a prolific author and his works were generally well received by his colleagues. During his short career in Australia he authored at least 32 publications (Daniels 2004), describing 378 species and more than 30 new genera across most of the major nematoceros families including Tipulidae, Cecidomyiidae, Mycetophilidae, Sciaridae, Chironomidae, Ceratopogonidae and Culicidae (Bickel 1991). Shortly after the publication of Skuse's *Diptera of Australia* series the President of the Linnean Society of New South Wales noted that Skuse had

produced “five original, comprehensive, and elaborate monographs upon Australian Diptera” (Stephens 1889). Skuse’s time at the Macleay Museum was cut short when Sir William became ill (Stacey & Hay 2007) and when according to Froggatt another young English entomologist, A.S. Olliff, “was promoted from the Australian Museum to the newly-created Department of Agriculture, Skuse applied for the position of Entomologist to the Australian Museum, to which he was appointed in September, 1890” (Alexander 1932). It was shortly after this that things began to unravel for Skuse. Froggatt reported that Skuse got into bad company at the Museum and “did practically no work of any great value” (Alexander 1932). It is not clear, however, from the information available what the reason was for his reduced work output at the Museum. We do know that Skuse’s health was declining and he reputedly suffered from alcoholism (Waite 1896; Bickel 1991). Furthermore, Skuse became bankrupt on 30 May 1893 and the Museum threatened to dispense with his services (Strahan 1979). The reasons for the insolvency are not clear either. Strahan (1979) states that it was ill health that led to Skuse’s insolvency while minutes taken by the Museum Trust at a meeting on 21 August 1893 show that his financial problems were rather due to having to support his brother who had arrived from England and could not find employment (Bickel pers. comm.). Whatever the reason was, Skuse was eventually “able to settle all his debts to the recorded satisfaction of the trustees” (Strahan 1979).

Skuse was subjected to ridicule when his insolvency became publicly known, illustrated by the Local and General News section of *The Manaro Mercury, and Cooma and Bombala Advertiser* dated 17 June 1893: FREDERICK ARTHUR ASKEW SKUSE, zoologist, has gone bung in Sydney. Is the latter portion of his name a pun on “S’ Excuse, S’ Accuse?”

Skuse died in Sydney from ‘Bright’s Disease’ (chronic kidney disease) on the 10th of June 1896, aged 30, and was buried two days later at Waverley Cemetery. He had married Caroline Norris the year before. According to Froggatt, “I believe there was a son born after his death, but Mrs Skuse married again, and I never met her.”

Bickel (1991) summed it up nicely when he said, “Skuse has been one of the more maligned Australian entomologists, mainly because he died an alcoholic and debtor. This has been held against him, a hangover from an era when “respectability” was all important. Yet Skuse was “one of Australia’s most productive taxonomists, and his output up to his early death was far greater than most entomologists produce in a full professional career” (Bickel 1991).

Alexander (1932) who was himself a world authority on the Tipulidae remarked “One cannot feel but the deepest sorrow and keen regret for the various occurrences that led to the early demise of this highly capable student. From a critical line-by-line study of all of Skuse’s publications on the Australian Tipulidae, I would consider him to be one of the most intelligent worker’s on this group of flies, the equal of Osten-Sacken and Bergroth and the inferior of no one.”

Skuse was an early pioneer on mosquitoes, with 14 of the 19 that he described still regarded as valid today. “His own descriptions are models of careful and accurate observation and mark the beginning of the modern style of detailed description” (Lee *et al.* 1980). Some of his descriptions are of insects that are well known today such as the Asian tiger mosquito *Aedes albopictus* (Skuse) and the New Zealand glowworm *Arachnocampa luminosa* (Skuse). Bickel (1991) considered Skuse one of the most competent of the early Australian entomologists. “He was far ahead of his time and aware of the important German literature. He examined generic limits and provided detailed descriptions, noting critical characters.” According to Pape and Thompson (2013) 34 taxa have been named in honour of Frederick Skuse to date, from across the Bibionidae, Cecidomyiidae, Ceratopogonidae, Chironomidae, Culicidae, Limoniidae, Mycetophilidae, Tachinidae and Tipulidae. As well, the present authors recently described a new species of Sciaridae (*Pseudolycoriella skusei*) in honour of Skuse and his legacy (Mohrig *et al.* 2016a).

The Skuse types. Skuse was an avid and careful collector, often embarking on trips with George Masters (Curator of the Macleay Museum) around the Sydney area, with many of the species described in his 1888 monograph obtained while searching for Cecidomyiidae (Skuse 1888). The remaining specimens that he described were collected by others. According to Froggatt (1909) “When Skuse was collecting he always carried a pocket box containing pinned card slips of varying lengths, and a tube of gum, and, after killing the insects in a chloroform tube, he mounted them at once while they were flexible and the legs not detached.” Skuse stated in an article entitled ‘Collecting Excursion’ (*The Sydney Mail and New South Wales Advertiser*, 23 February 1889) that he preferred to use a 50/50 mixture of gum Arabic and gum tragacanth.

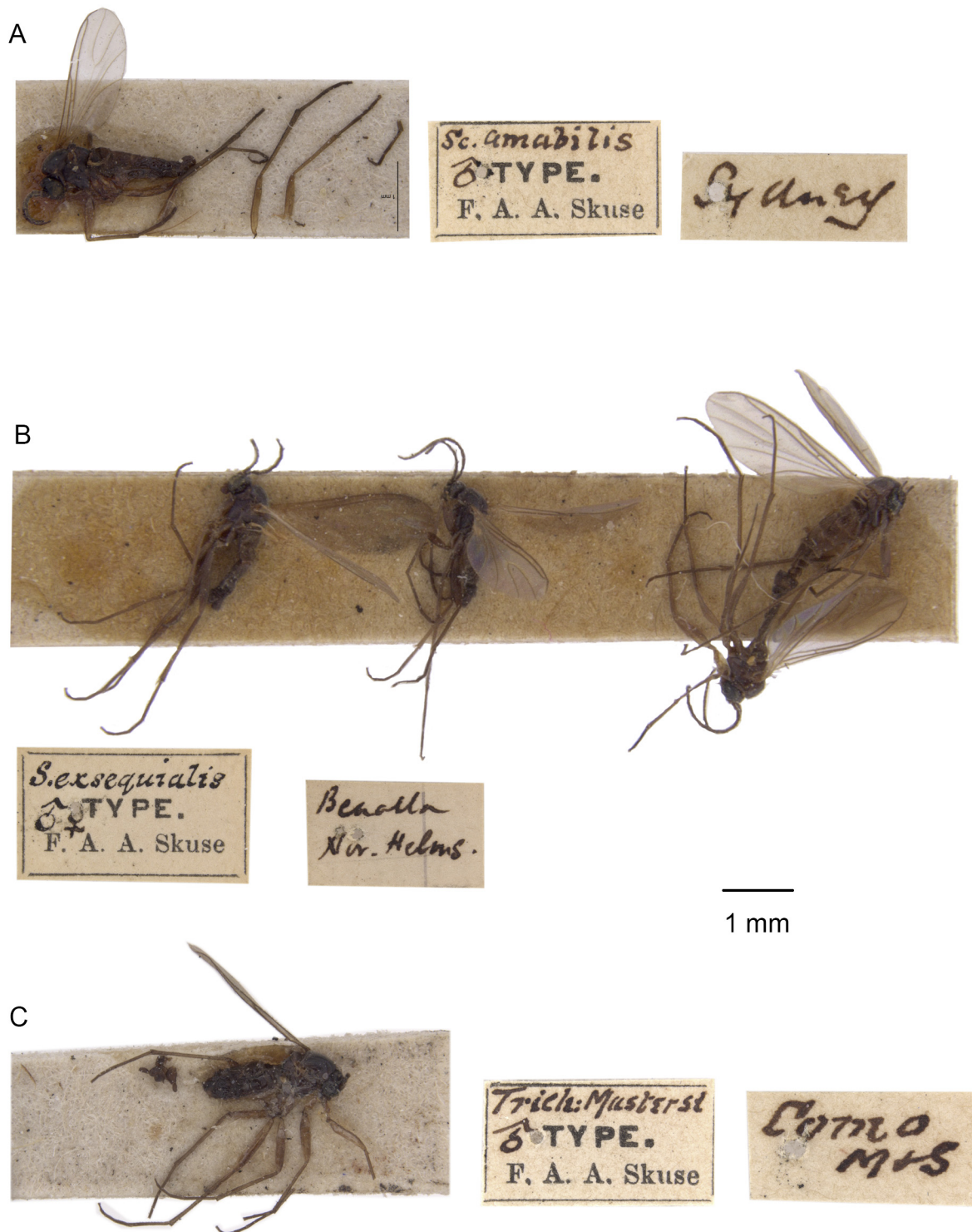


FIGURE 3. Images showing some of the Skuse types on cards. The scale bar refers to the specimens only. a): *Sciara amabilis*, showing legs that had been glued separately; b): four *S. exsequialis* specimens comprising three males, and a female that had been carded in copula with one of the males; c): the type specimen of *Trichosia mastersi*. Note the hypopygium is detached and glued separately to the card.

In his book *Australian Insects* (1909) Walter Froggatt noted that the Skuse types were held in the Macleay Museum and “in a fine state of preservation.” Twenty years later, Tonnoir (1929) reported that “the types of the species described in the first paper by Skuse are in the Macleay Museum, Sydney, and those described in the supplements are in the Australian Museum, Sydney, both series being in excellent condition.” Over the following decades the Macleay Museum Collection fell into neglect, however, and in 1969 a transfer, on permanent loan, was initiated for all the recognised types held to the Australian National Insect Collection (ANIC) in Canberra (Britton & Stanbury 1981). By 1977, 9463 type specimens had been transferred (Evenhuis & Greathead 1999).

Taking the age of the specimens into account, an initial examination of the types for this study showed that many of the specimens were in relatively good condition with wings and antennae still intact (Fig. 3b). However, many of the remainder were damaged, with detached body parts that had subsequently been reglued to the cards (Fig. 3a, c). Body parts of a few specimens were missing entirely.

Materials and methods

Sample treatment. High resolution digital images were taken of the type specimens and original labels and a new label with a unique identifier number was attached to each pin. Each type specimen was allocated a specific number e.g. *Sciara exsequialis*—018. Where more than one specimen was attached to a card, each specimen was allocated a unique suffix identifier as well e.g. 018-1, 018-2.

To enable proper examination and redescription the types needed to be soaked off their cards, cleared, and mounted in Canada balsam on microscope slides. Attempts were made to extract DNA prior to slide mounting. To reduce the risk of contamination, sterile techniques (e.g. using and regularly changing gloves, flaming of razor blades) were used during the preparation stages prior to attempting DNA extraction.

Wings that could be removed easily and were not stuck to the card with adhesive were detached from the body and transferred to a labelled cavity block containing distilled water and a drop of detergent. The cavity block was heated in an incubator at 50° C for 2 h to allow the wings to soften. Wings were then transferred to a labelled 1.5 ml Eppendorf tube containing 70% ethanol.

Original specimen labels were removed from each pin and transferred to a dry labelled Eppendorf tube. Using forceps, the card with the specimen/s attached was pushed down to the bottom of the pin. A micro pin was then pushed through the card close to the body of the specimen into a block of pinning foam beneath. The main pin was carefully extracted and discarded. Where there was excess card it was trimmed off using a razor blade. If there were multiple specimens on one card, these were separated by cutting the card between each specimen if it was possible to do so without causing damage. Parts of the card with detached body parts glued separately to it (e.g. legs, antennae) were excised where possible and these pieces of card were micro-pinned into separate dry labelled tubes. These tubes were filled with distilled water and left overnight to help the specimens disassociate from the card. Two of the *Sciara exsequialis* specimens (018-3 and 018-4) that had been glued to the card in copula needed to be soaked in distilled water to separate them from each other and from the card. Once they were detached they were carefully transferred to separate sterile 1.5 ml Eppendorf tubes pending DNA extraction.

Using forceps, each of the remaining specimens that consisted of a carded body was attached to the lid of a sterile dry 1.5 ml labelled Eppendorf tube by pushing the micro pin through the lid from the inside. The lid was then closed so the carded body was inverted inside the lid. A sterile pipette tip was used to transfer 500 µl of buffer to each tube (using a Qiagen Micro-kit) and the tube was inverted so the specimen was immersed in the buffer. The tube was then placed on a shaker/incubator. The following day the specimens were found to have disassociated from the adhesive and card and were floating freely in the buffer. The micro-pin and card was removed from the tube and the specimen was gently “massaged” in the buffer against the side of the tube with a pipette tip, to help extract as much DNA as possible. Taking care not to accidentally remove any body parts, the buffer solution was extracted from the tube using a sterile pipette. Distilled water was added to the tube for at least 10 min to rinse the specimen. The water was exchanged with fresh distilled water and left for a further 10 min, then it was replaced with 50% ethanol and left to sit for at least 30 min. The 50% ethanol was extracted and the tube was completely filled with 70% ethanol. The tubes were then capped pending slide mounting.

Slide mounting procedure. The slide mounting procedure was undertaken under the control of a dissecting microscope in a fume hood. The body of each specimen and parts were transferred to a glass cavity block, then the 70% ethanol was replaced with 96% ethanol using a pipette and left to sit for 1 h at room temperature. If any wings

were still attached to the body they were detached at this stage. The ethanol was then carefully extracted and replaced with beech wood creosote using a separate pipette and left for at least 30 min. The body was transferred to the middle of a microscope slide using a needle and the hypopygium was separated from the body using a fine blade. A small drop of Canada balsam ca. 3 mm in diameter was placed on one side of the slide and the hypopygium was immersed in this droplet, positioned ventral side up and a 6 mm cover slip carefully lowered over it. The body was positioned laterally in the middle of the slide with a needle so that the head, antennae, palps and legs were visible, then it was immersed in a larger drop of Canada balsam ca. 5 mm in diameter. A cover slip 10 mm in diameter was lowered on top. Each wing was positioned in its own small droplet of Canada balsam on one side of the slide under 6 mm coverslips. Any other body parts (e.g. legs) that had been separately glued to the card were immersed in a small drop of Canada balsam under a separate 6 mm coverslip. The slide was then affixed with a temporary label and put in an incubator set at 50° C for at least 5 weeks.

Digital imaging and illustrations. Illustrations with respective size measurements were created using digital images taken with a Keyence VHX-2000 digital microscope and stacking software. Photographs were modified using Adobe Photoshop software. Prints were then enhanced by hand drawing over the photos to reveal features that may ordinarily have been missed using photos alone. After final scanning coupled with touch-ups using Photoshop, images were finalized for publication.

Descriptions of species. Species descriptions by Skuse are very detailed and represent the high level of morphological characterizations of Diptera at his time. Here we complete his descriptions through additional characteristics recognizable at the microscopic level.

However Skuse did not designate types in accordance with modern rules. Sometimes more than one specimen was labelled as the type. Therefore we use the term holotype exclusively in the case where there was just one specimen and it bore a type label. The terms lectotypes or paralectotypes are used to designate specimens in cases where there was more than one specimen labelled as the type and/or there were a number of additional possible syntypes.

Terminology. Terminology used herein follows Menzel & Mohrig (1997), Menzel & Mohrig (2000) and Mohrig *et al.* (2013). Important morphological details are displayed in Figure 4.

Deposition of types. Holotypes and lectotypes will be deposited in the Australian National Insect Collection (ANIC), CSIRO, Canberra, and in the Australian Museum (AM), Sydney. Paralectotypes will either be deposited in the ANIC or in the Private Collection of Werner Mohrig, Puddemin, Germany (PWMP).

Abbreviations: *Aus.* = *Austrosciara*; *B.* = *Bradysia*; *C.* = *Corynoptera*; *PsI.* = *Pseudolykoriella*; *Pseudoz.* = *Pseudozygoma*; *S.* = *Sciara*; *Scyth.* = *Scythropochroa*; l/w index = length: width of the 4th flagellomere; x = basal part of Media (bM); y = Radius/Media sector (r-m); c/w = Costa/to the length of the distance between R₅ and M₁.

Results

DNA extraction. The attempt to extract DNA was generally unsuccessful as would be expected for such old samples. Only one of the type specimens produced a measurable amount of DNA; however the DNA was highly degraded with fragments of about 60 bp at a concentration of 0.5 ng/μl (A. Zwick, pers. comm.).

Descriptions of species

Genus *Austrosciara* Schmitz & Mjöberg, 1924

Type species: *Austrosciara termitophila* Schmitz & Mjöberg, 1924.

Literature: Schmitz & Mjöberg (1924): 1–3, Fig. 1; Mohrig & Jaschhof (1999, as *Ctenosciara*); Vilkamaa *et al.* (2012b, as *Ctenosciara*); Mohrig (2013, as *Ctenosciara*).

Remarks. The genus was described on the basis of 5 females with strongly reduced wings and halteres, collected from galleries of the termite *Glyptotermes brevicornis* Froggatt (= *trilineatus* Mjöberg) in Cedar Creek, Queensland. We have studied males and females of three species of wing reduced (brachypterous) sciarids from New South Wales. One of these species is identical to *Aus. termitophila* Schmitz & Mjöberg however it belongs to the genus *Ctenosciara* Tuomikoski, 1960. *Ctenosciara* therefore is to be considered a junior synonym of *Austrosciara* Schmitz & Mjöberg (Mohrig *et al.* 2016b).

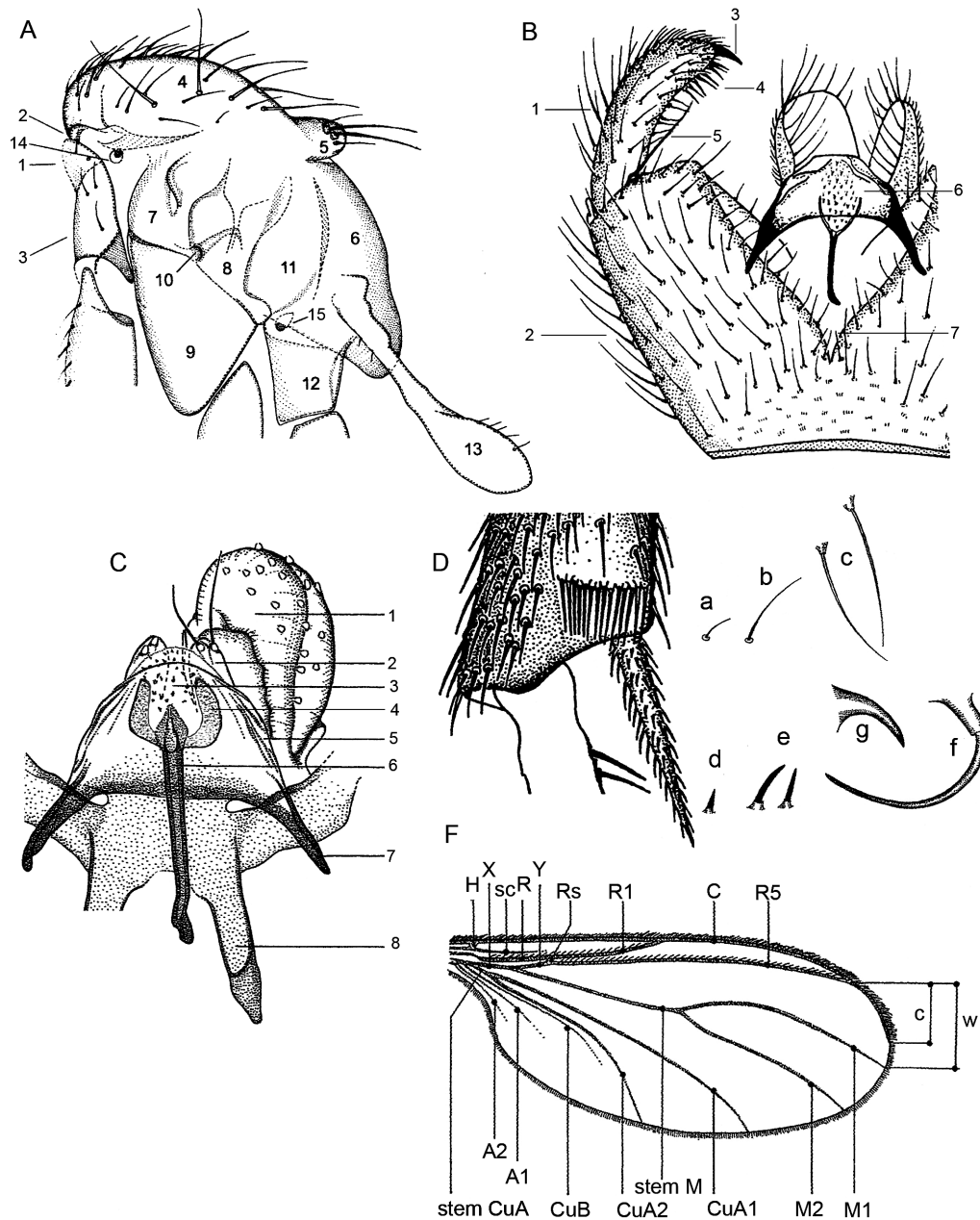


FIGURE 4. Generalized morphological structures of Sciaridae. **A. Thorax** (after Hippa *et al.* 2010). 1=anteprepronotum; 2=postpronotum; 3=prothoracic episternum; 4=mesonotum (scutum); 5=scutellum; 6=mediotergite; 7=anterior anepisternum; 8=mesothoracic epimeron; 9= katepisternum; 10=pleural pit; 11=laterotergite; 12=metathoracic episternum; 13=haltere; 14=anterior spiracle; 15=posterior spiracle. **B. Hypopygium** ventral side (left half, after Menzel & Mohrig, 2000), 1=gonostylus; 2=gonocoxite; 3=apical tooth; 4=apical/subapical spines; 5=megaseta on ventral apex of gonocoxite; 6=tegmen; 7= ventral base of hypopygium (intergonocoxal space, v-shaped in this case) **C. Basal hypopygial structures** (Jaschhof, personal drawing). 1=cercus; 2=hypoproct; 3=aedeagal teeth; 4=furca; 5=tegmen; 6=ejaculatory apodeme (aedeagus); 7=ventral parameral apodeme; 8=dorsal parameral apodeme. **D. Apex of fore tibia** (with comb-like row of bristles as in *Bradysia* species, tibial organ). **E. Hairs, spines and tooth** a=hair, b=bristle, c=whiplash hair, d=awl like spine, e= spines (dark or hyaline), f=large curved spine, g=tooth (spines always inserting on a basal protuberance; tooth without basal protuberances); (Mohrig *et al.* 2013). **F. Wing** A1/A2=first and second branches of anal vein, C=costal vein; c=distance between apex of vein R_{4+5} (R5) and the end of vein C; CuA1/CuA2 first and second branches of anterior branch of cubital vein; CuB=posterior branch of cubital vein; H=humeral cross vein; M1/M2= branches of medial vein (M-fork); R= radial vein (radius); R1=anterior branch of radius; R5=radial vein of; y=r-m; Rs=radial sector; Sc=subcosta; W=distance between apex of vein R5 to apex of vein M1; X=base of vein M (bM); (Mohrig *et al.* 2013).

