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New species of the Australian horse fly subgenus *Scaptia (Plinthina)* Walker 1850 (Diptera: Tabanidae), including species descriptions and a revised key

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Abstract Horse flies (Diptera: Tabanidae) are recognised for their medical and veterinary importance, but they also have an important role in pollination. The genus *Scaptia* Walker 1850 contains more than 100 species and comprises seven subgenera with an exclusively southern distribution from Australia, New Zealand, New Guinea and South America. Five new Australian species are described in the subgenus *Plinthina*, which previously comprised only seven species, and an existing key is modified to include the new species, all of which are diagnosed and figured. The new species are: *S. (Plinthina) arnhemensis* **sp.n.** Lessard, *S. (Plinthina) aurifulga* **sp.n.** Lessard, *S. (Plinthina) beyonceae* **sp.n.** Lessard, *S. (Plinthina) nelsonae* **sp.n.** Lessard and *S. (Plinthina) nigripuncta* **sp.n.** Lessard.

Key words Pangoniinae, *Plinthina*, *Scaptia*, Tabanidae, taxonomy.

INTRODUCTION

Almost 4400 species of horse flies have been described (Evenhuis *et al*. 2009) from all biogeographic regions of the world. They are one of the most readily recognised families of Diptera, commonly being considered major pests to both humans and livestock (Mullens 2009). Horse flies are sexually dimorphic in feeding habits as the males feed exclusively on the nectar of flowers, whereas the majority of females act primarily as blood feeders. Some females, such as those belonging to the Australian *Scaptia (Pseudoscione) maculiventris* (Westwood, 1835), alternate between flower and blood feeding (Mackerras 1960). Adults are quite remarkable and important pollinators (Johnson & Morita 2006; Morita 2008), especially for the Australian flora; *Grevillea*, *Melaleuca*, *Leptospermum* and other Myrtaceae are all favoured by horse flies for feeding, consequently leading to their pollination (Mackerras 1960).

Horse flies can also act as intermediate hosts and mechanical vectors for microorganisms responsible for human diseases such as loiasis, tularaemia and even anthrax (Krinsky 1976; Foil 1989). They can also directly infect domestic animals like cattle to cause diseases such as anaplasmosis (Scoles *et al*. 2008) and bovine leukaemia virus (Foil *et al*. 1988), as well as equine infectious anaemia in horses (Foil *et al*. 1984). In Australia, horse flies cause diseases in members of the kangaroo family (Macropodidae), including trypanosomiases (Reid *et al*. 2001) and infections of the filarial nematode *Pelecitus roemeri*. Infections of the latter invade the subcutaneous and intermuscular connective tissues of the animal that can eventually lead to macroscopic lesions (Spratt 1972a,b, 1974a,b, 1975). Spratt has demonstrated that several horse fly species of *Dasybasis* Macquart 1847 and *Tabanus* Linnaeus 1758 commonly host and transmit *P. roemeri*.

The taxonomy of Australian horse flies is remarkably mature, with all but one genus (*Dasybasis*) being revised at species level in the past 60 years. The general lack of definitive characters in the genitalia below a tribal level (Mackerras 1954) means that considerable emphasis has been placed on chaetotaxy and subtle colouration patterns of the body for species level taxonomy (Mackerras 1960). Uses of subtle colour variation is challenging because colours can be modified by collection and preservation techniques, and fade or degrade over time (Mackerras *et al*. 2008; Morita 2008).

Mackerras (1954) revolutionised the classification of the Tabanidae by using male and female genital characters to establish a classification of tribes and subfamilies that is still valid and in use today: Pangoniinae (Pangoniini, Scionini and Philolichini), Chrysopsinae (Bouvieromyiini, Chrysopini and Rhinomyzini), Tabaninae (Diachlorini, Haematopotini and Tabanini) and the Scepsidinae. Furthermore, the monophyly of Tabanidae is well supported by both molecular (Wiegmann *et al*. 2000; Morita 2008) and morphological evidence (Mackerras 1954; Yeates 2002).