***Austrosciara infrequens* (Skuse, 1888) comb. n.**
(Fig. 5 A–B)

Sciara infrequens Skuse, 1888 [Skuse (1888): 719–720].

Type locality. Australia, New South Wales, Sydney, Elizabeth Bay.

Holotype. Male. Original label data verbatim ‘*Sc. infrequens*/ ♂ (ink) TYPE./ F. A. A. Skuse (print)’, ‘Sydney/S’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 028).

Remarks. In the original description Skuse noted “*Hab.*—Elizabeth Bay (Skuse). January.”

Preservation. Head missing, scutum damaged, other morphological details in good condition.

Additional description. Male. **Head.** Missing. **Thorax.** Brown, prescutellar and few lateral bristles strong and dark; scutellum with 4 longer marginal bristles; postpronotum bare. Wing pale; $R_1 = 2/3 R$; R_5 with dorsal macrotrichia only; y nearly = x , without macrotrichia; M-stem weak, without macrotrichia; M-fork weak, without macrotrichia, M-branches distally with macrotrichia and CuA_1 with macrotrichia in the distal third. Haltere short, brownish. Legs yellowish; apex of fore tibia with a broad comb of hyaline bristles; spurs of middle and hind tibia equal in size, longer than width of apex of tibia; claws without teeth. **Abdomen.** With rather long, sparse brownish hairs. Hypopygium ventrally with a broad open base, without lobe or bristle patch; gonocoxites with short and sparse hairs on inner ventral margin; gonostylus with short apical tooth and 5–6 slightly longer spines in the apical half (sometimes arranged in pairs), one smaller spine above the tooth; tegmen longer than wide; aedeagus short. Body length: 2.0 mm.

Comments. This species is characterized by macrotrichia on posterior wing veins (branches of M-fork and CuA_1), yellowish legs with a broad comb of hyaline spines on the apex of fore tibia; elongated gonostylus with an apical tooth and longer spines within bristles of the same size in the apical half.

Distribution. Australia (New South Wales).

***Austrosciara montivaga* (Skuse, 1888) comb. n.**
(Fig. 6 A–E)

Sciara montivaga Skuse, 1888 [Skuse (1888): 710–711].

Type locality. Australia, New South Wales, Berowra.

Lectotype (here designated): Male. Slide bears original label data verbatim ‘*Sc. montivagal*/ ♂ (ink) TYPE./ F. A. A. Skuse (print)’, ‘Berowra (M+S)’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 036-1).

Paralectotypes. 2 males (not studied).

Remarks. Originally described by Skuse as “*Hab.*—Glenbrook (Masters); Berowra and Knapsack Gully (Masters and Skuse). August to November.”

Preservation. Gonostylus strongly deformed, other structures in rather good condition.

Additional description. Male. **Head.** Dark brown. Eye bridge 3 facets wide; flagellomeres brown, necks short, brownish, slightly bicoloured; 4th flagellomere with l/w index of 2.2, and hairs shorter than width of basal node; palpus 3-segmented, whitish, basal segment without sensory pit, with 2–3 bristles; 3rd segment long and thin. **Thorax.** Brownish, prescutellar and a few lateral bristles long and dark; scutellum with 4 long marginal bristles; postpronotum bare. Wing pale; $R_1 = 3/4 R$; R_5 throughout with macrotrichia dorsally and ventrally; $y = x$, with macrotrichia; C somewhat longer than $1/2 w$; M-stem and base of M_1 weakly visible; posterior veins without macrotrichia. Haltere short, whitish. Coxae and legs yellowish; apex of fore tibia with a broad comb of hyaline bristles, 1–2 bristles separate from comb; spurs of middle and hind tibia equal in size, longer than width of tibia apex; claws without teeth. **Abdomen.** Brownish; with rather long sparse hairs. Hypopygium with v-shaped ventral base, without lobe or bristle patch; gonocoxites with short and sparse hairs at the inner ventral margin; gonostylus with apical tooth and 5 somewhat longer spines in the apical third of the inner side (the basal ones being longer) within bristles of about the same length; tegmen as long as broad, apically straight, with fine teeth and with a weak ventral parameral apodeme. Body length: 2.8 mm.

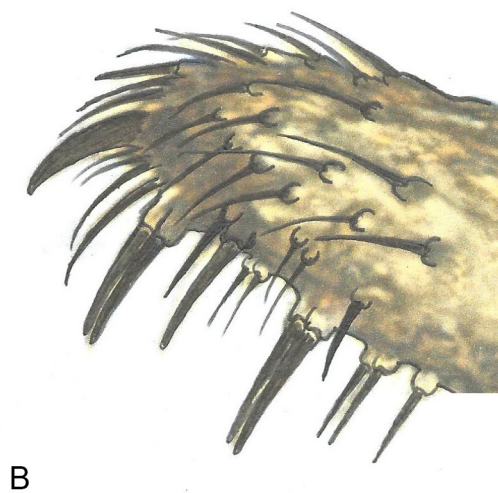
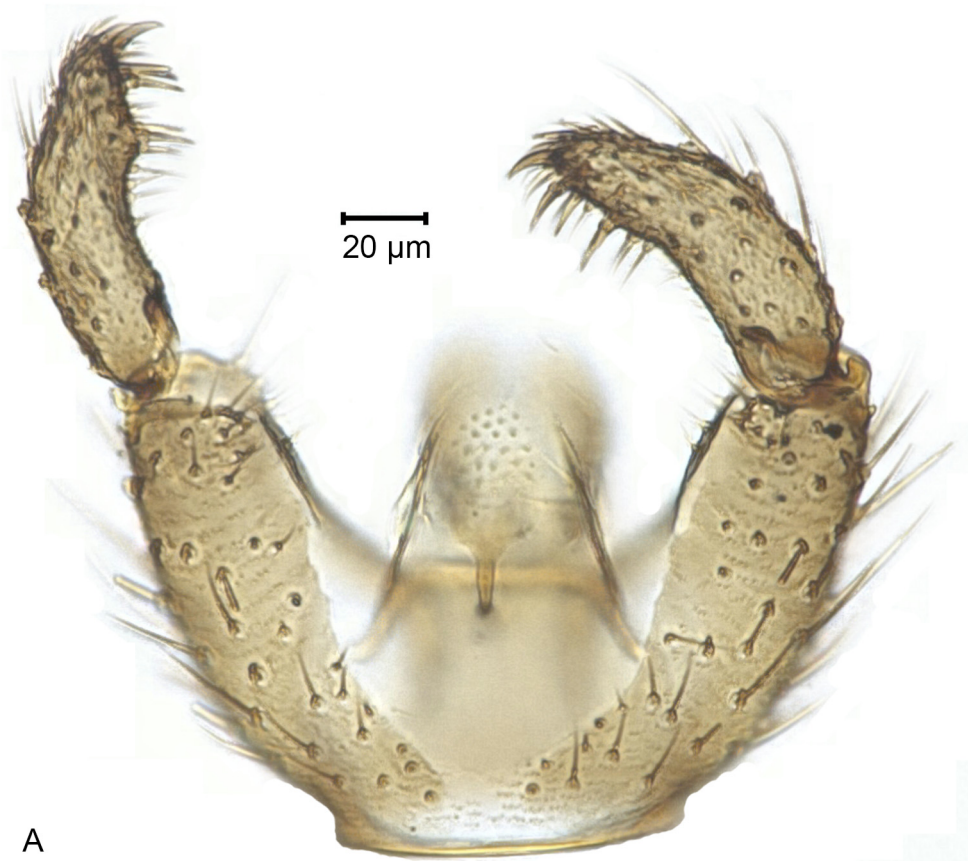


FIGURE 5. *Austrosciara infrequens* (Skuse, 1888). A. Hypopygium; B. Apex of gonostylus.

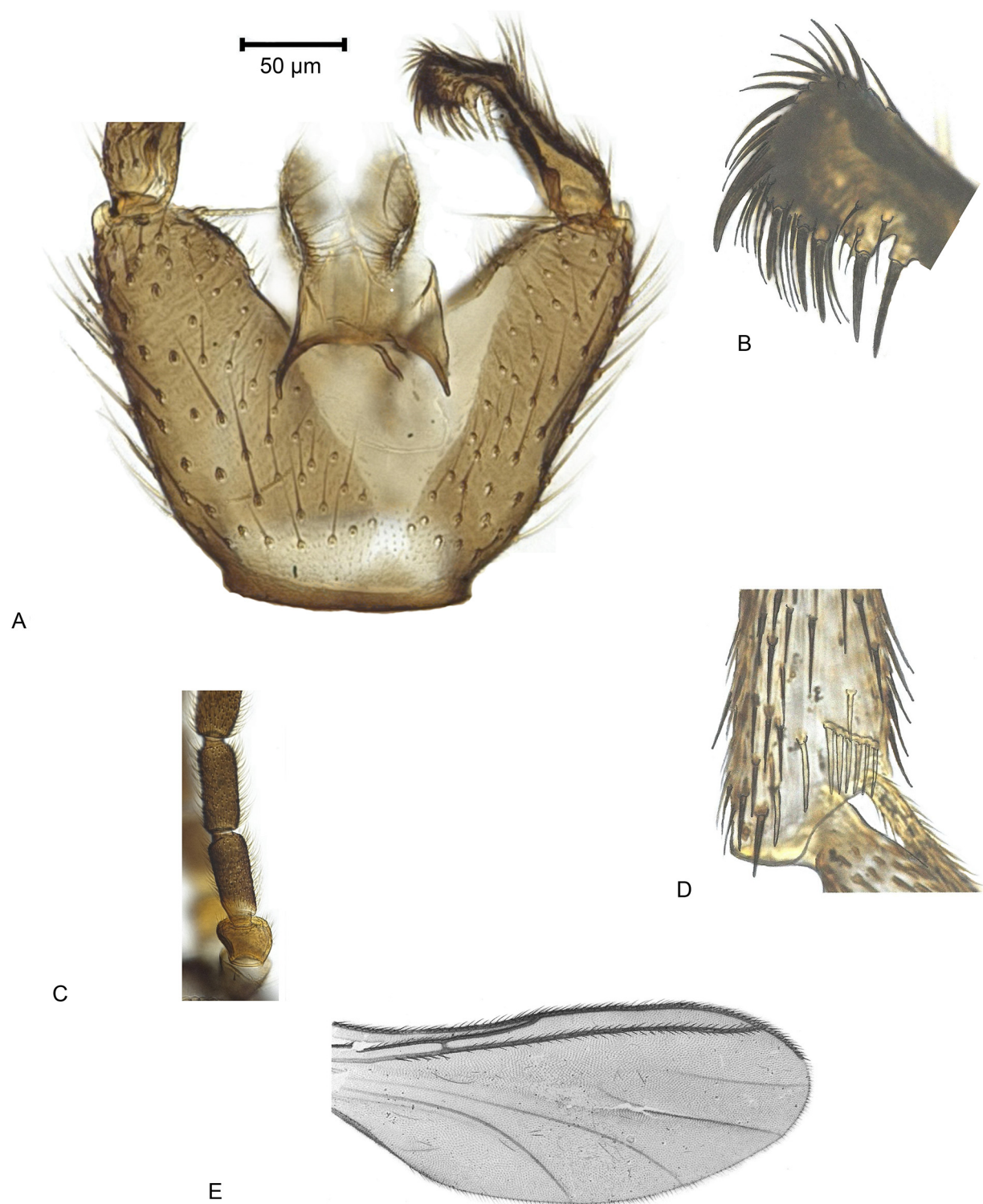


FIGURE 6. *Austrosciara montivaga* (Skuse, 1888). A. Hypopygium; B. Apex of gonostylus; C. Scape, pedicel and flagellomeres 1–3.; D. Apex of fore tibia; E. Wing.

Comments. This species is characterized by long prescutellar and lateral bristles on the scutum, bare posterior wing veins, macrotrichia on y, gonostylus with apical tooth and 5 spines in apical third of the inner side, and a simple rectangular tegmen.

Distribution. Australia (New South Wales).

***Austrosciara spectabilis* (Skuse, 1888) comb. n.**

(Fig. 7 A–C)

Sciara spectabilis Skuse, 1888 [Skuse (1888): 716–717; Skuse (1890): 408].

Type locality. Australia, New South Wales, Sydney.

Lectotype (here designated): Male. Slide bears original label data verbatim ‘*Sc. spectabilis*/ ♂ (ink) TYPE./ F. A. A. Skuse (print)’, ‘Sydney’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 047-1).

Paralectotypes. Female. Same label data as male. 2 females and 2 males (not studied).

Remarks. The original description states “*Hab.*—Sydney and Berowra (Masters and Skuse). November to January” (Skuse 1888).

Preservation. Flagellomeres lost, other structures in rather good condition.

Additional description. Male. **Head.** Dark brown. Eye bridge 3 facets wide; flagellomeres lost; palpus 3-segmented, yellow, basal segment without sensory pit, with 4-5 bristles. **Thorax.** Brownish, anterior and lateral parts of scutum and pleural sclerites yellowish, prescutellar and a few lateral bristles robust and dark; scutellum with 4 longer marginal bristles; postpronotum bare. Wing pale; $R_1 = 2/3 R$; R_5 throughout with macrotrichia dorsally and ventrally; $y = x$, with macrotrichia; M-stem weakly visible, with 1-2 macrotrichia; M-branches and 2/3 of CuA_1 with macrotrichia, CuA_2 without macrotrichia. Haltere short, brownish. Coxae yellow, legs yellowish-brown; apex of fore tibia with a broad comb of hyaline bristles, 1–2 somewhat separated; spurs of middle and hind tibia equal in size, longer than width of tibia apex; claws without teeth. **Abdomen.** With dense, long, dark hairs. Hypopygium with a v-shaped ventral base, without a lobe or bristle patch; gonocoxite with short and sparse hairs at the inner ventral margin; gonostylus with dense hairs on the apex and the inner side, with a short apical tooth and 6–7 fine, bristle-like spines as long as the tooth among spine-like hairs in the apical half of the inner side; tegmen as long as broad, apically rounded, with fine teeth and with a weak ventral parameral apodeme. Body length: 3.0 mm.

Comments. The species is characterized by macrotrichia on M-branches and CuA_1 , a yellowish-spotted thorax and a densely haired apex of the gonostylus with a short apical tooth and several very fine bristle-like spines among spine-like hairs in the apical half of the inner side.

Distribution. Australia (New South Wales).

***Austrosciara winnertzi* (Skuse, 1888) comb. n.**

(Fig. 8 A–D)

Sciara winnertzi Skuse, 1888 [Skuse (1888): 709–710; Skuse (1890): 407].

Type locality. Australia, New South Wales, Glenbrook.

Lectotype (here designated): Male. Slide bears original label data verbatim ‘*Sc. winnertzi*/ ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Glenbrook/ M.’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 051-1).

Paralectotypes. 2 males (not studied).

Remarks. Original description states “*Hab.*—Glenbrook (Masters). November.”

Preservation. Flagellomeres lost, body, legs and hypopygium in good condition, wings deformed.

= *Sciara rufulenta* Edwards, 1927 **syn. n.** [Tonnoir & Edwards (1927): 794, Figs 173, 174].

Type locality. New Zealand.

Holotype: *Sciara rufulenta* Edwards, 1927, male.

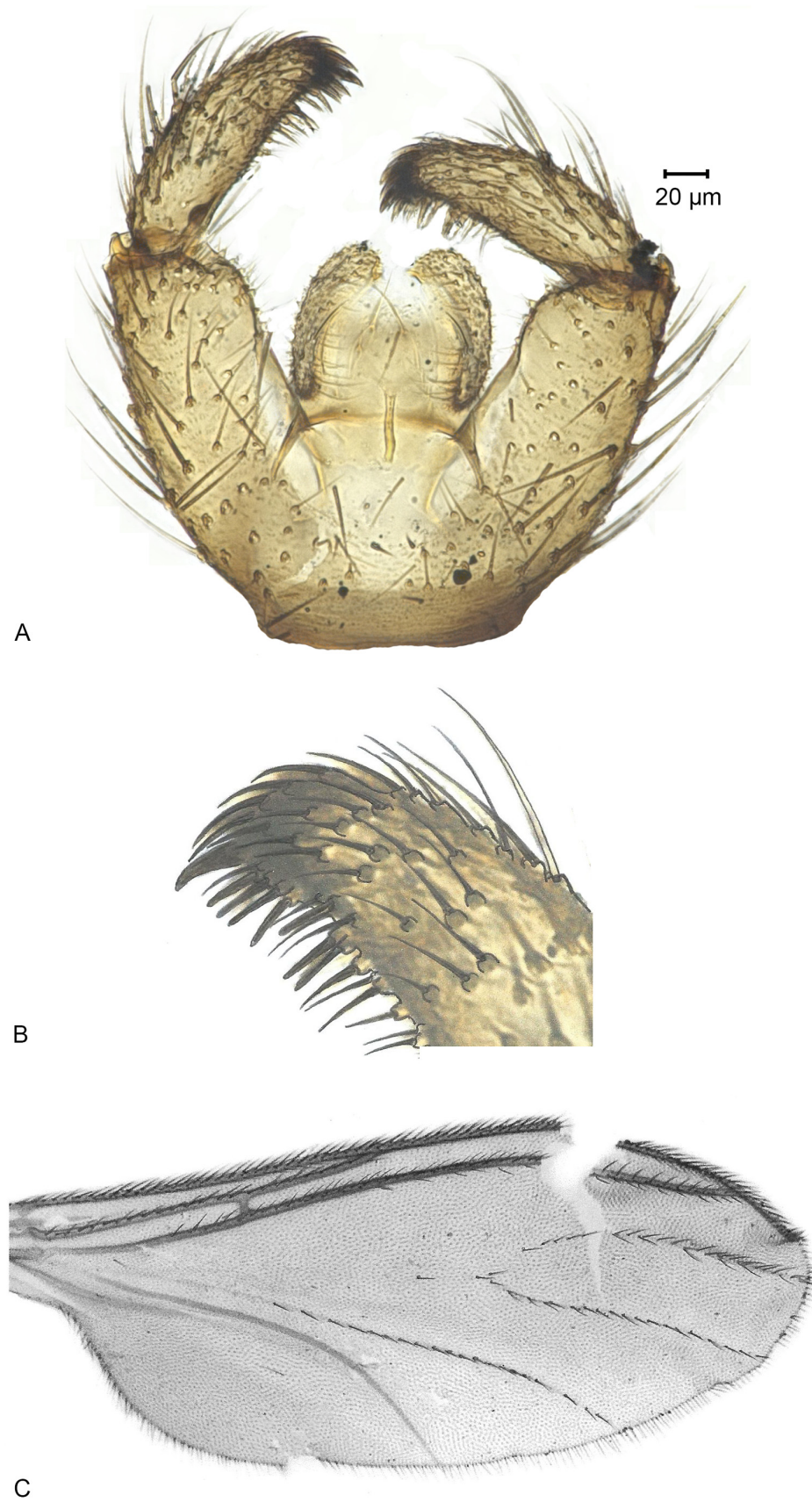


FIGURE 7. *Austrosciara spectabilis* (Skuse, 1888). A. Hypopygium; B. Apex of gonostylus; C. Wing.

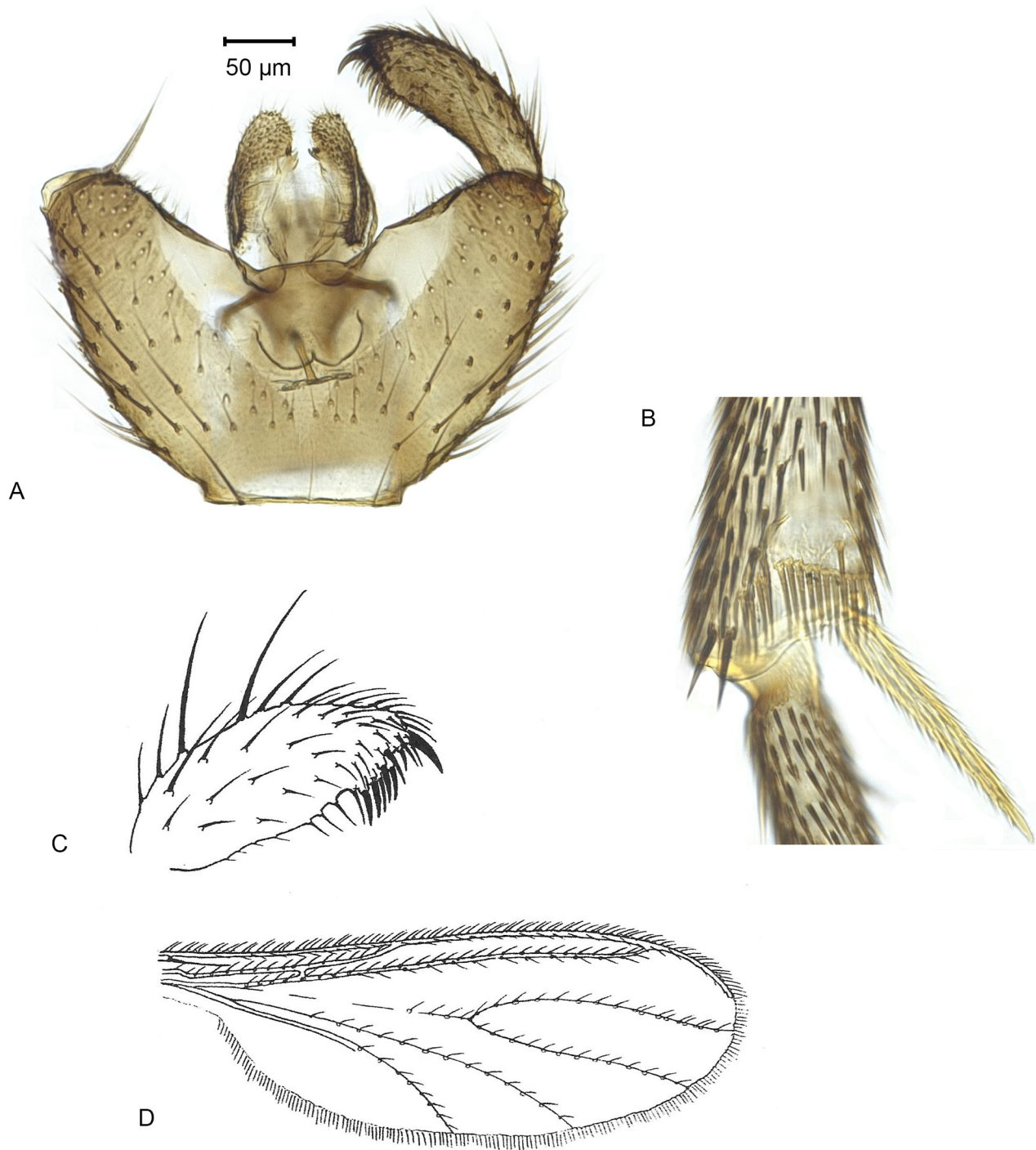


FIGURE 8. *Austrosciara winnertzi* (Skuse, 1888). A. Hypopygium; B. Apex of fore tibia; C. Gonostylus from *Ct. rufulenta* (Edwards); D. Wing from *Ct. rufulenta* (Edwards) (after Mohrig & Jaschhof 1999).

Literature: Mohrig & Jaschhof (1999): 22–26, Fig. 10 a–f (as *Ctenosciara*); Menzel & Mohrig (2000): 701 (as *Ctenosciara*); Wu *et al.* (2010): 47, Fig. 3A–F (as *Ctenosciara*).

Additional description. Male. **Head.** Eye bridge 3 facets wide; scape and pedicel ochry, flagellomeres lost; palpus 3-segmented. **Thorax.** Brown, with ochre parts on lateral sides of scutum and katapisternum; dorsocentral bristles and a few lateral bristles strong and dark; scutellum with 4 long marginal bristles; postpronotum bare. Wing pale; R_1 rather long; R_3 with macrotrichia dorsally along entire length; y nearly = x , with macrotrichia; M-stem

weakly visible, with 3–4 macrotrichia; M-fork long, M-branches and 2/3 of the CuA branches with macrotrichia. Haltere short, brownish. Legs yellowish; apex of fore tibia with a broad comb of hyaline bristles, 2–3 of them separated (tibial organ); spurs of middle and hind tibia equal in size, longer than width of tibia apex; claws without teeth. **Abdomen.** With dense and rather long, brownish hairs. Hypopygium ventrally with broad open base, without a lobe or bristle patch; gonocoxites with short and sparse hairs at the inner ventral margin; gonostylus with strong apical tooth and 5–7 short spines in apical third (among bristle-like hairs); tegmen not visible. Body length: 2.4 mm.

Comments. The species is characterized by macrotrichia on all posterior wing veins, an ochry-spotted scutum, yellowish legs with a large comb of hyaline spines (2–3 isolated) on the apex of fore tibia, an elongated gonostylus with a strong apical tooth and short spines among bristles in the apical third. It is identical to *Ct. rufulenta* (Edwards) from New Zealand (Mohrig & Jaschhof 1999: 24, fig. 10 a–f). For a discussion of variability in this species see Mohrig & Jaschhof 1999: 25, fig. 11 a–i).

Distribution. Australia (New South Wales), China, New Zealand.

Genus *Bradysia* Winnertz, 1867

Type species: *Bradysia angustipennis* Winnertz, 1867.

Literature: Tuomikoski (1960): 110–149; Menzel & Mohrig (2000): 98–185.

Bradysia amabilis (Skuse, 1888) comb. n.

(Figs, 9 A–D, 3 A)

Sciara amabilis Skuse, 1888 [Skuse (1888): 712–713].

Type locality. Australia, Sydney.

Holotype: Male. Original label data (Fig. 3A) verbatim ‘*Sc. amabilis*/ ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Sydney’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 003).

Remarks. The original description states “*Hab.*—Sydney (Masters and Skuse). September.”

Preservation. Generally well preserved.

Additional description. Male. **Head.** Eye bridge 2–3 facets wide. Antenna brown, 4th flagellomere with l/w-index of 2.4, with dense, pale hairs shorter than the diameter of basal node; necks rather short, brownish; palpus 3-segmented; basal segment with deep sensory pit and 4–5 bristles. **Thorax.** Brown, scutum centrally and laterally with rather long dark bristles; scutellum with two long and two shorter marginal bristles; postpronotum bare. Wing pale; $R_1 = 4/5 R$; R_5 throughout with macrotrichia dorsally and ventrally; c nearly 1/2 w; y = x, with macrotrichia; posterior veins without macrotrichia. Haltere short, brownish. Legs yellowish-brown; tibial organ comb-like, with a row of 5–6 bristles; spurs of middle and hind tibia equal in size, rather short; claws missing. **Abdomen.** With rather short, brownish hairs. Hypopygium brown; ventral base broadly open, without lobe or bristle patch, the inner membrane with fine hairs; gonocoxites strong, with short and sparse hairs at the inner ventral margin; gonostylus elongate, shorter than gonocoxite, with curved apex and one or two dorsally located claw-like short teeth, the apex with 6–7 spines of equal size, one of them more robust than the others; tegmen somewhat pyramid-like, apically rounded, with fine teeth and a broad ventral parameral apodeme; aedeagus rather short. Body length: 3.0 mm.

Comments. The species is characterized by a deep sensory pit on the basal segment of the palpus, ventral macrotrichia on R5, macrotrichia on y, a ventral membrane with fine hairs at the base of the hypopygium, an elongated gonostylus with 1–2 small, dorsally-located claw-like teeth and several spines below.

Distribution. Australia (New South Wales).

Bradysia conjuncta (Skuse, 1890) comb. n.

(Fig. 10 A–F)

Sciara conjuncta Skuse, 1890 [Skuse (1890): 403–404].

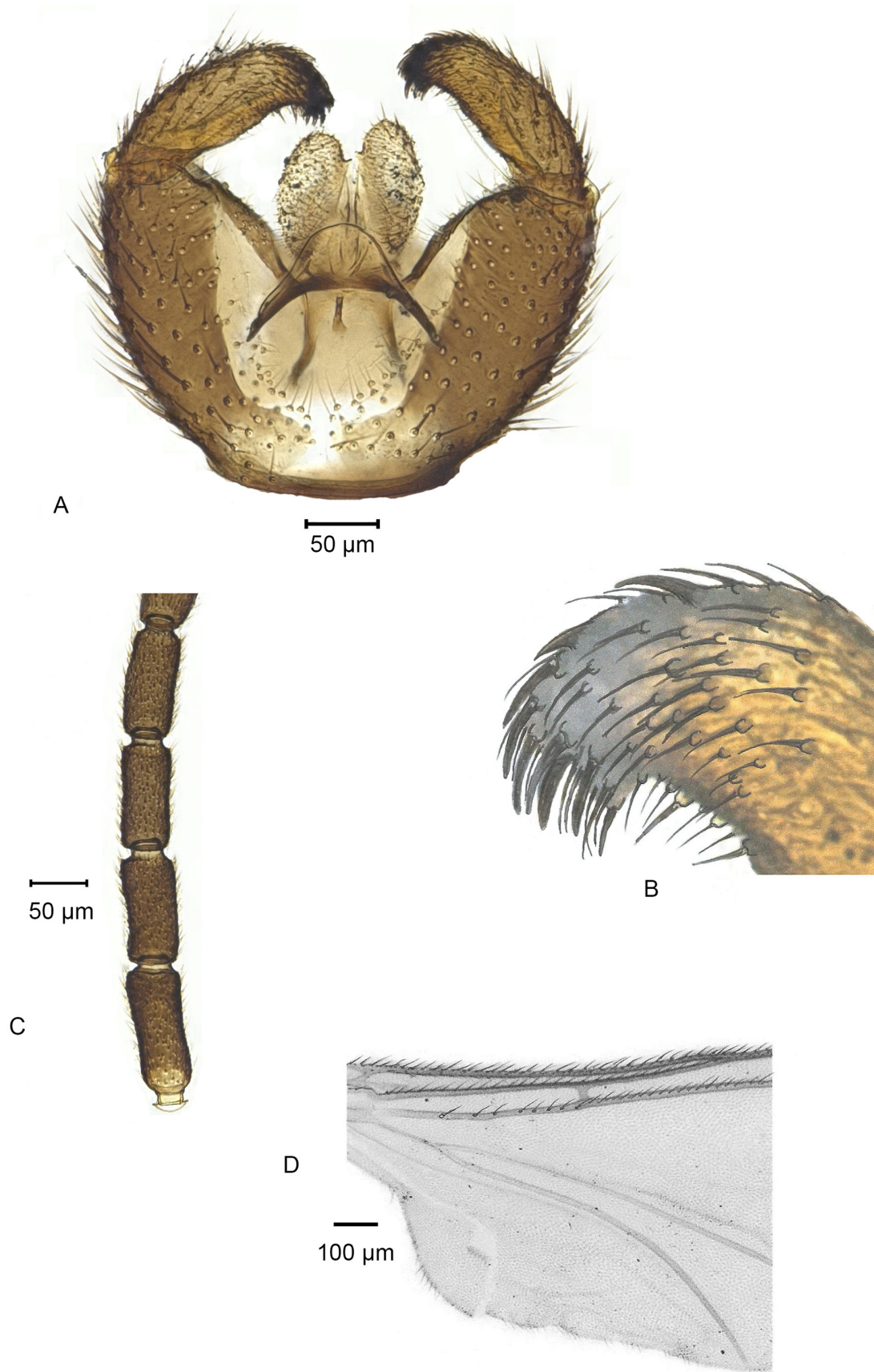


FIGURE 9. *Bradysia amabilis* (Skuse, 1888). A. hypopygium; B. Apex of gonostylus; C. 1.–4. flagellomere; D. Base of wing.

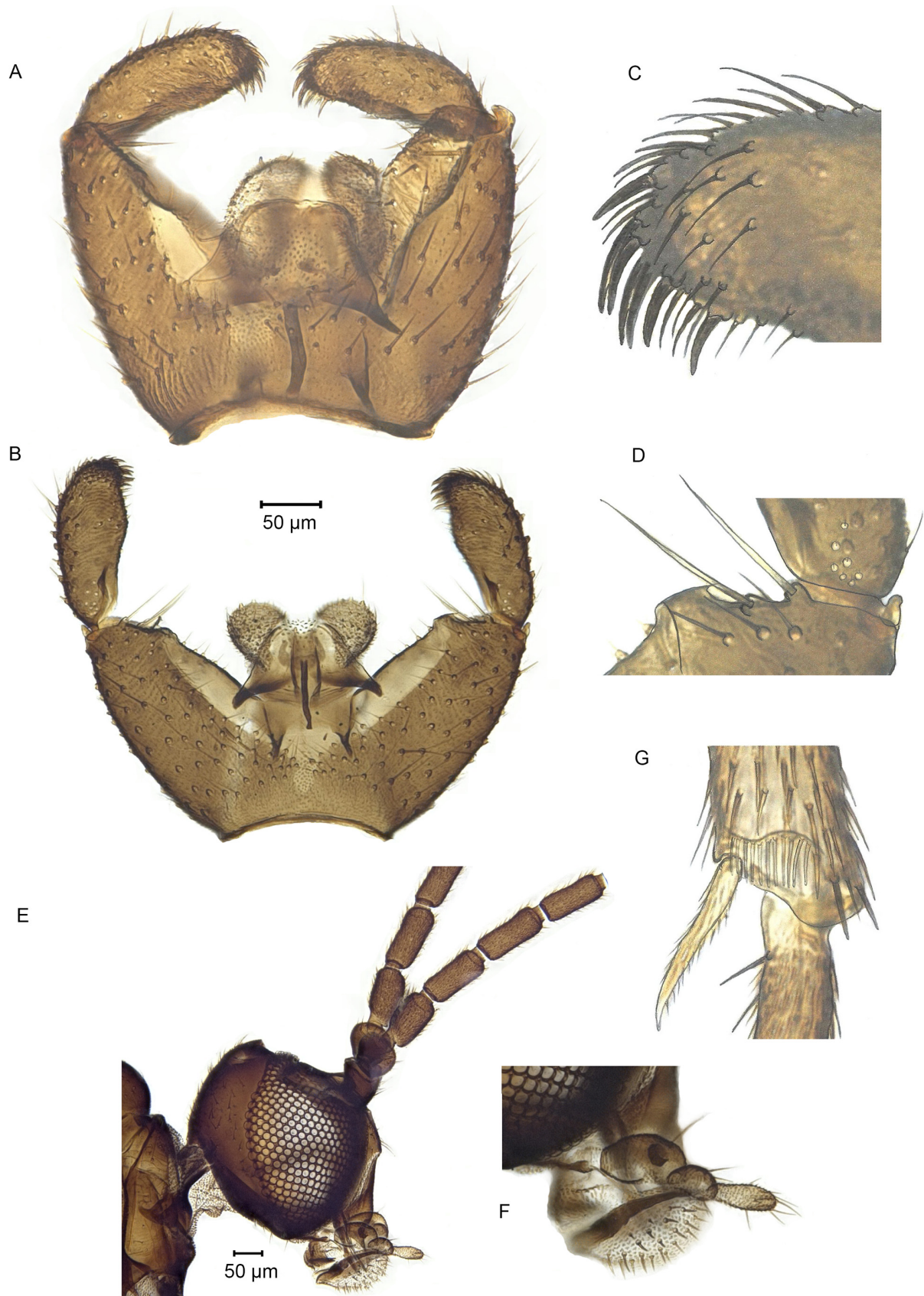


FIGURE 10. *Bradysia conjuncta* (Skuse, 1890). A. Hypopygium; B. *Sciara serenipennis* Skuse (1890). Hypopygium; C. *B. conjuncta* (Skuse). Apex of gonostylus; D. *Sciara serenipennis* Skuse. Megasetae; G–F. *B. conjuncta* (Skuse). G. Apex of fore tibia; E. Head with basal segments of antennae; F. Mouth part with palpus.

Type locality. Australia, New South Wales, Woronora.

Lectotype (here designated): Male. Slide bears original label data verbatim ‘*Sciara conjuncta*/ ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Woronora/ Sept. SK.’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 010).

Paralectotypes. 1 male, same locality data (PWMP); 4 males, same data (not studied); 5 males missing.

Remarks. The original description states “*Hab.*—Woronora, N.S.W. (Skuse). Eleven specimens in September.”

Preservation. Well preserved in all details.

= *Sciara serenipennis* Skuse, 1890 **syn. n.** [Skuse (1890): 402–403].

Type locality. Australia, New South Wales, Mount Kosciuszko.

Holotype: Male. Original label data verbatim ‘*Sc. serenipennis*/ ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘K36719/ *Sciara serenipennis*, Sk./ Mount Kosciusko’ (ink), ‘Kosciusko/ NSW/ Helms III 89’ (ink). Mounted in Canada balsam Dec. 2015. (AM; Slide No. 054).

Remarks. Original description states “*Hab.*—Mount Kosciusko, N.S.W., 5000 ft. (Helms); *in Coll. Australian Mus.* March.”

Preservation. Head and thorax lost.

Additional description. Male. **Head.** Dark brown. Eye bridge 3 facets wide. Antenna brown, necks short, brownish; 4th flagellomere with l/w-index of 2.5, with dense, pale hairs, shorter than the width of the basal node; palpus 3-segmented, basal segment with deep sensory pit and 1 bristle (sometimes 2). **Thorax.** Dark brown, scutum with rather long and dark dorsocentral as well as a few lateral bristles; scutellum with 2 long marginal bristles; postpronotum bare. Wing pale; $R_1 = 2/3 R$; R_5 with dorsal macrotrichia only; $C = 2/3 w$; y somewhat shorter than x , without macrotrichia; posterior veins weak, without macrotrichia. Haltere short, brown. Legs dark brown; fore tibia with a broad comb (somewhat wavy) of pale bristles; spurs of middle and hind tibia equal in size, thin, somewhat longer than the width of tibia at apex; claws without teeth. **Abdomen.** Dark brown, with sparse, rather short brownish hairs. Hypopygium dark brown, with broad v-shaped ventral base, without lobe or bristle patch; gonocoxites with fine and rather short hairs on the inner ventral margin, on ventral apex with 2 strong megasetae (Fig. 10 D); gonostylus weakly bulbous, without apical tooth, with 6–7 short apical/subapical spines among the dense hairs of the apex; tegmen small, wider than long, truncate apically, with large area of teeth and with short ventral parameral apodeme; aedeagus rather long and robust. Body length: 3.0 mm.

Comments. This species is characterized by a dark body colour; palpus with a sensory pit, a robust gonostylus with 6–7 short spines among dense bristles at the apex and 1 thick megaseta on the ventral apex of the gonocoxites.

Distribution. Australia (New South Wales).

***Bradysia crassicornis* (Skuse, 1890) comb. n.**

(Fig. 11 A–C)

Bradysia crassicornis Skuse, 1890 [Skuse (1890): 407].

Type locality. Australia, New South Wales, Dunoon, Richmond River.

Holotype: Male. Original label data verbatim ‘*S. crassicornis*/ ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Dunoon/ Mar. Apr’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 012).

Remarks. Original description states “*Hab.*—Dunoon, Richmond River, N.S.W. (Helms). March and April.”

Preservation. All details in good condition.

Additional description. Male. **Head.** Brown. Eye bridge 3 facets wide. Antenna with rough surface, brown; scape, pedicel and first flagellomeres yellowish-brown, necks rather long, pale, weakly bicoloured; 4th flagellomere with l/w-index of 1.8, with dense curved hairs that are shorter than the width of the basal node; palpus 3-segmented. **Thorax.** Brown, scutum with three darker stripes and rather short pale bristles; scutellum with two longer marginal bristles; postpronotum bare. Wing pale; $R_1 = 2/3 R$; R_5 with dorsal macrotrichia only; $C = 2/3 w$; y somewhat shorter than x , without macrotrichia; posterior veins weak, without macrotrichia. Haltere short, brownish. Legs yellowish; fore tibia with a broad comb of 5–6 pale bristles; spurs of middle and hind tibia equal in

size, thin, somewhat longer than the width of the apex of tibia; claws without teeth. **Abdomen.** Brown, with sparse, rather long brown hairs. Hypopygium brown, with v-shaped ventral base, without lobe or bristle patch; ventral inner margin of gonocoxite with fine and rather short hairs; gonostylus elongate, without apical tooth, with 4–5 short apical spines; tegmen not visible. Body length: 2.2 mm.

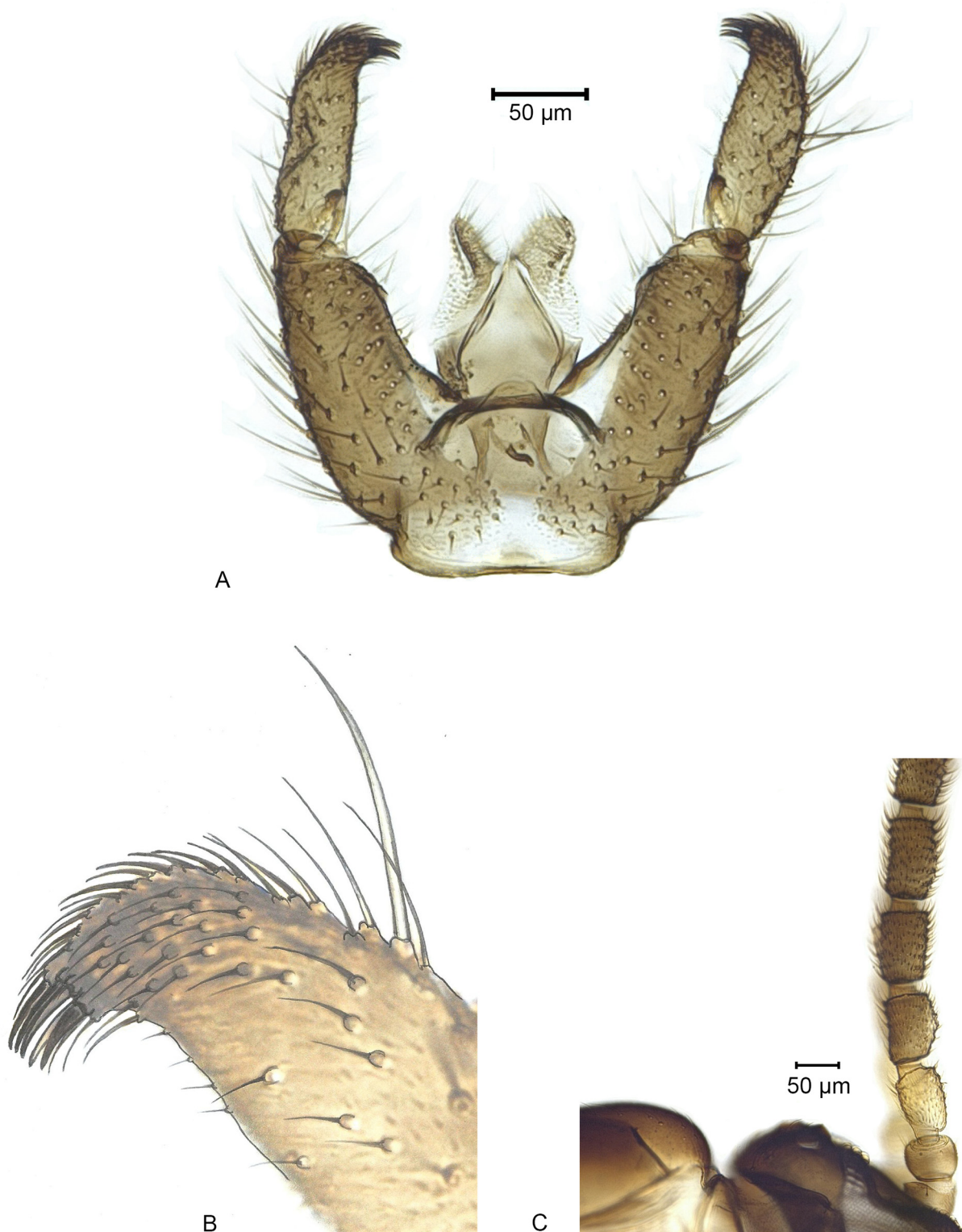


FIGURE 11. *Bradysia crassicornis* (Skuse, 1890). A. Hypopygium; B. Gonostylus; C. Head and basal segments of antennae.