There are three tribes within the subfamily Pangoniinae: Pangoniini (Palaearctic, Nearctic, Neotropical and Australasian in distribution), Philolichini (Afrotropical, Oriental and Australasian) and Scionini (Nearctic, Neotropical and Australasian) (Mackerras 1955). The tribe Scionini currently consists of six genera as follows: *Caenopangonia* Kroeber 1930, *Fidena* Walker 1850, *Goniops* Aldrich 1892, *Pityocera*

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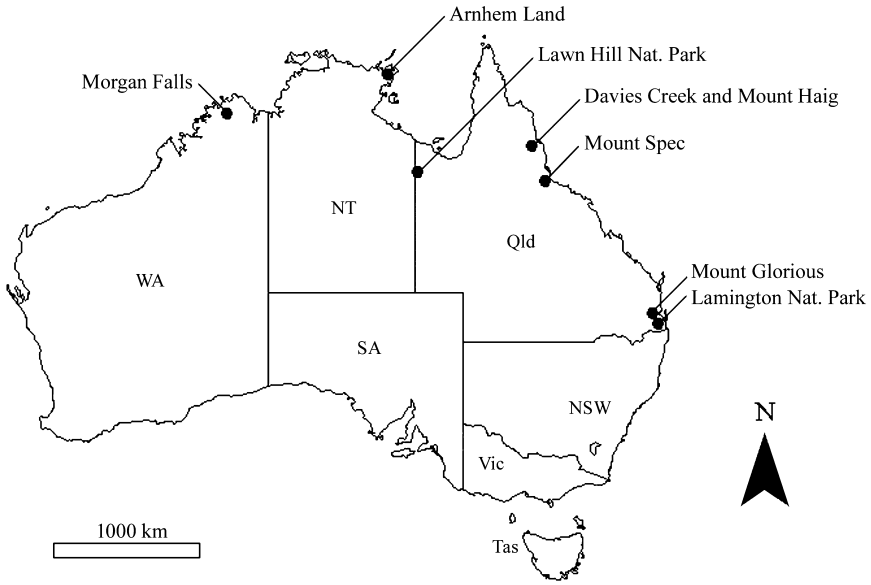

Fig. 1. The distribution of *Scaptia (Plinthina)* species described in this paper, noting the first records of *Scaptia* from the Northern Territory and north-western Australia. NSW, New South Wales; NT, Northern Territory; Qld, Queensland; SA, South Australia; Tas, Tasmania; Vic, Victoria; WA, Western Australia. Background data: Geoscience Australia – Global Map Australia IM 2001, Copyright Commonwealth of Australia.

Giglio-Tos 1896, *Scione* Walker 1850, and the most species-rich genus *Scaptia* Walker 1850.

Scaptia are usually stout, tomentose and hairy, with a more slender proboscis than other Australian Tabanidae (Mackerras 1960). The genus has an exclusively southern hemisphere distribution as it occurs predominantly in Australia, as well as New Zealand, Papua New Guinea and South America (Mackerras 1957; Coscarón & Wilkerson 1985; Daniels 1989; Coscarón & González 2001; Coscarón & Iide 2003; Mackerras 1960; Wilkerson & Coscarón 1984). Seven subgenera have been described and applied to *Scaptia*, being *S. (Lepmia)* Fairchild 1969, *S. (Pseudomelpia)* Enderlein 1922, *S. (Myioscaptia)* Mackerras 1955, *S. (Palimmecomyia)* Taylor 1917, *S. (Plinthina)* Walker 1850, *S. (Pseudoscione)* Lutz, Araujo & Fonseca 1918, and *S. (Scaptia)* Walker 1850, with the latter five occurring in Australia. Although most Australian *Scaptia* species have been described, five new species of subgenus *Plinthina* have accumulated in Australian collections since Mackerras' 1960 revision. Moreover, these species significantly extend the known distribution of *Scaptia* into the Northern Territory and north-western Australia where they were previously thought absent. Here we describe and illustrate these species to double the known size of the subgenus, as well as modifying Mackerras's original key to accommodate all known species of *S. (Plinthina)*.