Comments. This species is characterized by rough flagellomeres with dense and curved hairs, by the yellowish scape, pedicel and first flagellomere, and by the gonostylus which possesses 5 short apical spines. It is similar to Palaearctic species that are related to *B. scabricornis* Tuomikoski.

Distribution. Australia (New South Wales).

***Bradysia exsequialis* (Skuse, 1890) comb. n.**

(Figs 12 A–C, 3 B)

Sciara exsequialis (Skuse, 1890) [Skuse (1890): 409–410].

Type locality. Australia, Victoria, Benalla.

Lectotype (here designated): Male. Slide bears original label data (Fig. 3 B) verbatim ‘*S. exsequialis*/ ♂ ♀ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Benalla/ Nov. Helms.’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 018-1).

Paralectotypes. 2 males, 1 female (018-4: in copula with paralectotype 018-3), same data (1 male, 1 female in ANIC, 1 male in PWMP; Slide No. 018-3); 4 specimens missing.

Remarks. Original description states “*Hab.*—Benalla, Victoria (Helms). Eight specimens in November.”

Preservation. Flagellomeres missing (in paralectotypes the flagellomeres are present), all other details in good condition.

Additional description. Male. **Head.** Brown. Eye bridge 3 facets wide. Antennae brown, necks rather short, brownish, weakly bicoloured; 4th flagellomere with l/w-index of 4.0, with dense hairs, that are somewhat longer than the width of the basal node; palpus short, 3-segmented, basal segment with sensory pit and 2 bristles. **Thorax.** Brown, scutum with three somewhat darker stripes and long prescutellar as well as a few long lateral bristles; scutellum with 4 longer marginal bristles; postpronotum bare. Wing brownish; $R_1 = 3/4 R$; R_5 with dorsal macrotrichia only; $C = 2/3 w$; $y = x$, without macrotrichia; M-fork as long as M-stem; posterior veins without macrotrichia. Haltere short, yellow. Legs brown; fore tibia with a rather short comb of 4 pale bristles; spurs of middle and hind tibia equal in size, somewhat longer than the width of apex of tibia; claws without teeth. **Abdomen.** Brown, with sparse and rather short hairs. Hypopygium brown, with broad v-shaped ventral base, without lobe or patch of bristles; gonocoxite with short sparse fine hairs at the inner ventral margin; gonostylus bulbous, without apical tooth, with 2 spines dorsally and five subequal apical spines; tegmen apically straight, with large area of rather strong teeth and with short ventral parameral apodeme; aedeagus rather short, robust. Body length: 2.6 mm.

Female. Flagellomeres shorter than in males, all other characters are identical in both sexes. It is characterized by a pale haltere (in contrast to the dark thorax) and a long M-fork.

Comments. This species is characterized by a dark brown thorax with yellow halteres and brown legs, long densely hairy flagellomeres, by a bulbous gonostylus with 2 apical spines and 5 spines below, and an apically truncate tegmen with a large area of rather strong teeth and a short ventral parameral apodeme. It belongs to the *B. hilaris* group.

Distribution. Australia (Victoria).

***Bradysia frequens* (Skuse, 1888) comb. n.**

(Fig. 13 A–C)

Sciara frequens Skuse, 1888 [Skuse (1888): 682–683].

Type locality. Australia, New South Wales, Sydney.

Lectotype (here designated): Male. Slide bears original label data verbatim ‘*Sciara frequens*/ ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Sydney/ S’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 024).

Paralectotypes. 2 males, same locality data (not studied).

Remarks. Original description states “*Hab.*—Sydney (Skuse). February.”

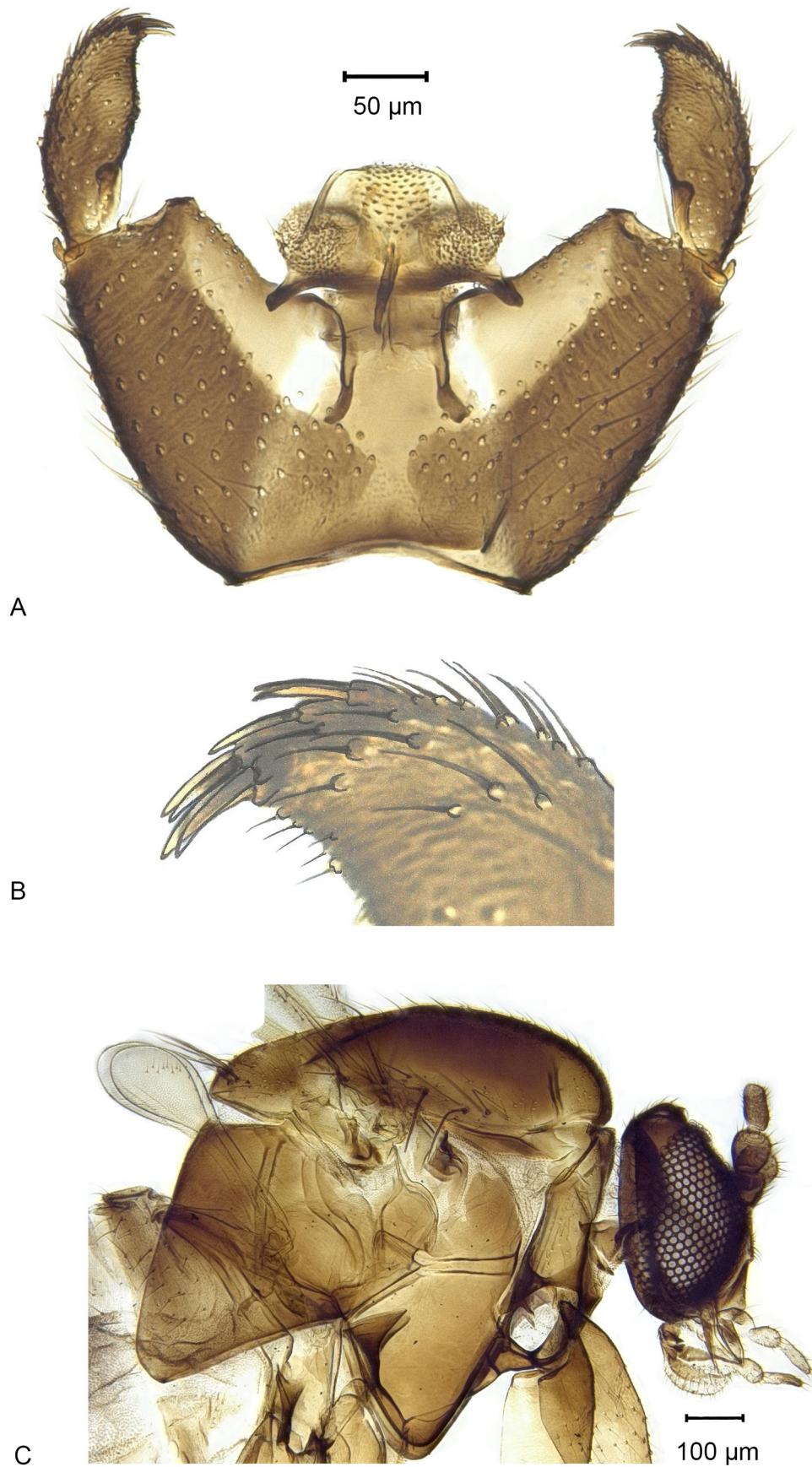


FIGURE 12. *Bradysia exsequialis* (Skuse, 1890). A. Hypopygium; B. Apex of gonostylus; C. Thorax with head (female).

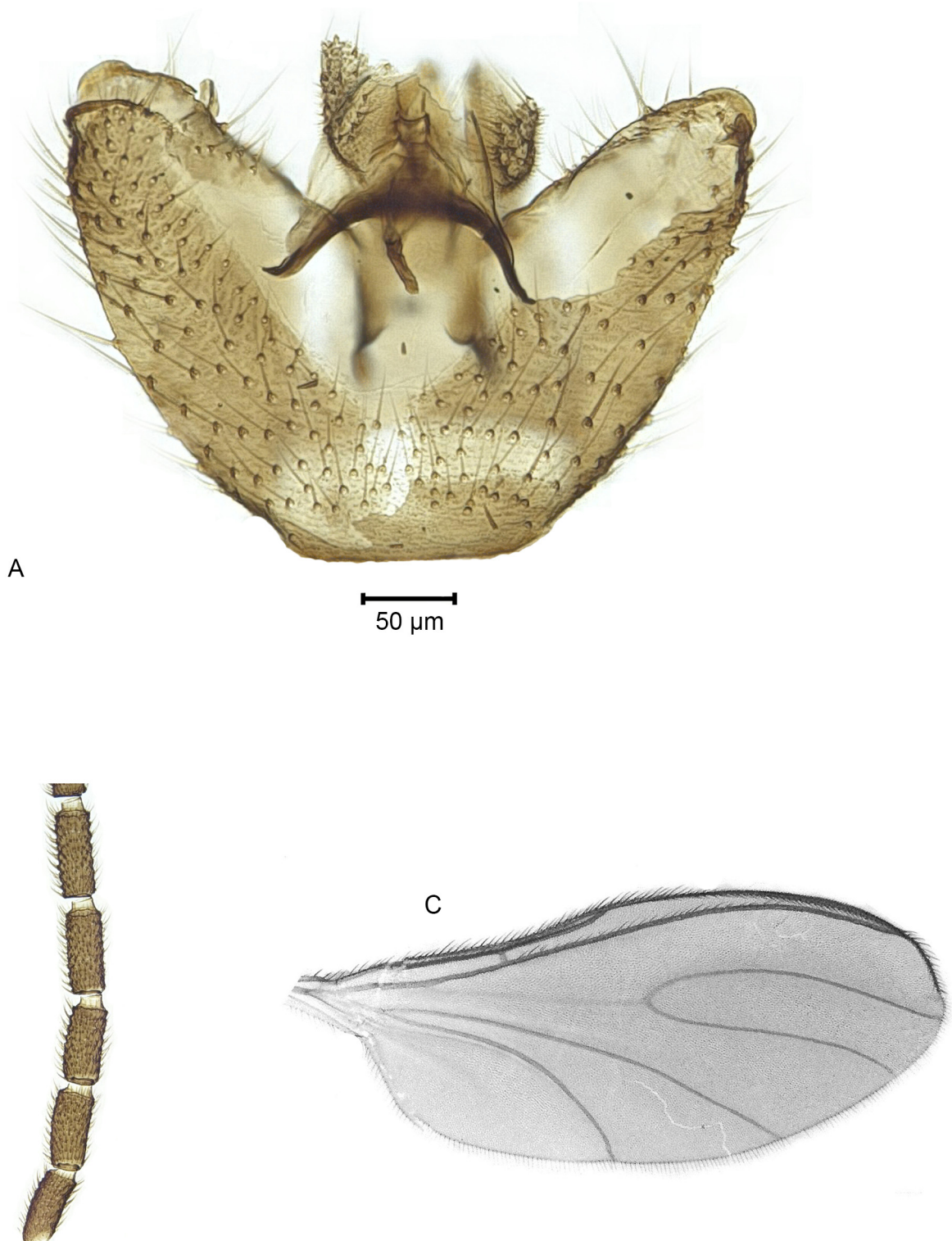


FIGURE 13. *Bradysia frequens* (Skuse, 1888). A. Base of Hypopygium; B. Flagellomeres 1–5; C. Wing.

Preservation. Thorax somewhat deformed, head and gonostylus missing.

Additional description. Male. **Head.** Missing. 4th antennal flagellomere with l/w-index of 2.4, surface rough, with a moderately long, somewhat bicoloured, pale neck, flagellomere with dense bristle-like hairs as long as the

width of the basal node; palpus lost. **Thorax.** Brownish, scutum with short fine hairs; scutellum without longer marginal bristles; postpronotum bare; katepisternum darkened in the distal half. Wing brownish, with strong posterior veins; $R_1 = 2/3 R$; R_5 ventrally without macrotrichia; $C = 3/4 w$; y slightly longer than x , without macrotrichia; posterior veins without macrotrichia. Haltere missing. Coxae yellowish; legs lost except for tarsal segments of one leg; claws without teeth. **Abdomen.** Brownish, with short, sparse, fine pale hairs. Hypopygium brownish, with v-shaped ventral base, without lobe or bristle patch; ventral base and gonocoxite with rather long hairs; gonostylus lost; tegmen higher than wide, rounded apically, with large area of fine teeth; ventral parameral apodeme robust; aedeagus rather long. Body length: approximately 2.8 mm.

Comments. This species is characterized by flagellomeres that have weakly rough surfaces and slightly bicoloured necks, a v-shaped ventral base of the hypopygium, and a rather long, apically rounded tegmen. The combination of these characters could allow the identification of this species although the gonostylus is missing. It belongs to the *B. hilaris* group.

Distribution. Australia (New South Wales).

***Bradysia froggatti* (Skuse, 1888) comb. n.**

(Fig. 14 A–C)

Sciara froggatti Skuse, 1888 [Skuse (1888): 681–682].

Type locality. Australia, New South Wales, Sydney, Middle Harbour.

Holotype: Male. Original label data verbatim ‘*Sciara froggatti*/ ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Middle Harb/ Frogg. Apr.’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 025).

Remarks. Original description states “*Hab.*—Middle Harbour (Froggatt). April.”

Preservation. Hypopygium missing; head with flagellomeres; thorax with wings and legs present.

Additional description. Male. **Head.** Brown. Eye bridge interrupted widely at the level of first ocellus. Antenna brown, necks rather short, brownish; 4th flagellomere with l/w -index of 2.2, with rather sparse and bristle-like hairs that are as long as the width of the basal node; palpus short, 3-segmented, basal segment without sensory pit, with 4–5 bristles. **Thorax.** Brown, scutum with short fine hairs and with lateral bristles; scutellum with 4 longer marginal bristles; postpronotum bare. Wing brownish; $R_1 = 2/3 R$; R_5 with dorsal macrotrichia only; $C = 2/3 w$; y somewhat shorter than x , with 1–2 macrotrichia; M-fork shorter than M-stem; posterior veins without macrotrichia. Haltere short, brownish. Legs brown; fore tibia with a comb of 4–5 bristles; spurs of middle and hind tibia equal in size, thin, as long as the width of tibia apex; claws without teeth. **Abdomen.** Brown, with short hair. Hypopygium missing. Body length: 3.2 mm.

Comments. This species belongs to the genus *Bradysia*. It is characterized by a dark body colour, rather short flagellomeres, short palpus without sensory pit, and toothless claws. The main character is the interrupted eye bridge which could allow identification to species when this character is used in combination with other morphological characters.

Distribution. Australia (New South Wales).

***Bradysia luctifica* (Skuse, 1888) comb. n.**

(Fig. 15 A–C)

Sciara luctifica Skuse, 1888 [Skuse (1888): 680–681].

Type locality. Australia, S A., Gawler.

Lectotype (here designated): Male. Slide bears original label data verbatim ‘*S. luctifica*/ ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘S. Aust.’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 030-1).

Paralectotype. Male, same data (without hypopygium) (ANIC; Slide No. 030-2).

Remarks. Original description states “*Hab.*—Gawler, South Australia.”

Preservation. Flagellomeres missing, thorax damaged, hypopygium and wing in good condition.

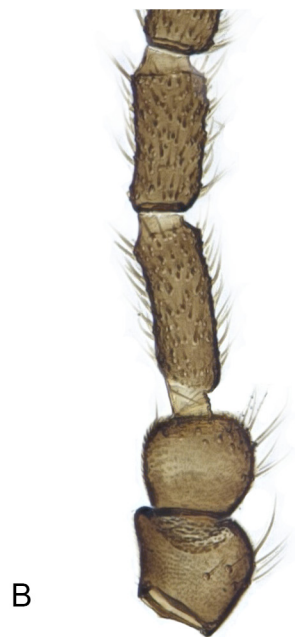
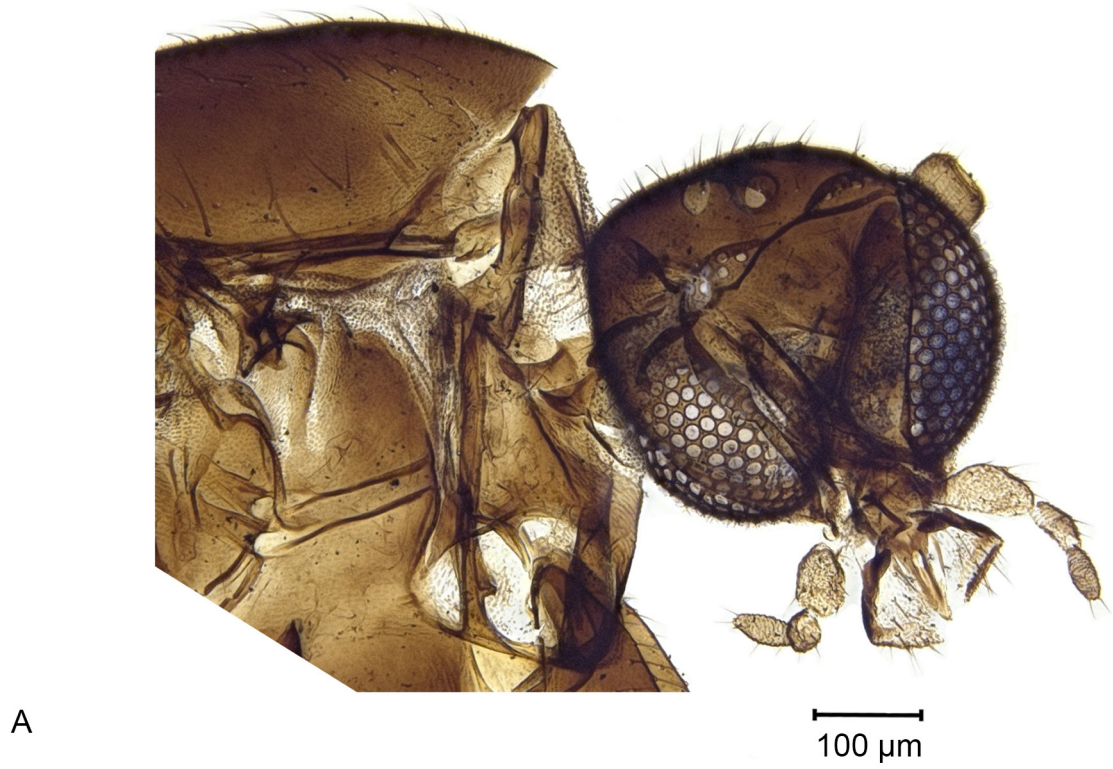


FIGURE 14. *Bradysia froggatti* (Skuse, 1888). A. Thorax with head; B. Scape, pedicel and flagellomeres 1–2; C. Apex of fore tibia.