MATERIALS AND METHODS

Morphological terminology follows Mackerras *et al*. (2008), except for frons index which follows Mackerras (1955). Specimens were examined using Zeiss dissecting microscopes. Photographs were acquired on a Leica M205C microscope using a Leica DF500 camera and Leica Application Suite 3.4.0 software. All material is sourced from the Australian National Insect Collection (ANIC) at CSIRO Ecosystem Sciences, Canberra, ACT, unless otherwise stated. Collection localities are displayed in Figure 1.

A list of abbreviations is as follows:

NT	Northern Territory
Qld	Queensland
QDPI	Queensland Department of Primary Industries, Indooroopilly, Australia
QM	Queensland Museum, Brisbane, Australia
UQIC	University of Queensland Insect Collection, Brisbane, Australia
WA	Western Australia

DESCRIPTIONS

Subgenus *Plinthina* Walker

Plinthina Walker, 1850, p. 10; Ferguson 1924, pp. 253, 256, 1926, p. 299; Mackerras 1955, p. 497. Originally monotypic for *Pangonia macroporum* Macquart, 1838 (= *Pangonia binotata* Latreille, 1812), Kangaroo Island, South Australia.

Diagnosis. The subgeneric diagnosis for *S. (Plinthina)* provided by Mackerras (1960) is as follows: **Female.** Medium-sized (10–14 mm) species, of normal habitus and tomentose patterns, but with the wings usually distinctively marbled, the centres of the cells being darker than along the veins. Frons parallel or slightly diverging. Face moderately projecting, but truncate, proboscis less than one and a quarter times the head height, moderately slender, with relatively small, firm labella. Palpi very short; second segment little, if at all, longer than first, usually thick, rounded apically, and with a large lateral concavity. Wing with cell R_5 closed, and often long-petiolate; cell M_3 open. Eighth sternite often unusually large, fused with lateral edge of ninth tergite. The two halves of the 10th tergite also tend to fuse with each other and with the ninth, evidently a further expression of a need for rigidity in these parts.

Male. Palpi short, slender, cylindrical, obliquely truncate at tip, and with a lateral bare area distally. Hypopygium with aedeagus long; coxite thick and often rigid; style wide, strongly hooked and pointed at tip, and with a zone of conspicuous, short, thick hairs about middle.