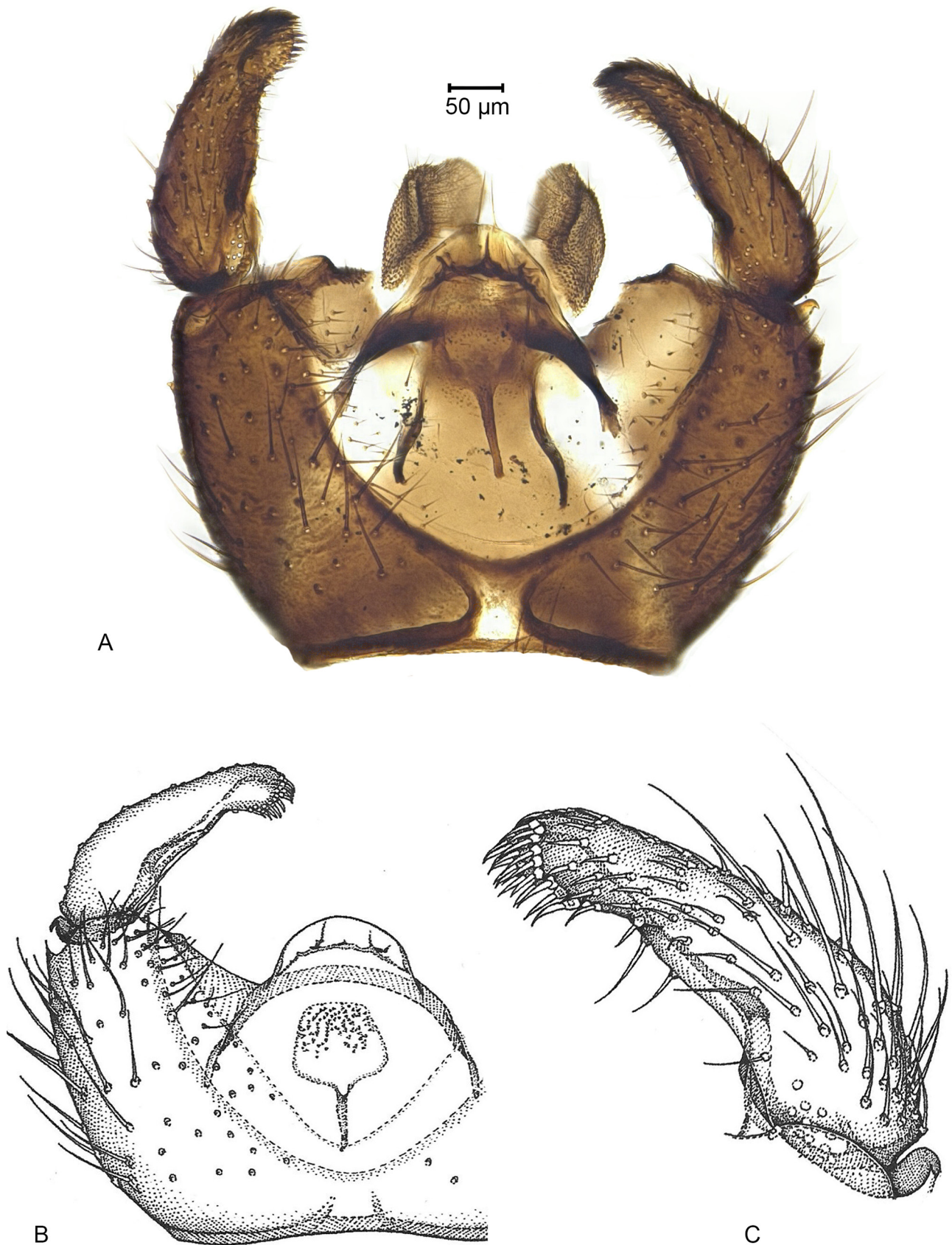


FIGURE 15. *Bradysia luctifica* (Skuse, 1888). A. Hypopygium, B. Hypopygium in part from *B. planistylata* Vilkamaa, Hippa & Mohrig (holotype); C. Gonostylus from *B. planistylata* Vilkamaa, Hippa & Mohrig (holotype) [after Vilkamaa *et al.* 2012c].

= *Bradysia planistylata* Vilkamaa, Hippa & Mohrig, 2012 **syn. n.** [Vilkamaa *et al.* (2012c): 38–39, fig. 10 A–D; Mohrig (2016): 28, fig. 32 a–c; plate III, fig. 32].

Type locality. New Caledonia.

Holotype: *Bradysia planistylata* Vilkamaa, Hippa & Mohrig, 2012, male.

Additional description. Male. **Head.** Brown. Eye bridge 3 facets wide. Antenna lost; palpus 3-segmented, basal segment with sensory pit and 4–5 bristles. **Thorax.** Brown, scutum with a few longer prescutellar and lateral bristles; postpronotum bare. Wings brownish; $R_1 = 3/4 R$; R_5 with dorsal macrotrichia only; $C = 2/3 w$; $y = x$, without macrotrichia; posterior veins distinct, without macrotrichia. Haltere short, brownish. Legs brownish; fore tibia with a comb of somewhat wavy brown bristles; spurs of middle and hind tibia equal in size, longer than the width of tibia apex; claws without teeth. **Abdomen.** Brown, with rather short hairs. Hypopygium brown, with broad open ventral base, strongly contoured, without lobe or patch of bristles; gonocoxite with short hairs on the inner ventral membrane, the ventral inner margin with rather long bristles; gonostylus elongate, without apical tooth, flattened on the inner side and with shovel-like apex, densely covered with short spine-like bristles; tegmen apically rounded, with large area of teeth and a long ventral parameral apodeme; aedeagus rather long. Body length: approximately 4.0 mm.

Comments. This species is characterized by the flattened inner side of the gonostylus with a flat shovel-like apex, covered densely with short spine-like bristles. It is identical to *B. planistylata* from New Caledonia in all details. It is reported from Papua New Guinea as well (Mohrig 2016).

Distribution. Australia (South Australia), New Caledonia, Papua New Guinea.

***Bradysia maesta* (Skuse, 1888) comb. n.**

(Fig. 16 A–C)

Sciara maesta Skuse, 1888 [Skuse (1888): 691–692].

Type locality. Australia, New South Wales, Middle Harbour, near Sydney.

Lectotype (here designated): Male. Slide bears original label data verbatim ‘*Sciara maesta* ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Mid. Harb./ S’ (ink), ‘Antennae broken’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 033-1).

Paralectotype. Female (not studied).

Remarks. Original description states “*Hab.*—Middle Harbour, near Sydney (Skuse); Berowra (Masters). August.”

Preservation. Flagellomeres, with the exception of the first two segments, missing. All other structures in good condition.

Additional description. Male. **Head.** Brown. Eye bridge 4 facets wide. 2nd flagellomere with l/w-index of 2.0, robust, with moderately long brown neck, densely hairy, brownish, as long as the width of the basal node; palpus 3-segmented; basal segment without deepened sensory area, with 4–5 fine bristles. **Thorax.** Brownish, scutum centrally darkened, with very short fine hairs, lateral hairs not any longer; scutellum without longer marginal bristles; postpronotum bare; katapisternum darkened in the ventral half. Wing brownish, with strong posterior veins; $R_1 = 3/4 R$; R_5 with ventral macrotrichia in distal third only; $C = 4/5 w$; y slightly longer than x , with 1–2 macrotrichia; posterior veins without macrotrichia. Haltere short, brownish. Legs yellowish-brown; fore tibia with a comb of brownish bristles; spurs of middle and hind tibia equal in size, longer than the width of the tibia apex; claws without teeth. **Abdomen.** Brownish, with short, sparse, fine pale hairs. Hypopygium brownish, with rounded ventral base, without lobe or bristle patch, but with hairs on the ventral membrane; gonocoxite with short fine hairs on the inner ventral margin; gonostylus much shorter than gonocoxite, without apical tooth, apically hairy, with 5–6 short awl-like subapical spines; tegmen apically rounded, with a large area of teeth; ventral parameral apodeme long; aedeagus rather long. Body length: 3.2 mm.

Comments. The species is characterized by rather robust, densely hairy flagellomeres, with hairs as long as the width of the basal node; wing with a very long C, a short gonostylus, without any teeth, and with 5 short awl-like subapical spines and a hairy apex.

Distribution. Australia (New South Wales).

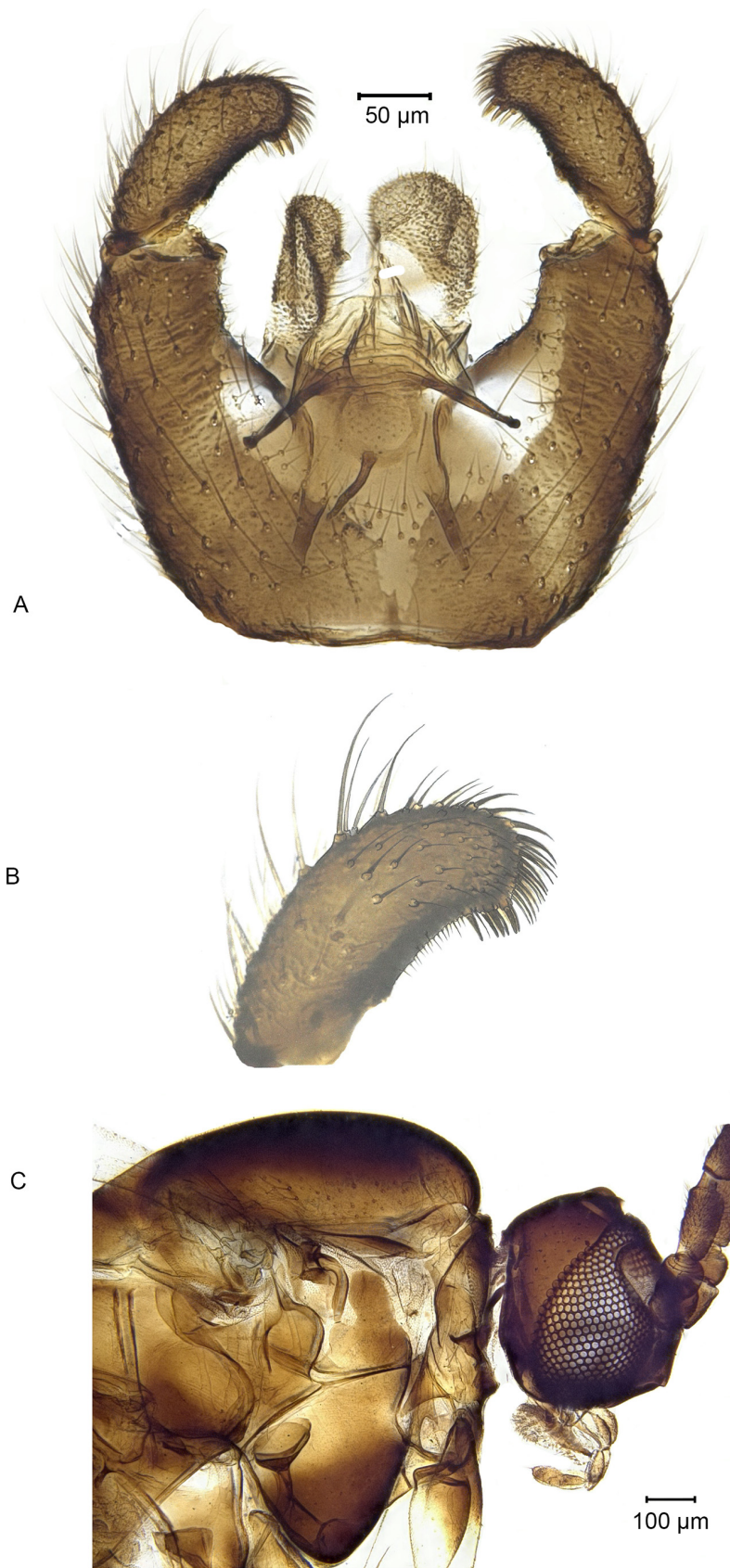


FIGURE 16. *Bradysia maesta* (Skuse, 1888). A. Hypopygium; B. Apex of gonostylus; C. Thorax with head and basal segments of antennae.

***Bradysia mastersi* (Skuse, 1888) comb. n.**

(Figs 17 A–C, 3 C)

Trichosia mastersi Skuse, 1888 [Skuse (1888): 723–724, Fig. 4].

Type locality. Australia, New South Wales, Como.

Lectotype (here designated): Male. Slide bears original label data (Fig. 3 C) verbatim ‘*Trich. mastersi*/ ♂ (ink) TYPE./ F. A. A. Skuse (print)’, ‘Como/ M + S’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 052-1).

Paralectotype. Female (not studied).

Remarks. Original description states “*Hab.*—Como (Masters and Skuse). September.

Preservation. Flagellomeres missing, body and hypopygium slightly damaged.

Additional description. Male. **Head.** Brown. Eye bridge 3–4 facets wide. Antennae missing; palpus short, 3-segmented, basal segment with sensory pit and 1–2 bristles. **Thorax.** Dark brown, scutum with three somewhat darker stripes, with short hairs and a few longer prescutellar and lateral bristles; scutellum with 2 longer marginal bristles; postpronotum bare. Wing brownish; $R_1 = 3/4 R$; R_5 with dorsal macrotrichia only; $C = 3/4 w$; $y = x$, without macrotrichia; M-fork as long as M-stem; posterior veins without macrotrichia; wing membrane covered with normal long microtrichia. Haltere lost. Legs brown; fore tibia with a comb of 4–5 bristles; spurs of middle and hind tibia equal in size, thin, somewhat longer than the width of apex of tibia; claws without teeth. **Abdomen.** Brown, with rather short hairs. Hypopygium brown, ventral base without lobe or patch of bristles; gonocoxite with sparse short fine hairs on the inner ventral margin; gonostylus weakly bulbous in the apical half, without apical tooth, with 3 apical spines and a few fine bristles as long as the spines; tegmen apically rounded, with a large area of strong teeth and with a rather thin ventral parameral apodeme; aedeagus short. Body length: approximately 3.0 mm.

Comments. The species is characterized by a brown body colour, sensory pit on the basal segment of the palpus, the rather small, apically rounded tegmen with strong teeth and a gonostylus with 3 thin apical spines. It is somewhat surprising that Skuse classified this species as belonging to *Trichosia*. The microtrichia on the wing membrane do not differ in length and density from other *Bradysia* species.

Distribution. Australia (New South Wales).

***Bradysia ornatula* (Skuse, 1888) comb. n.**

(Fig. 18 A–C)

Sciara ornatula Skuse, 1888 [Skuse (1888): 711–712].

Type locality. Australia, New South Wales, Sydney.

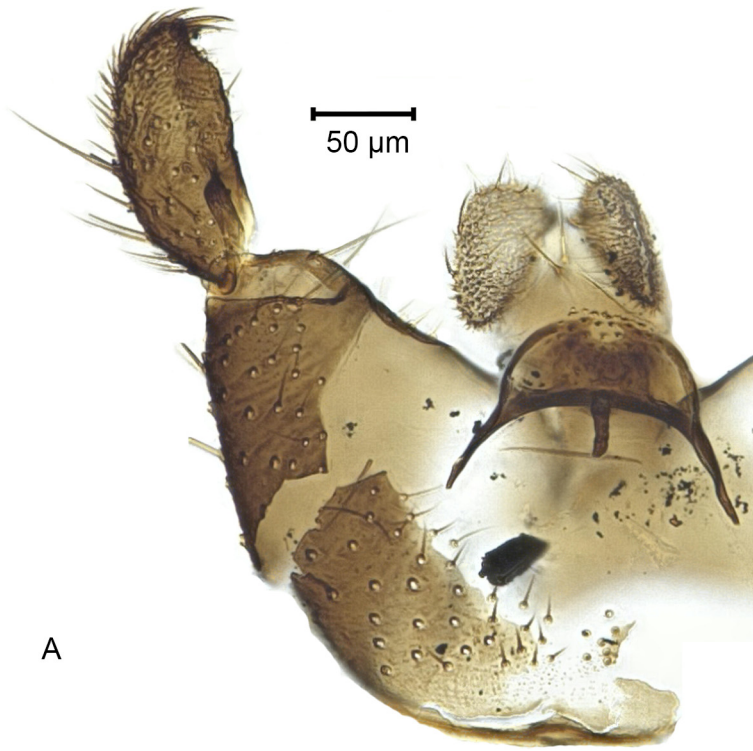
Lectotype (here designated): Male. Slide bears original label data verbatim ‘*Sc. ornatula*/ ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Sydney/ S’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 039-1).

Paralectotypes. 4 males (not studied).

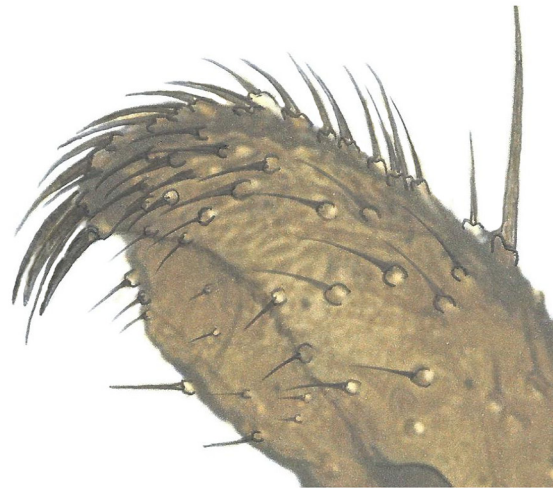
Remarks. Original description states “*Hab.*—Sydney (Skuse). September.”

Preservation. Well preserved, all important morphological structures visible.

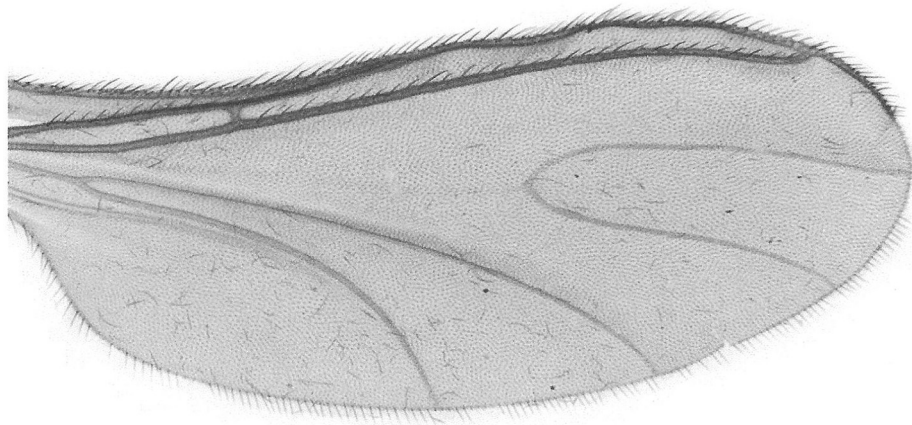
Additional description. Male. **Head.** Eye bridge 4 facets wide. Antenna brownish, necks bicoloured; 4th flagellomere with l/w-index of 3.2, with dense pale hairs that are longer than the width of the basal node; necks rather long, whitish, with brownish ends; palpus 3-segmented; basal segment with deepened sensory area and 1–2 bristles. **Thorax.** Brownish, scutum with a few long and dark lateral bristles; scutellum with two long marginal bristles; postpronotum bare. Wing pale; $R_1 = 2/3 R$; R_5 with dorsal macrotrichia only; $C = 3/4 w$; $y = x$, without macrotrichia; posterior veins without macrotrichia. Haltere short, brownish. Legs yellowish; fore tibia with a small comb of 4–5 pale bristles; spurs of middle and hind tibia equal in size, thin, as long as the apex of the tibia wide; claws toothless. **Abdomen.** Brownish, with sparse, short pale hairs. Hypopygium brownish, with v-shaped ventral base, without lobe or patch of bristles, gonocoxite with short fine hairs on the inner ventral margin; gonostylus bulbous in the middle, with dorsoapical tooth and 5–6 apical/subapical spines among dense hairs at the apex; tegmen not visible. Body length: 2.2 mm.



A



B



C

FIGURE 17. *Bradysia mastersi* (Skuse, 1888). A. Hypopygium in part; B. Apex of gonostylus; C. Wing.

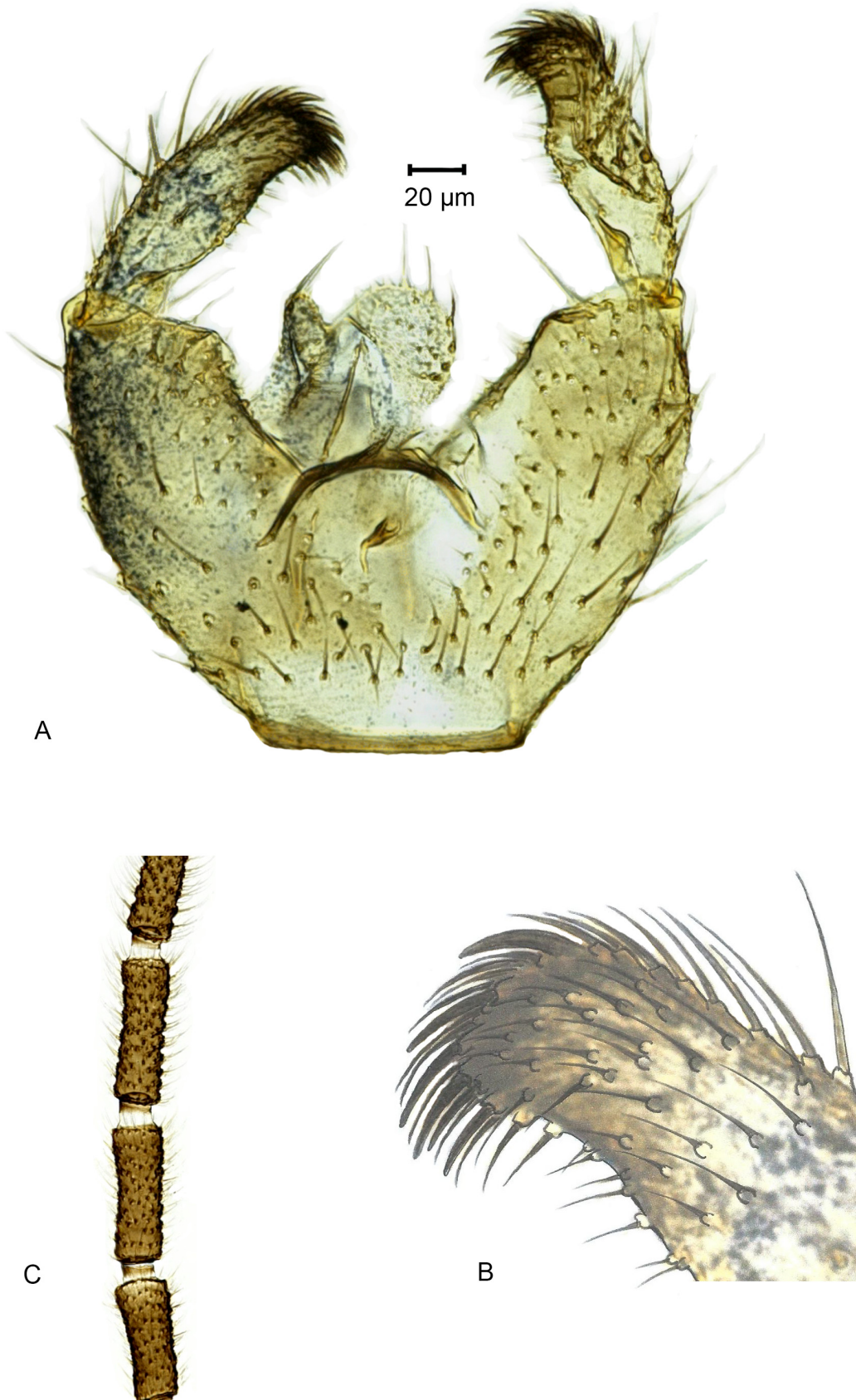


FIGURE 18. *Bradysia ornatula* (Skuse, 1888). A. Hypopygium; B. Apex of gonostylus; C. Flagellomeres 2–5.