Revised key to females of Australian species of *Scaptia (Plinthina)*

1. Wings clear or with inconspicuous marbling; stigma subtle; dorsocentral lines on scutum subtle, not greatly contrasting (Figs 2,3,6,7)……2
   Wings dark brown or grey, or with obvious marbling; stigma obvious; dorsocentral lines on scutum prominent, contrasting (Figs 4,5)……5
2. Palpi thick, with deep lateral concavity (fig. 172; Mackerras 1960); a grey species, with reddish to dark brown markings; frons creamy white. Eastern Australia……*vertebrata* (Bigot)
   Palpi flattened, with shallow lateral concavity (Fig. 2); golden yellowish brown species; frons brown. Queensland, Northern Territory or northern Western Australia……3
3. Frons diverging; beard cream (Fig. 7); abdominal markings vague, venter with well-defined black spots. South-east Queensland……*nigripuncta* Lessard, **sp.n.**
   Frons parallel; beard brown (Figs 2,6); abdomen somewhat banded. Northern Australia……4
4. Abdomen and venter light golden brown, rotund (Figs 2,3)……*arnhemensis* Lessard, **sp.n.**
   Abdomen and venter dark brown to black, elongated (Fig. 6)……*nelsonae* Lessard, **sp.n.**
5. Petiole of cell R_5 long; palpi small, less than one-third length of proboscis shaft (figs 169–171; Mackerras 1960)……6
   Petiole of cell R_5 short; palpi relatively large, greater or equal to one-third length of proboscis shaft (figs 166–168; Mackerras 1960)……8
6. Palpi pointed, flat with shallow lateral concavity; a black species, with inconspicuous dorsocentral lines on scutum, and anepisternum hairs predominantly black. Western Australia……*cinerea* (Ricardo)
   Palpi obtuse, thick with deeper lateral concavity; not such dark species, with prominent dorsocentral lines on scutum, and anepisternum hairs predominantly pale……7
7. Abdomen shining black, with black and ashy hairs. Western Australia……*subcinerea* Mackerras
   Abdomen with first and second tergites brown, remainder darker, often with indications of a median brown vitta and paler apical bands. Eastern and Western Australia……*clelandi* (Ferguson)
8. Palpi flat, pointed (fig. 168; Mackerras 1960); an entirely black species, beard largely black. New South Wales……*nigerrima* Mackerras
   Palpi thick, obtuse (Figs 4,5); not such a dark species with abdomen at most dark brown. Queensland and Western Australia……9
9. Tibiae completely pale cream to white (Figs 4,5); abdomen with distinct yellow or golden markings; beard black or brownish……10
   Tibiae brown; abdomen without such markings; beard white……11
10. Palpi small, less than one-third the length of proboscis shaft (Fig. 4); abdomen with pale yellow lateral stripe tapering apically; femora pale yellow to cream on apical third or more……*aurifulga* Lessard, **sp.n.**
    Palpi large, greater than or equal to one-third the length of proboscis shaft (Fig. 5); apical tergites and hairs distinctly golden yellow; femora entirely dark brown to black……*beyonceae* Lessard, **sp.n.**
11. Frons white; scutum with sublateral area dark in colour, prominent, dorsocentral lines pale, conspicuous; abdomen blackish. South and Western Australia……*binotata* (Latreille)
12. Frons brown; colour of scutum mostly uniform, dorsocentral lines dull, inconspicuous; abdomen dark red-brown. Western Australia……*divisa* (Walker)

Scaptia (Plinthina) arnhemensis Lessard, sp.n. (Figs 2,3)

Type material. Holotype female, N.E. NT, Arnhem Land, 12°23′15″S 136°36′01″E, 16–27 August 2007, D. Yeates, C. Manchester and S. Winterton (ANIC). Paratype females (6) same data as for Holotype; Paratype females (2), N.E. NT Arnhem Land, Mosquito Creek area, vegetated sand dunes and vine thicket, 12°25′43″S 136°49′55″E, 19–22 August 2007, D. Yeates and C. Manchester; the following Paratype females have the same data as Holotype but with differing coordinates: 1 female 12°23′02″S 136°37′42″E; 1 female 12°23′20″S 136°39′34″E; 2 females 12°23′11″S 136°37′19″E; 3 females 12°15′40″S 136°48′53°E; 4 females 12°16′59″S 136°47′09″E; 18 females 12°20′23″S 136°53′13″E. Paratype male (1), same data as Holotype; Paratype males (2) same data as Holotype but with coordinates 12°16′59″S 136°47′09″E and 12°20′23″S 136°53′13″E.

Other material examined. NT: 1 female, Gulkula Arnhem Bay turnoff via Gove, 15 August 2002, G. Bellis; 1 female, Border Waterhole 15 km W Musselbrook Resource Centre, Lawn Hill National Park, 18°36′44″S 137°59′30″E, 2 May 1996, G. Daniels and M.A. Schneider (UQIC # 97454); Qld: Musselbrook Creek, 19 km NE of Musselbrook Resource Centre Lawn Hill National Park, 18°29′59″S 138°17′01″E, 11 May 1995, G. Daniels and M.A. Schneider (UQIC # 97453); WA: 2 males, Morgan Falls, 15.02°S 126.40°E, 16–17 August 1975, I.F.B. Common and M.S. Upton.

Diagnosis. A small golden brown species (length 9–12 mm) with relatively long and extensively flattened palpi. Wings light grey, superficially clear similar to *S. (Pl.) vertebrata*, but with extremely inconspicuous marbling having a subtle pale edge on the posterior margin of median vein; short petiole to cell R_5. Distinguished from *S. (Pl.) vertebrata* by larger palpi, absence of vittae on abdomen and brown frons.