Comments. The species is characterized by rather long densely hairy flagellomeres, with the hairs longer than the width of the basal node; a bulbous gonostylus with a claw-like tooth and 5–6 spines among bristles of the same size at the apex. It belongs to the *B. hilaris* group.

Distribution. Australia (New South Wales).

***Bradysia pernitida* (Skuse, 1888) comb. n.**

(Fig. 19 A–C)

Sciara pernitida Skuse, 1888 [Skuse (1888): 685–686].

Type locality. Australia, New South Wales, Elizabeth Bay, Sydney & Blue Mountains.

Lectotype (here designated): Male. Slide bears original label data verbatim ‘*Sc. pernitida*/ ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Eliz: Bay/ +B. MS’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 040-1).

Paralectotype. Female (not studied).

Remarks. Original description states “*Hab.*—Elizabeth Bay (Masters and Skuse); Glenbrook, Blue Mountains (Masters). November.

Preservation. Thorax somewhat deformed, gonostylus missing.

Additional description. Male. **Head.** Brown. Eye bridge 3 facets wide. Antenna brown, very long and thin, necks rather short, brownish; 4th flagellomere with a l/w-index of 5.0, with dense, bristle-like hairs that are barely longer than the width of the basal node; palpus 3-segmented, basal segment with a flat sensory area and 2–3 bristles. **Thorax.** Brown, scutum with three darker stripes, short hairs, and a few longer lateral bristles; scutellum with 2 longer marginal bristles; postpronotum bare. Wings brownish; R₁ = 2/3 R; R₅ with dorsal macrotrichia only; C = 3/4 w; y somewhat shorter than x, without macrotrichia; posterior veins distinct, without macrotrichia. Haltere short, brown. Legs brown; fore tibia with a broad comb of pale bristles; spurs of middle and hind tibia equal in size, somewhat longer than the width of the apex of tibia; claws without teeth. **Abdomen.** Brownish, with short, sparse, pale hairs. Hypopygium brown, with v-shaped ventral base, without lobe or patch of bristles; gonocoxite with rather long hairs on the inner ventral margin, with 2 megasetae at the ventral apex; gonostylus lost; tegmen apically rounded, with a large area of rather strong teeth and with strong ventral parameral apodeme. Body length: 3.0 mm.

Comments. This species belongs to the genus *Bradysia*. It is characterized by the brown body colour, unusually long and thin flagellomeres, a flat sensory area on the basal segment of the palpus, the v-shaped ventral base of the hypopygium, an apically rounded tegmen and 2 megasetae on the ventral apex of the gonocoxite. This combination of characters could allow an identification to species even though the gonostyles are missing.

Distribution. Australia (New South Wales).

***Bradysia pictipes* (Skuse, 1888) comb. n.**

(Fig. 20 A–E)

Sciara pictipes Skuse, 1888 [Skuse (1888): 721–722].

Type locality. Australia, New South Wales, in the neighbourhood of Narrabeen Lagoon.

Holotype: Male. Original label data verbatim ‘*Sc. pictipes*/ ♂. (ink) TYPE./ F. A. A. Skuse (print)’, ‘Narrabeen/ ???g OctS’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 041).

Preservation. Well preserved in all details.

Remarks. Original description states “*Hab.*—In the neighbourhood of Narrabeen Lagoon (Skuse). October.”

= *Sciara notata* Skuse, 1888 **syn. n.** [Skuse (1888): 720–721].

Type locality. Australia, New South Wales, Glenbrook, Blue Mountains.

Holotype: Male. Original label data verbatim ‘*Sciara notata*/ ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Glenbrook/ M’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 037).

Remarks. Original description states “*Hab.*—Glenbrook, Blue Mountains (Masters). November.”

Preservation. All details in good condition.

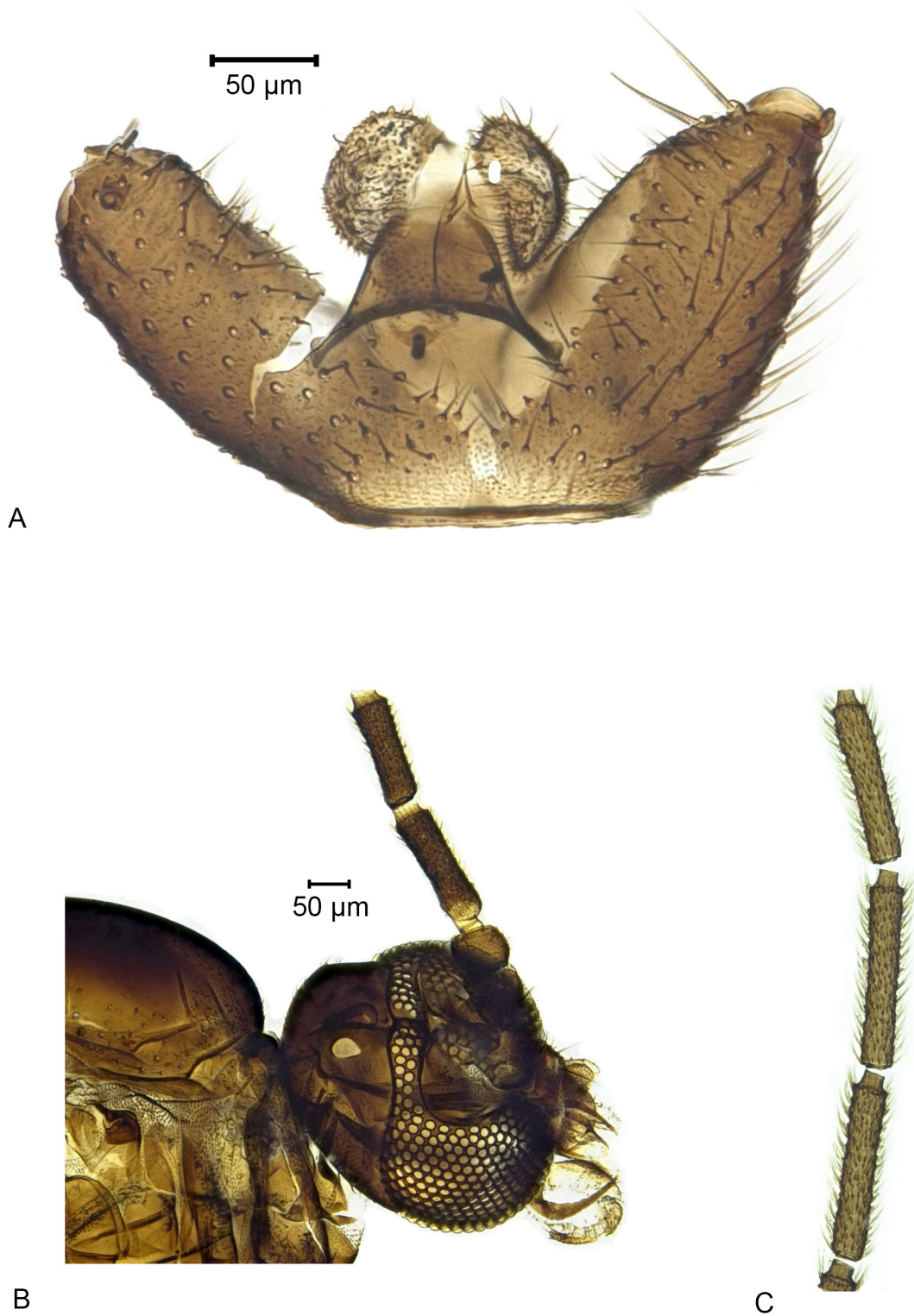


FIGURE 19. *Bradysia pernitida* (Skuse, 1888). A. Base of hypopygium; B. Head and thorax in part; C. Flagellomeres 4–6.

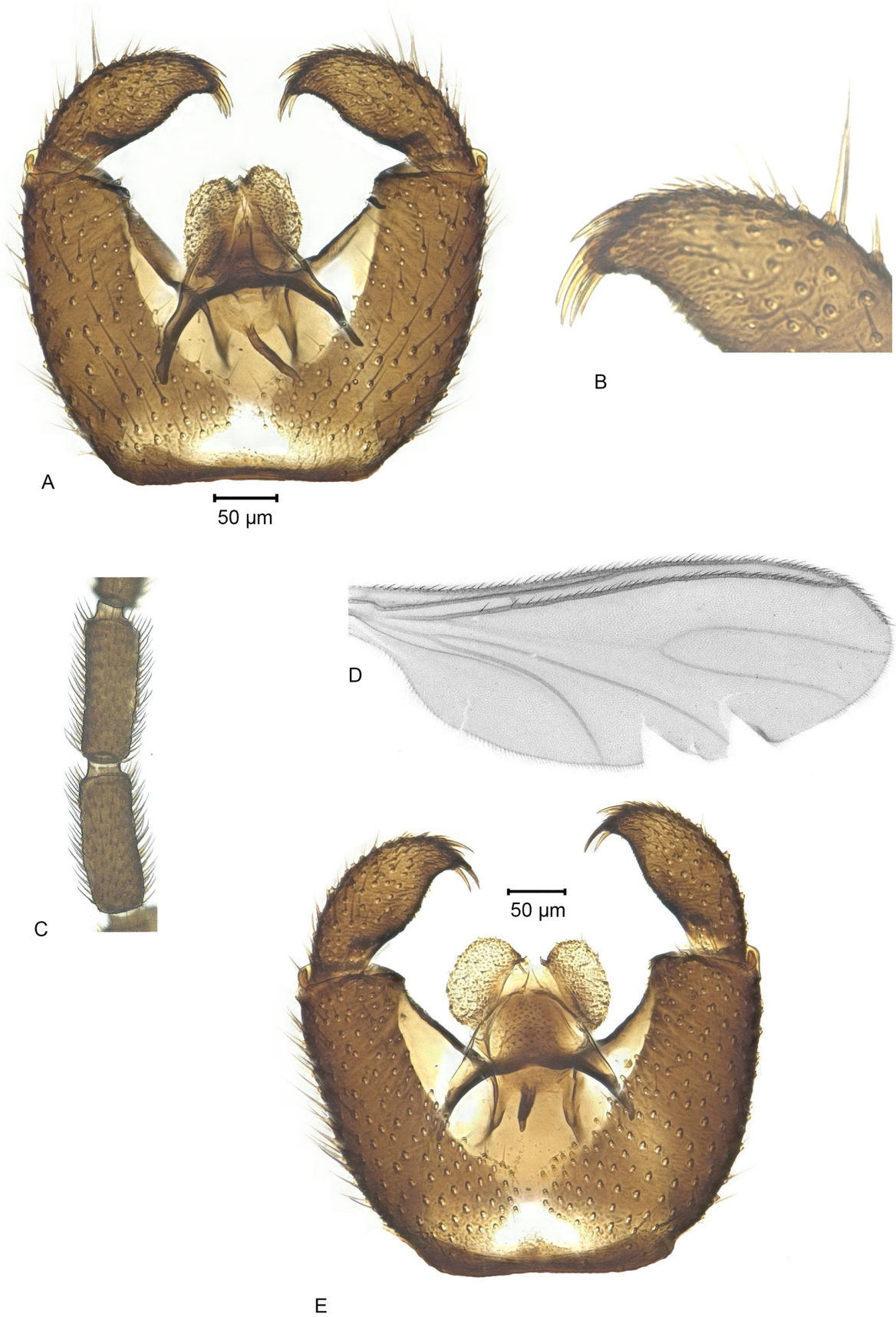


FIGURE 20. *Bradysia pictipes* (Skuse, 1888). A. Hypopygium; B. Apex of gonostylus; C. Flagellomeres 3–4; D. Wing; E. Hypopygium from *Sciara notata* Skuse.

= *Bradysia seticornis* Vilkamaa, Hippa & Mohrig, 2012 syn. n. [Vilkamaa *et al.* (2012c): 39–41, fig. 11 A–D].

Type locality. New Caledonia, Riviere Bleue National Park, rainforest.

Holotype: *Bradysia seticornis* Vilkamaa, Hippa & Mohrig, 2012, male, 21.vii.1992 (in Museum National d'Histoire Naturelle, Paris).

Additional description. Male. **Head.** Brown. Eye bridge 3 facets wide. Antenna brown, necks rather short, brownish, weakly bicoloured; 4th flagellomere with a l/w-index of 4.0, densely setose, somewhat longer than the width of the basal node; palpus long, 3-segmented, basal segment with sensory pit and 2-3 bristles. **Thorax.** Brown, scutum with three somewhat darker stripes, with long prescutellar as well as a few lateral bristles; scutellum with four longer marginal bristles; postpronotum bare. Wing pale; $R_1 = 3/4 R$; R_3 with dorsal macrotrichia only; $C = 2/3 w$; y somewhat longer than x , with 1-2 macrotrichia; posterior veins without macrotrichia. Haltere short, brownish. Legs yellowish-brown; fore tibia with a broad comb of 6–7 pale bristles; spurs of middle and hind tibia equal in size, somewhat longer than the width of the tibia apex; claws without teeth. **Abdomen.** Brown, with short, sparse, pale hairs. Hypopygium brown, with broad v-shaped ventral base, without lobe or patch of bristles; gonocoxite with short, sparse, fine hairs on the inner ventral margin; gonostylus weakly bulbous, without apical tooth, with one spine dorsally located and 4 apical spines (the two centrally located spines are longer); tegmen apically rounded, with a large area of teeth and with strong ventral parameral apodeme. Body length: 3.8 mm.

Comments. This species is characterized by a dark brown thorax and yellowish legs, long densely hairy flagellomeres; bulbous gonostylus, with one dorsally located spine and 4 apical spines; and a large apically rounded tegmen, with a large area of teeth. It belongs to the *B. hilaris* group. The species is similar to *B. exsequialis* (Skuse) with respect to the shape of the gonostylus, but it differs in the arrangement of the apical spines and the shape of the tegmen, with a stronger ventral parameral apodeme in *B. pictipes*. *Sciara notata* Skuse, and *Bradysia seticornis* Vilkamaa, Hippa & Mohrig from New Caledonia are identical to *B. pictipes* Skuse in all details.

Distribution. Australia (New South Wales), New Caledonia.

***Bradysia unica* (Skuse, 1888) comb. n.**

(Fig. 21 A–C)

Sciara unica Skuse, 1888 [Skuse (1888): 708–709].

Type locality. Australia, New South Wales, Gosford.

Holotype: Male. Original label data verbatim ‘*Sciara unica* ♂ TYPE./ F. A. A. Skuse’ (print), ‘Gosford./ S.’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 049).

Remarks. Original description states “*Hab.*—Gosford (Skuse). February.”

Preservation. All details in good condition.

Additional description. Male. **Head.** Eye bridge three facets wide; antenna brown, 4th flagellomere with l/w index of 2.5, with dense curved hairs, surface slightly rough; palpus 3-segmented, rather long, basal segment without deepened sensory area, with 2–3 bristles. **Thorax.** Brown, with three dark stripes on scutum; scutum with fine pale hairs; scutellum with 2 longer marginal bristles; postpronotum bare. Wing pale; $R_1 = 2/3 R$; R_3 with dorsal macrotrichia only; $y = x$, without macrotrichia; posterior veins without macrotrichia. Haltere short, brownish. Legs long and thin, yellowish-brown; fore tibia with a small comb of bristles; spurs of middle and hind tibia equal in size, as long as the width of apex of tibia; claws finely toothed. **Abdomen.** Brownish, with short sparse brownish hairs. Hypopygium with a v-shaped ventral base, without lobe or patch of bristles; gonocoxite with rather short fine hairs on the inner ventral margin; gonostylus without apical tooth, with 5 short spines among dense hairs at the apex; tegmen strikingly long, apically rounded, with fine teeth and with strong ventral parameral apodeme. Body length: 2.8 mm.

Comments. This species is characterized by flagellomeres with dense curved hairs; scutum with three dark stripes and short fine hairs; yellowish legs with finely toothed claws; and an elongate gonostylus with 4–5 short fine spines among spine-sized bristles at the apex. It could belong to the *B. fungicola* group.

Distribution. Australia (New South Wales).

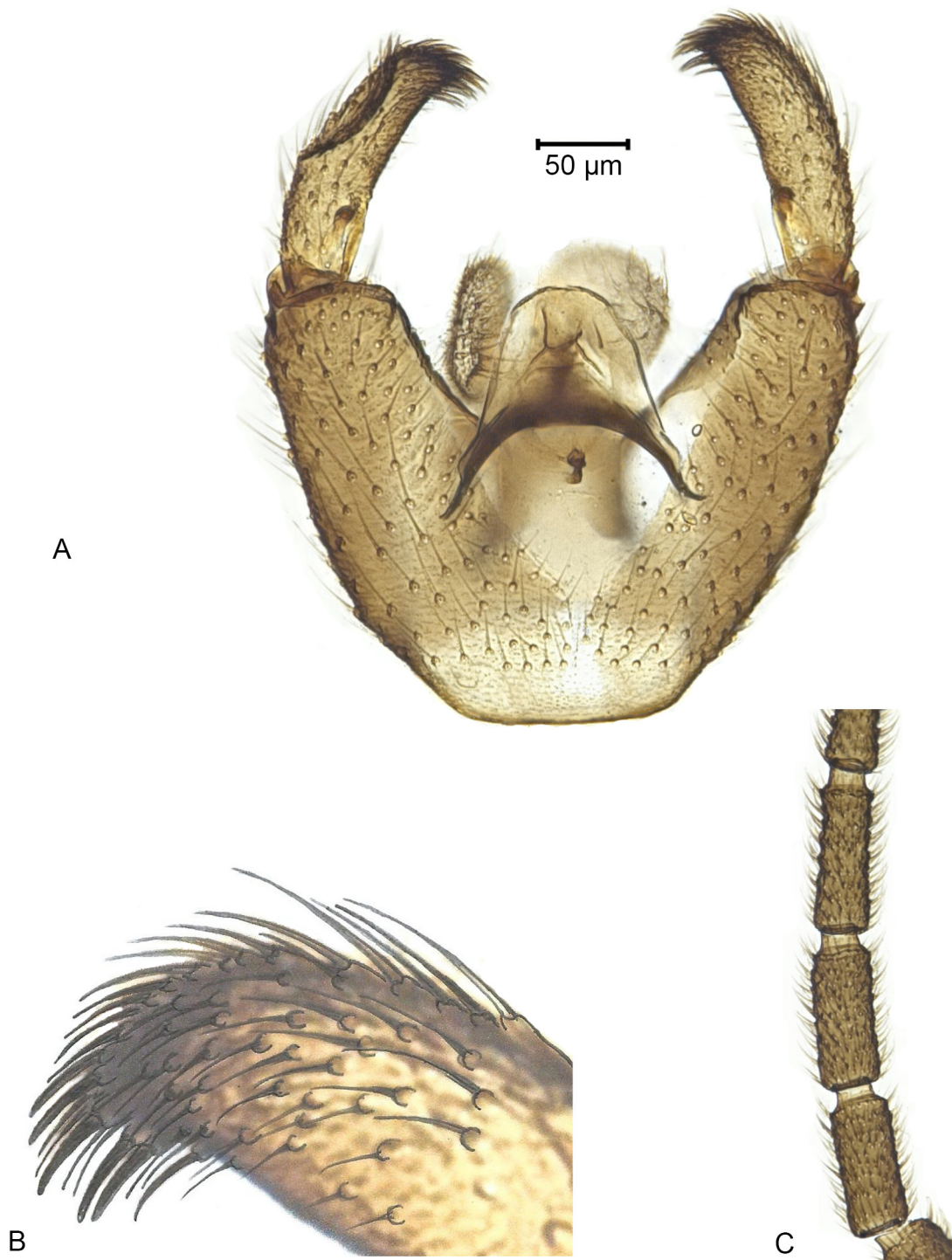


FIGURE 21. *Bradysia unica* (Skuse, 1888). A. Hypopygium; B. Apex of gonostylus; C. Flagellomeres 3–4.

Genus *Corynoptera* Winnertz, 1867

Type species: *Corynoptera perpusilla* Winnertz, 1867; = *Corynoptera fatigans* (Johannsen, 1912) [preocc. nec *Corynoptera perpusilla* (Walker, 1848)].

Literature: Tuomikoski (1960): 42–73; Menzel & Mohrig (2000): 205–260; Hippa *et al.* (2010): 1–197.

***Corynoptera minutela* (Skuse, 1888) comb. n.**

(Fig. 22 A–C)

Sciara minutela Skuse, 1888 [Skuse (1888): 702–704].

Type locality. Australia, New South Wales, Glenbrook, Blue Mountains.

Lectotype (here designated): Male. Slide bears original label data verbatim ‘*Sc. minutela* ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Glenbrook/ M.’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 035-1).

Paralectotype. Female (not studied).

Remarks. Original description states “*Hab.*—Glenbrook, Blue Mountains (Masters). November.”

Preservation. Flagellomeres missing, posterior part of thorax destroyed, other morphological structures in good condition.

Additional description. Male. Eye bridge 3 facets wide. Antennae missing; palpus 3-segmented; basal segment with 1 bristle. **Thorax.** Brownish, scutum with long dorsocentral and stronger lateral bristles; scutellum missing; postpronotum bare. Wing pale; R_1 short, = $2/3 R$; R_2 with dorsal macrotrichia only; C short, = $1/2 w$; $y = x$, without macrotrichia; posterior veins weak, without macrotrichia. Haltere lost. Legs pale-yellowish; fore tibia with a small comb of 4 pale bristles; spurs of middle and hind tibia equal in size, thin, somewhat longer than the width of tibia apex; claws without teeth. **Abdomen.** Brownish, with rather long, sparse hairs. Hypopygium brownish, with v-shaped ventral base, without lobe or patch of bristles, gonocoxites with short fine hairs on the inner ventral margin; gonostylus pointed in apical half and weakly concave, without apical tooth, with 4 long spines in the apical third; tegmen not visible. Body length: 1.6 mm.

Comments. The species is characterized by a short C; a weakly concave gonostylus that is pointed in the apical half and with 4 long spines in the apical third. It resembles Palearctic species related to *C. membranigera* (Kieffer, 1903) but also species of the *C. harrisi* group like *C. fuscispica* Mohrig 1999 from New Zealand (Mohrig & Jaschhof 1999).

Distribution. Australia (New South Wales).

Genus *Pseudolykoriella* Menzel & Mohrig, 1998

Type species: *Sciara bruckii* Winnertz, 1867.

Literature: Menzel & Mohrig (1998): 367; Mohrig & Jaschhof (1999): 36–43; Menzel & Mohrig (2000): 464–480; Vilkkamaa *et al.* (2012a): 1–21; Mohrig (2013): 136–168.

***Pseudolykoriella cavatica* (Skuse, 1888) comb. n.**

(Fig. 23 A–D; Fig. 24 A–B)

Sciara cavatica Skuse, 1888 [Skuse (1888): 688–689].

Type locality. Australia, New South Wales, Glenbrook, Blue Mountains.

Holotype: Male. Original label data verbatim ‘*Sc. cavatica* ♂ (ink) TYPE. / F. A. A. Skuse’ (print), ‘Glenbrook/ M’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 009).

Preservation. All details in good condition, wings somewhat deformed.

Remarks. Original description states “*Hab.*—Glenbrook, Blue Mountains (Masters). End of November.”

= *Sciara familiaris* Skuse, 1888 **syn. n.** [Skuse (1888): 687–688].

Type locality. Australia, New South Wales, Elizabeth Bay.

Lectotype (here designated): Male. Slide bears original label data verbatim ‘*Sc. familiaris* ♂ (ink) TYPE./ F. A. A. Skuse’ (print). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 019-1).

Paralectotypes. 1 female and 1 male (not studied).

Remarks. Original description states “*Hab.*—Elizabeth Bay (Skuse). January.”

Preservation. Head missing, thorax and legs damaged, wings and hypopygium in good condition.

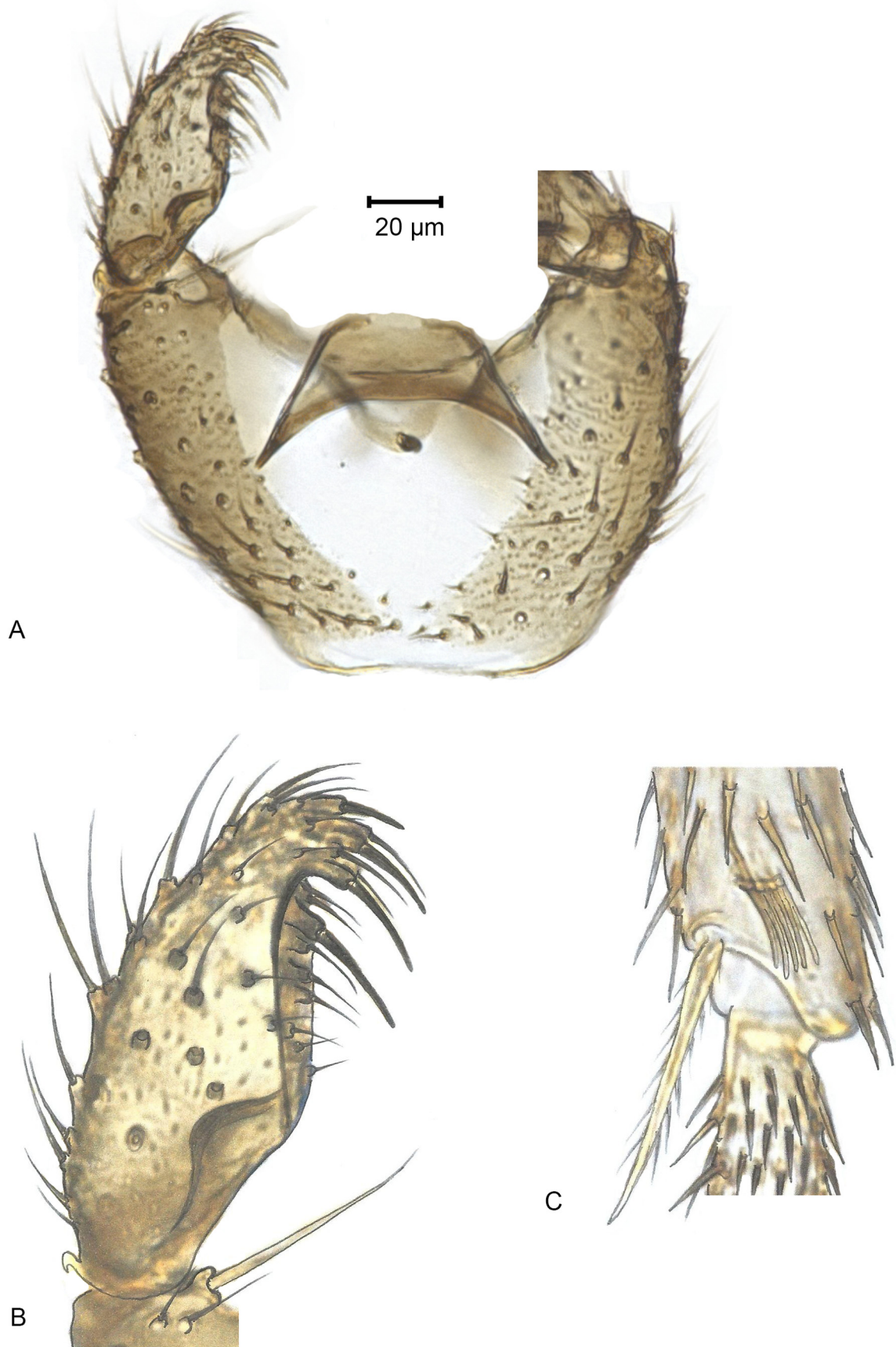


FIGURE 22. *Corynoptera minutela* (Skuse, 1888). A. Hypopygium in part; B. Gonostylus; C. Apex of fore tibia (somewhat deformed).

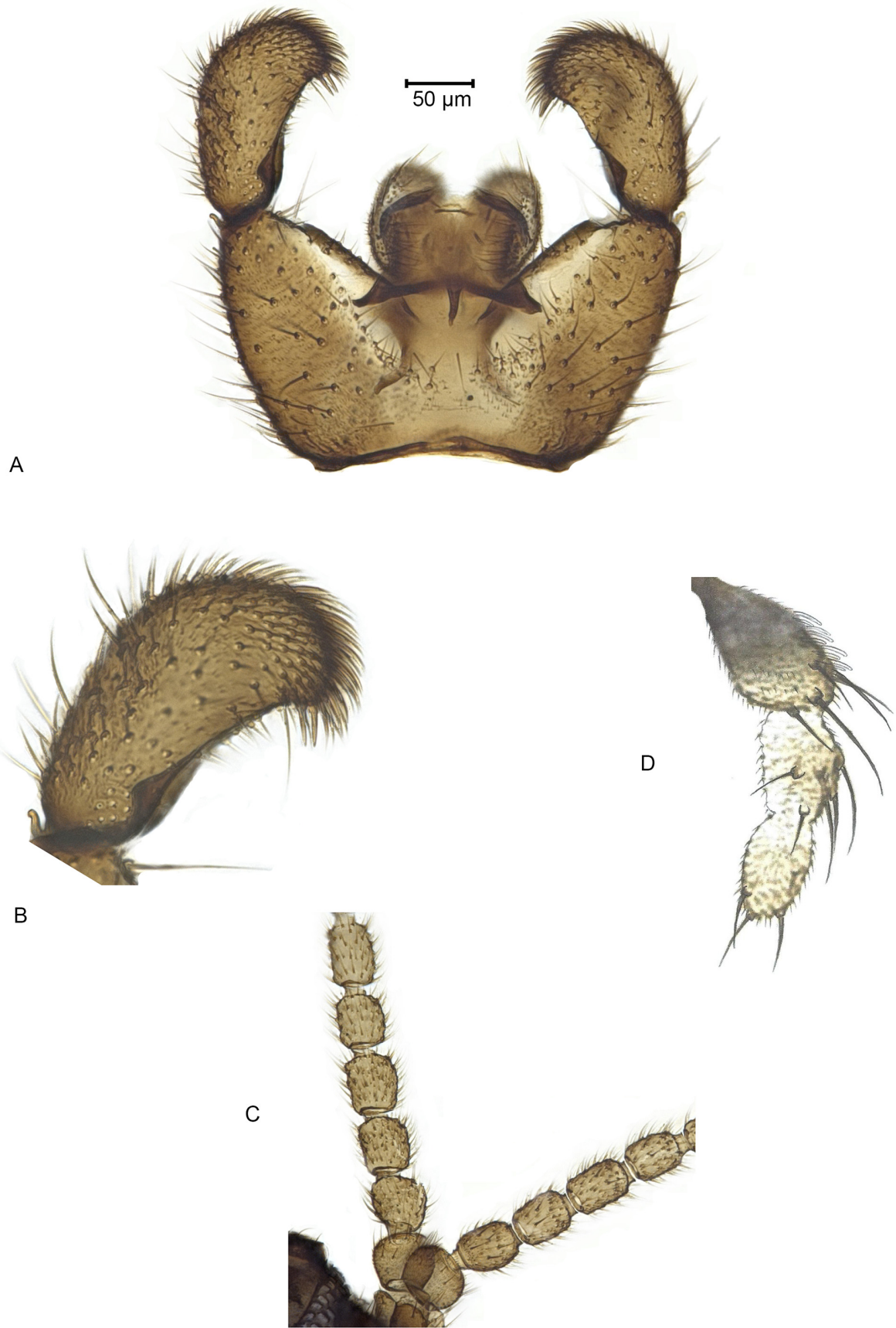
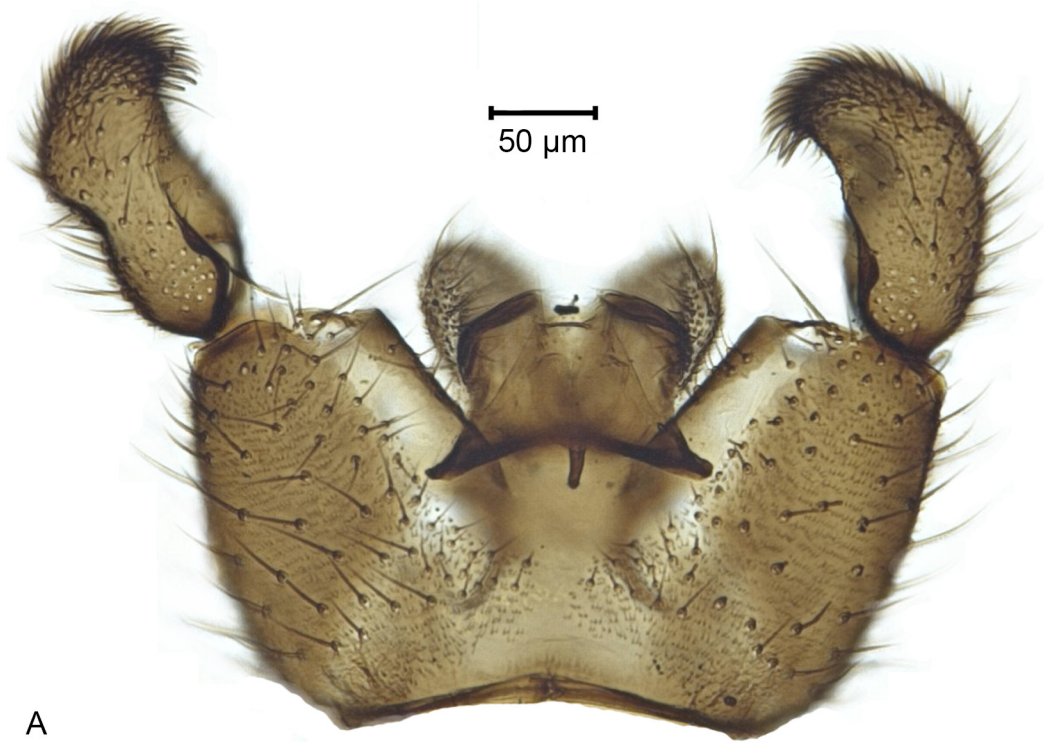
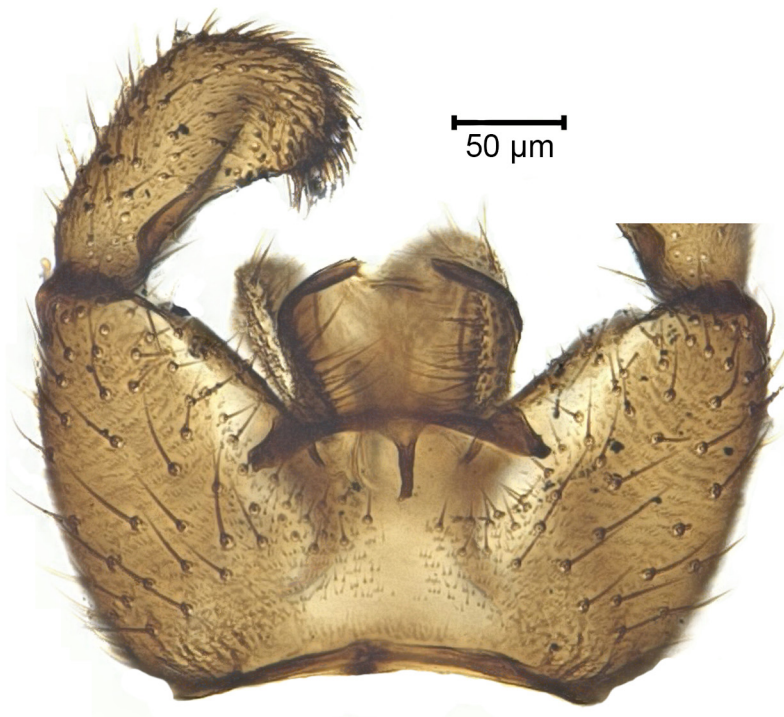


FIGURE 23. *Pseudolycoriella cavatica* (Skuse, 1888). A. Hypopygium; B. Gonostylus; C. Pedicel and flagellomeres 1–5; D. Palpus (from *Sciara festiva* Skuse, 1888).



A



B

FIGURE 24. *Pseudolycoriella cavatica* (Skuse, 1888). A. Hypopygium from *Sciara familiaris* Skuse 1888; B. Hypopygium from *Sciara festiva* Skuse, 1888.

= *Sciara festiva* Skuse, 1888 syn. n. [Skuse (1888): 689–690].

Type locality. Australia, New South Wales, Sydney.

Lectotype (here designated): *Sciara festiva* Skuse, 1888. Male. Slide bears original label data verbatim ‘*Sciara festiva* ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Sydney/ S’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 021-1).

Paralectotype. 1 female (not studied).

Remarks. Original description states “*Hab.*—Elizabeth Bay (Skuse). May.”

Preservation. Gonostylus slightly deformed.

Additional description. Male. **Head.** Eye bridge 2 facets wide; frons between eye bridge and scape with a few bristles. Antenna short; 4th flagellomere with l/w-index of 1.4, with hairs pale, bristle-like and nearly as long as the width of the basal node; necks rather short, brownish; palpus 3-segmented; basal segment without sensory pit, with 4-5 bristles. **Thorax.** Scutum with rather short and brown central as well as lateral bristles; scutellum with 2 long and 4 shorter marginal bristles; postpronotum bare. Wing brownish; $R_1 = 1/2 R$; R_5 throughout with macrotrichia dorsally and ventrally; $C = 3/4 w$; $y = x$, with 1–2 macrotrichia; M-fork long, posterior veins without macrotrichia. Haltere short, brownish. Legs brownish; tibial organ small, with 4–5 fine hyaline bristles in an irregular row; spurs of middle and hind tibia equal in size, longer than the width of apex of tibia; claws missing. **Abdomen.** With rather long, dense brownish hair. Hypopygium with broad open ventral base, without lobe or patch of bristles; gonocoxite with short and sparse hairs on the inner ventral margin; gonostylus curved in the apical third, densely hairy on the apex, with 2 subapical spines as long as apical hairs, and with a long whiplash hair below; tegmen wider than long, with dark sclerotized shoulders laterally, rounded apically; aedeagus rather short, with large furca. Body length: 2.2 mm.

Comments. This species is characterized by very short flagellomeres, frons with short bristles, gonostylus with 2 short spines and a much longer whiplash hair, and a tegmen that has rather strongly sclerotized shoulders. The type specimens of *S. familiaris* and *S. festiva* are in rather good condition. Both are identical to *Psl. cavatica* (Skuse 1888) in all details.

Distribution. Australia (New South Wales).

***Pseudolycoriella ignobilis* (Skuse, 1888) comb. n.**

(Fig. 25 A–C)

Sciara ignobilis Skuse, 1888 [Skuse (1888): 717–718].

Type locality. Australia, New South Wales, Berowra.

Holotype: Male. Original label data verbatim ‘*Sc. ignobilis* ♂ (ink) TYPE./ F. A. A. Skuse (print)’, ‘Berowra/ M + S.’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 027).

Remarks. Original description states “*Hab.*—Berowra (Masters and Skuse). August.”

Preservation. Head and thorax strongly deformed, flagellomeres missing, hypopygium deformed, one gonostylus damaged, the second deformed with apical spines broken off.

Additional description. Male. **Head.** Brown. Eye bridge 3 facets wide; antennae missing; palpus 3-segmented; basal segment without sensory pit, with 3–4 bristles. **Thorax.** Brown; scutum with rather long and brownish prescutellar as well as a few lateral bristles; scutellum with 4 longer marginal bristles; postpronotum bare. Wing brownish; $R_1 = 2/3 R$; R_5 with dorsal macrotrichia only; $c = 2/3 w$; $y = x$, without macrotrichia; posterior veins without macrotrichia. Haltere short, whitish. Legs brownish; fore tibia with a large patch of hyaline bristles; spurs of middle and hind tibia equal in size, longer than the width of tibia apex; claws without teeth. **Abdomen.** With rather long, sparse, brownish hairs. Hypopygium with v-shaped ventral base, without lobe or patch of bristles; gonocoxite with short sparse hairs on the inner ventral margin; gonostylus elongate, densely hairy and bristle-like at the apex, with 2 somewhat subapical spines and a long whiplash hair among bristle-like hairs below the spines; tegmen deformed. Body length: 2.0 mm.

Comments. This strongly deformed specimen is difficult to characterize. For classification it may help to use the following combination of characters: the large patch of hyaline bristles on the fore tibia, gonostylus with 2 apical spines among bristle-like hairs above and below the spines, as well as the venation of the wings.

Distribution. Australia (New South Wales).

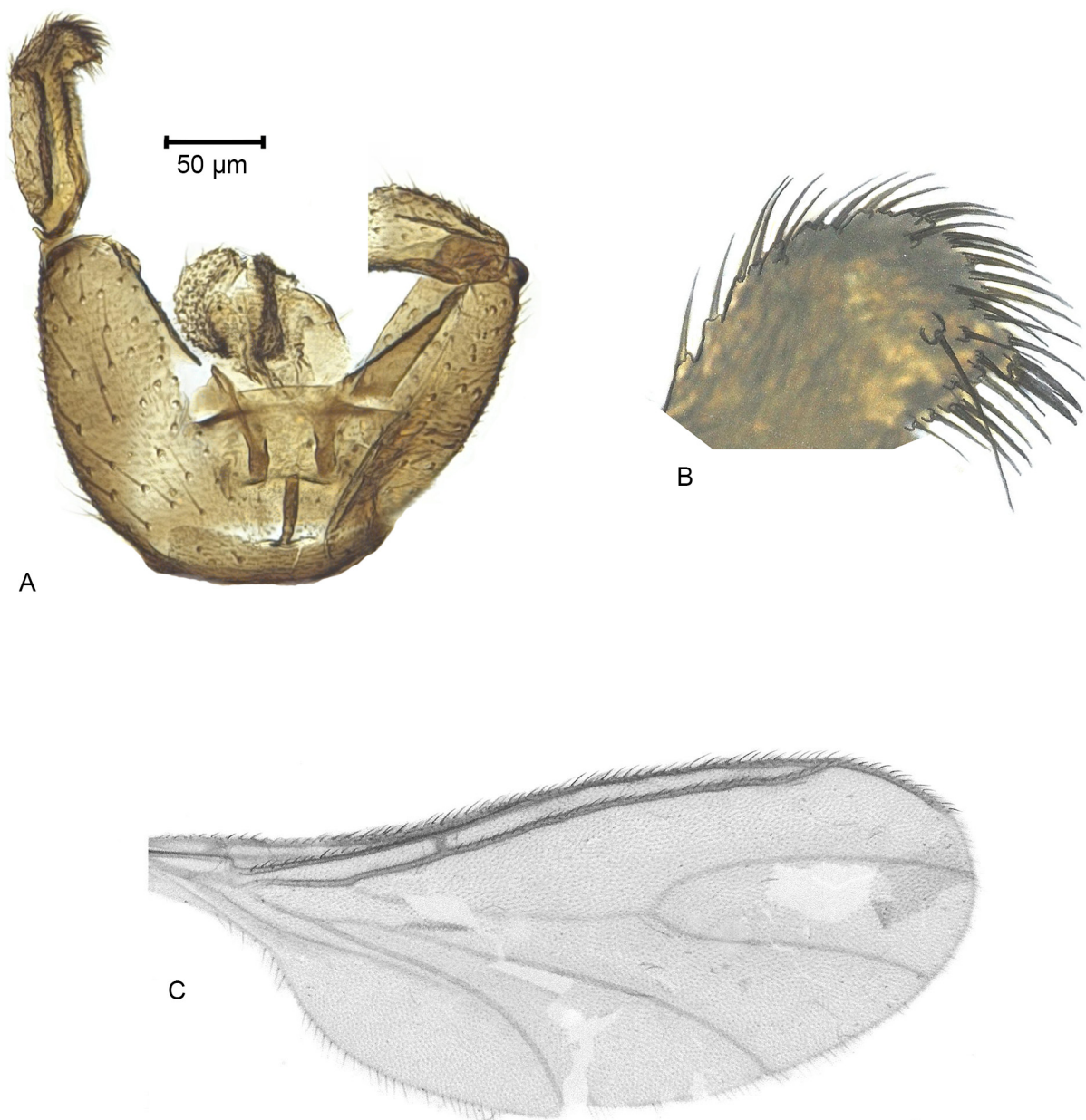


FIGURE 25. *Pseudolykoriella ignobilis* (Skuse, 1888). A. Hypopygium; B. Apex of gonostylus (phantom picture); C. Wing.

Genus *Pseudozygomma* Mohrig, 2004

Type species: *Pseudozygomma contraria* Mohrig, 2004.

Literature: Mohrig (2004): 144–149, figs 14–17.

***Pseudozygomma maculipennis* (Skuse, 1890) comb. n.**
(Fig. 26 A–G)

Zygoneura maculipennis Skuse, 1890 [Skuse (1890): 411–412].

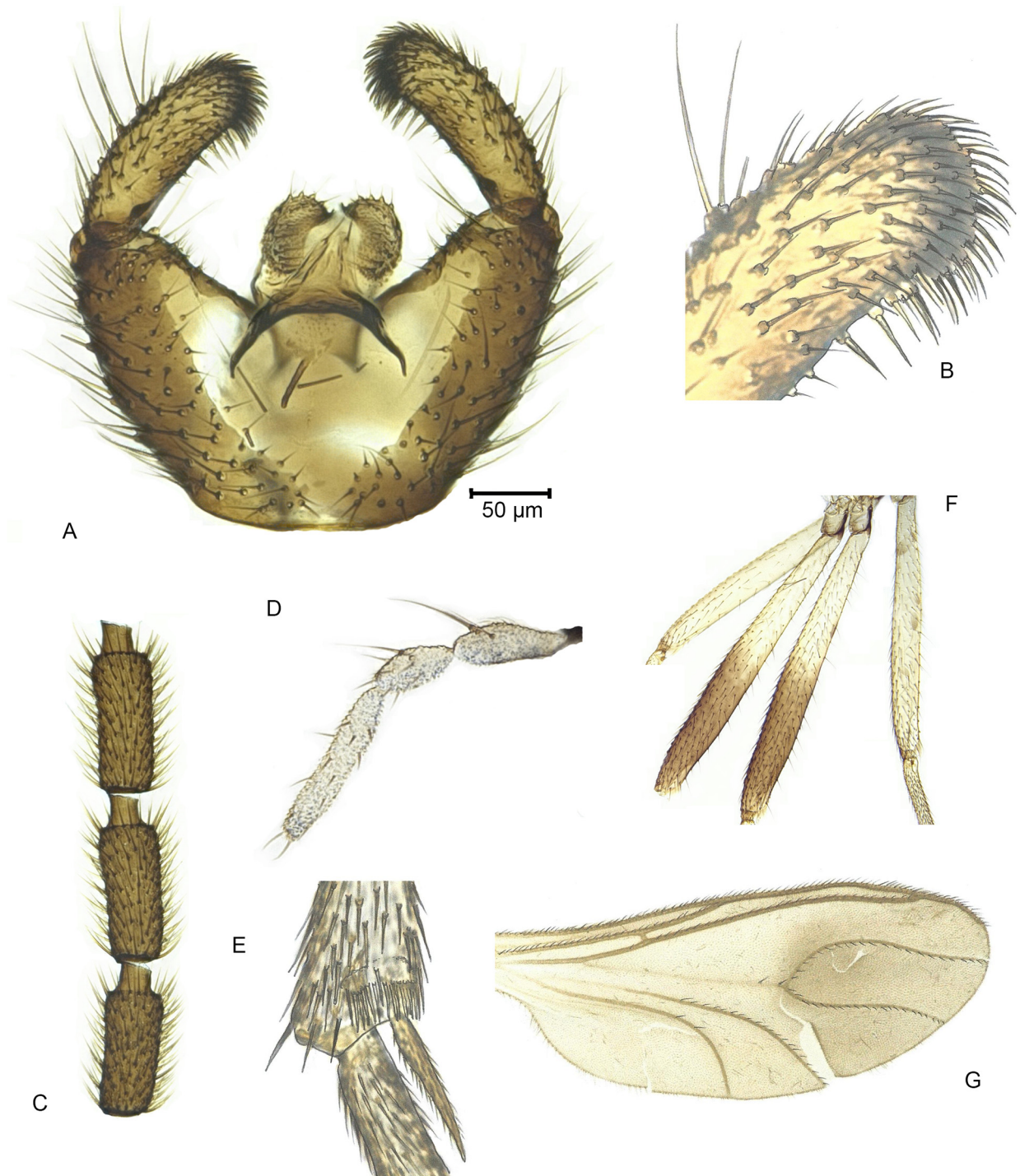


FIGURE 26. *Pseudozygomma maculipennis* (Skuse, 1890). A. Hypopygium; B. Gonostylus, apical half; C. flagellomeres 3–5; D. Palpus; E. Apex of fore tibia; F. Femora p_2 (outsides), femora p_3 (insides); G. Wing.

Type locality. Australia, New South Wales, Hogan’s Brush, Narara Creek, near Gosford.

Lectotype (here designated): Male. Slide bears original label data verbatim ‘*Zygoneura maculipennis*/ ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Hogan’s Brush/ Narara. Sk./ August.’ (ink). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 053-1).

Paralectotypes. 1 male, same data (PWMP; Slide No. 053-3); 1 female: original label data verbatim ‘*Zygoneura maculipennis*/ ♀ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Sydney’ (ink) (not studied).

Preservation. All morphological details in good condition; thorax of paralectotype damaged.

Remarks. Original description states “*Hab.*—Sydney, and Hogan’s Brush, Narara Creek, near Gosford, N.S.W. (Skuse). Five specimens in August.”

Further material: 2 males, 17.–24.XII.1993, NSW, Candelo near Bega, yellow trap, leg. A. Kallis (PWMP).

Additional description. Male. **Head.** Dark brown. Eye bridge 3 facets wide; flagellomeres brown, necks rather long, brown; 4th flagellomere with l/w index of 2.6, hairs very dense and somewhat longer than the width of the basal node; palpus 3-segmented, yellow, basal segment without sensory pit, with 2 bristles, last segment long. **Thorax.** Dark brown, scutum with short hairs (prescutellar and lateral hairs not more robust); scutellum with 2 longer marginal bristles; mediotergite with a few fine hyaline bristles in the middle; postpronotum bare. Wing pale, weak fuscous patch around the base of the M-fork; $R_1 = 2/3 R$; R_5 with ventral macrotrichia in the distal half; $y = x$, without macrotrichia; M-stem weakly visible, with 1–3 macrotrichia; M-fork vase-like, with strongly arched M_1 ; M-branches and $2/3$ of CuA_1 with macrotrichia, the strongly curved CuA_2 with single macrotrichia only. Haltere short, brown. Coxae yellow, legs yellowish-brown, femora of hind legs brown in the distal half; fore tibia with a few spine-like bristles within the ground hair; apex of fore tibia with a broad comb of hyaline bristles, semicircular bordered; spurs of middle and hind tibia equal in size, longer than the width of the tibia apex; claws without teeth. **Abdomen.** Brown, densely hairy, rather long and dark. Hypopygium with broad v-shaped ventral base, without lobe or patch of bristles, but with hairs somewhat longer than gonocoxite on the inner ventral margin; gonostylus elongate, without apical tooth, apically as well as in the distal half of the inner side covered densely with short bristles and fine bristle-like spines (5–6 spines somewhat longer than hairs near the middle of the inner side); tegmen deformed, with fine teeth; aedeagus rather short and thin. Body length: 3.2 mm.

Comments. This species is characterized by a vase-like M-fork, macrotrichia on M-branches and CuA_1 , a 3-segmented palpus without a sensory pit, brown coloured distal half of hind femora, a slightly semicircular bordered comb of bristles on the apex of the fore tibia and claws without teeth. The species belongs to the genus *Pseudozygomma* Mohrig, known from Papua New Guinea. In the shape of the gonostylus it is similar to *Pseudoz. flavoabdominalis* Mohrig, 2004.

Distribution. Australia (New South Wales).

Genus *Sciara* Meigen, 1803

Type species: *Tipula thomae* Linnaeus, 1767 [= *Sciara hemerobioides* (Scopoli, 1763, as *Tipula*)].

Literature: Tuomikoski (1960): 13–15; Menzel & Mohrig (2000): 515–532; Sutou *et al.* (2004): 175–192; Mohrig *et al.* (2013): 246–253.

Sciara tryoni Skuse, 1890

(Fig. 27 A–E)

Sciara tryoni Skuse, 1890 [Skuse (1890): 391–393].

Type locality. Australia, Queensland, Brisbane, Hamilton, Upper North Pine.

Lectotype (here designated): Male. Slide bears original label data verbatim ‘*Sciara tryoni* ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Hamilton/ Upp-Nth-Pine/ C.J.W. Jan-90’ (print). Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 048-1).

Paralectotype. Female (not studied).

Preservation. In good condition, claws missing, apical third of one gonostylus missing.

Remarks. Original description states “*Hab.*—Brisbane (H. Tryon and F. Allbon), Hamilton, Upper Nth. Pine, Queensland (C. J. Wild); *several specimens in Coll. Queensland Museum*. January to March.” A search of the Queensland Museum collection was made in July 2015 and no types were found (C. Lambkin, pers. comm.).

= *Sciara insulana* Vilkamaa, Hippa & Mohrig, 2015 **syn. n.** [Vilkamaa, Hippa & Mohrig (2015): 590–591, fig. 1 A–D].

Type locality. New Caledonia.

Holotype: *Sciara insulana* Vilkamaa, Hippa & Mohrig, 2015, male.

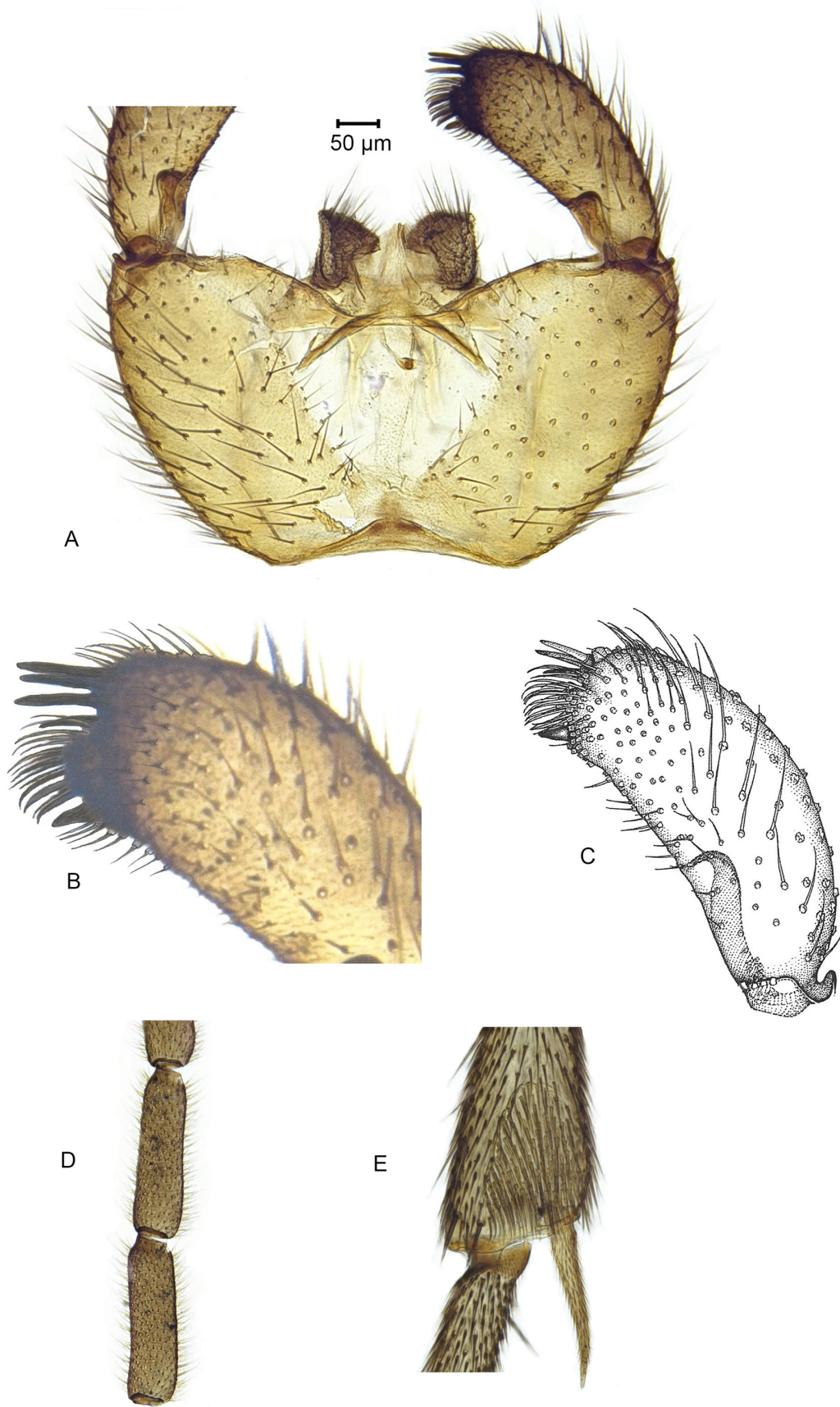


FIGURE 27. *Sciara tryoni* Skuse, 1890. A. Hypopygium; B. Apical half of gonostylus; C. Gonostylus from *S. insulana* Vilkamaa, Hippa & Mohrig (after Vilkamaa *et al.* 2015); D. Flagellomeres 3–4; E. Apex of fore tibia.

Additional description. Male. **Head.** Brownish. Eye bridge not visible; antenna brownish, with bottle-like necks; 4th flagellomere with l/w index of 3.5, densely hairy, as long as the width of the basal node, with bottle-like necks; palpus 3-segmented, rather short, basal segment without deepened sensory area, with 3–4 bristles. **Thorax.** Yellow; scutum with fine, sparse pale hairs; scutellum with a few short marginal bristles; postpronotum bare. Wing pale; R₁ long, joining C opposite to the M-fork; R₅ with dorsal macrotrichia only; y shorter than x, with macrotrichia; all posterior veins with macrotrichia, a few macrotrichia on A₁ as well. Haltere short, brownish. Legs long and thin, yellowish-brown, hind leg distinctly darker; fore tibia with a large area of dense bristles; spurs of middle and hind tibia equal in size, as long as the width of tibia apex; claws missing. **Abdomen.** Brownish, with long dense hair. Hypopygium yellow, with broad v-shaped ventral base, without lobe or patch of bristles; gonocoxite with fine, sparse and short hairs on the inner ventral margin; gonostylus elongate, with black apical spines (3 long and 1 short), below the spines there is a small lobe, covered densely with spine-like bristles, below these bristles is a short tooth; tegmen rather narrow, pyramid-like, slightly shouldered laterally. Body length: calculated 4.8 mm.

Comments. The species is characterized by flagellomeres with bottle-like necks; yellow-brown thorax; wings with macrotrichia on posterior veins; elongated gonostylus with 4 black apical spines, a somewhat subapical small lobe, covered densely with short spine-like bristles and a short subapical tooth. The latter is a unique character in species of the genus *Sciara*. *Sciara tryoni* is similar to the North American species *S. futilis* Johannsen which also possesses a subapical tooth. Vilkamaa *et al.* (2015) placed this species together with *S. futilis* and two species from Nepal and Inner Mongolia, respectively in a separate *Sciara futilis* group. *Sciara insulana* is identical to *S. tryoni* Skuse in nearly all morphological details except the darker thorax and fewer macrotrichia on the posterior wing veins. These are less important characters and occur often in species that are geographically widespread. It has been described from New Caledonia, where it was collected from sclerophyllous forest.

Distribution. Australia (Queensland), New Caledonia.

Genus *Scythropochroa* Enderlein, 1911

Type species: *Scythropochroa latefurcata* Enderlein, 1911.

Literature: Menzel & Mohrig (2000): 532–538; Mohrig (2004): 130–139; Sutou *et al.* (2004): 375–381; Rudzinski (2006): 468–472.

Scythropochroa macleayi (Skuse, 1888) comb. n.

(Fig. 28 A–C)

Sciara macleayi (Skuse, 1888) [Skuse (1888): 673–674, Fig. 1].

Type locality. Australia, New South Wales, Lawson.

Lectotype (here designated): Male. Slide bears original label data verbatim ‘*Sciara macleayi*! ♂ (ink) TYPE./ F. A. A. Skuse’ (print), ‘Lawson/ M’. Mounted in Canada balsam Dec. 2015. (ANIC; Slide No. 032-1).

Paralectotypes. Male. Original label data verbatim ‘*S. macleayi*’, ‘Bowral (M)’. Mounted in Canada Balsam Sept. 2015. (PWMP; Slide No. 032-3). 1 male and 2 females (not studied).

Preservation. Flagellomeres lost; thorax strongly damaged, legs partly destroyed, hypopygium in good condition.

Remarks. Original description states “*Hab.*—Lawson and Glenbrook, Blue Mountains, also Bowral (Masters); Manly, near Sydney (Skuse).”

Additional description. Male. **Head.** Brown. Eye bridge 4 facets wide; flagellomeres missing; palpus 1-segmented. **Thorax.** Brown, scutum with rather long and dense dorsocentral and lateral hairs; scutellum covered densely with rather long bristles, marginal bristles not developed; mediotergite with an irregular row of short bristles in the proximal third as well as short bristles on the sclerite behind the first spiracle and on the katepisternum in the proximal angle; postpronotum bare. Wing brownish; R₁ rather long, longer than R, joining C distally from the base of the M-fork; R₅ throughout with dorsal and ventral macrotrichia; C = ½ w; y longer than x,

both with macrotrichia; M-stem weakly visible, sometimes with 1–3 macrotrichia; M-branches and CuA₁ with a few macrotrichia distally. Haltere short, brown. Legs brown; apex of the fore tibia with a large patch of dark bristles; spurs of middle and hind tibia equal in size; claws without teeth. **Abdomen.** Brown, with rather long dense hairs. Hypopygium with broad open ventral base, without lobe or patch of bristles; gonocoxite rather short and strong, with rather long and moderately dense hairs on the inner ventral margin, ventral apex without long megaseta; gonostylus nearly as long as gonocoxite, apically broad and forehead shaped, with short dishevelled hairs, angular near the middle and with 3 short black spines, inner side above spines with longer bristles; tegmen pyramid-like and apically pointed, laterally shouldered, with fine hair-like teeth and with a short and broad ventral parameral apodeme; aedeagus rather short and thin, with a small furca. Body length: 5.0 mm.

Comments. This large species is characterized by a 1-segmented palpus, bristles on thoracic sclerites, brownish wings with long R₁, macrotrichia on branches of M-fork, CuA₁, y and x; large gonostylus with high forehead-like shaped apex and 3 short spines on a corner near the middle. It is a typical species of the genus *Scythropochroa*. It shows similarities to *Scyth. parapectinea* Mohrig from Papua New Guinea (Mohrig 2013) by the arrangement of the spines on the inner side of the gonostylus.

Distribution. Australia (New South Wales).

Species list

Bold = valid taxon

amabilis (Skuse, 1888), *Bradysia*
cavatica (Skuse, 1888), *Pseudolykoriella*
conjuncta (Skuse, 1890), *Bradysia*
crassicornis (Skuse, 1890), *Bradysia*
exsequialis (Skuse, 1890), *Bradysia*
familiaris (Skuse, 1888), **syn. n.** to *Psl. cavatica* (Skuse, 1888)
festiva (Skuse, 1888), **syn. n.** to *Psl. cavatica* (Skuse, 1888)
frequens (Skuse, 1888), *Bradysia*
froggatti (Skuse, 1888), *Bradysia*
ignobilis (Skuse, 1888), *Pseudolykoriella*
infrequens (Skuse, 1888), *Austrosciara*
insulana Vilkamaa, Hippa & Mohrig, 2015, **syn. n.** to *S. tryoni* Skuse, 1890
luctifica (Skuse, 1888), *Bradysia*
macleayi (Skuse, 1888), *Scythropochroa*
maculipennis (Skuse, 1890), *Pseudozygomma*
maesta (Skuse, 1888), *Bradysia*
mastersi (Skuse, 1888), *Bradysia*
minutela (Skuse, 1888), *Corynoptera*
montivaga (Skuse, 1888), *Austrosciara*
notata (Skuse, 1888), **syn. n.** to *B. pictipes* (Skuse, 1888)
ornatula (Skuse, 1888), *Bradysia*
pernitida (Skuse, 1888), *Bradysia*
pictipes (Skuse, 1888), *Bradysia*
planistylata Vilkamaa, Hippa & Mohrig, 2012, **syn. n.** to *B. luctifica* (Skuse, 1888)
rufulenta (Edwards, 1927) **syn. n.** to *Aus. winnertzi* (Skuse, 1888)
serenipennis (Skuse, 1890) **syn. n.** to *B. conjuncta* (Skuse, 1890)
seticornis Vilkamaa, Hippa & Mohrig, 2012, **syn. n.** to *B. pictipes* (Skuse, 1888)
spectabilis (Skuse, 1888), *Austrosciara*
tryoni Skuse, 1890, *Sciara*
unica (Skuse, 1888), *Bradysia*
winnertzi (Skuse, 1888), *Austrosciara*



A

100 μ m



B



C

FIGURE 28. *Scythropochroa macleayi* (Skuse, 1888). A. Hypopygium; B. Gonostylus (paralectotype); C. Wing.

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