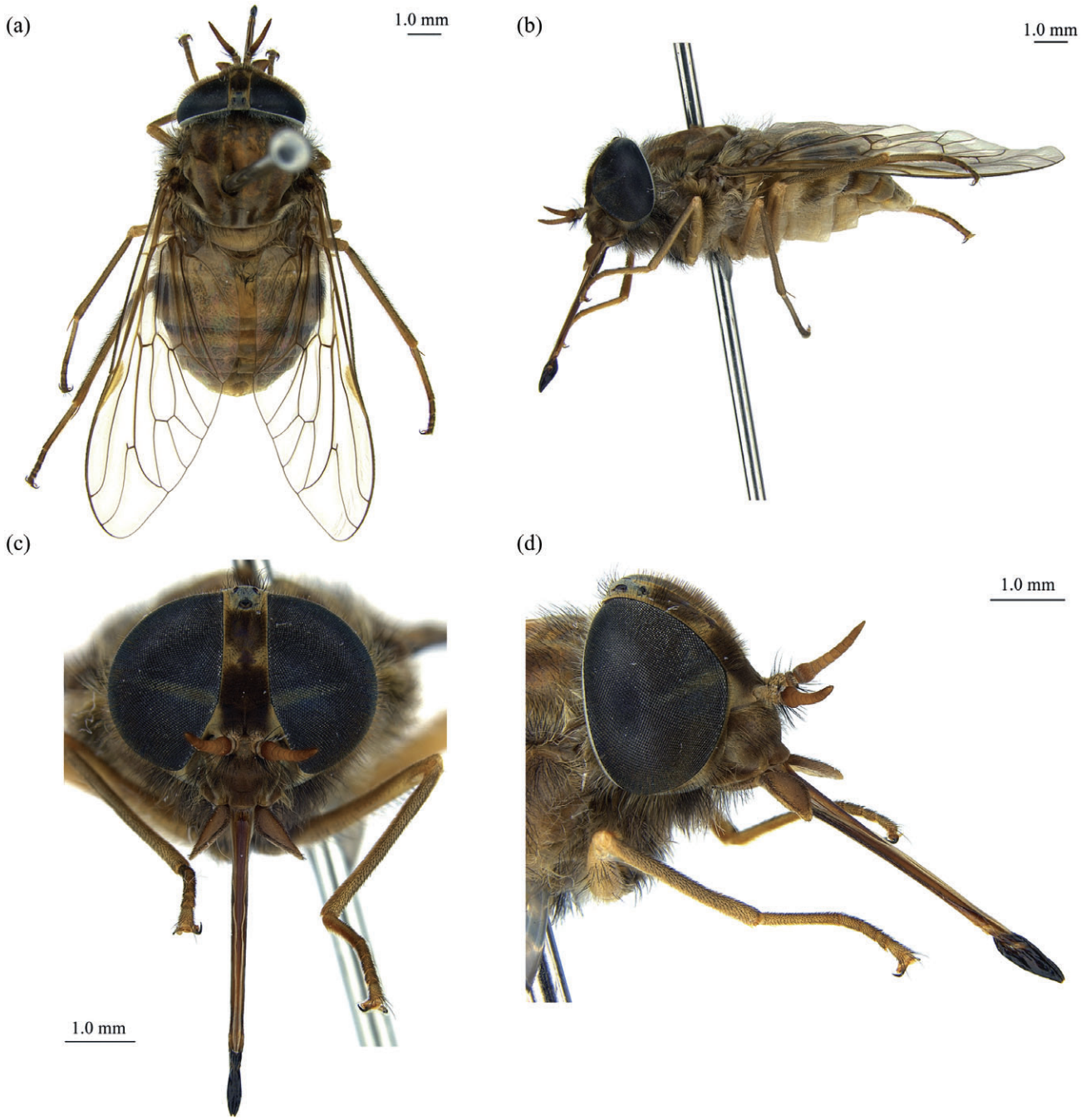

Fig. 2. *Scaptia (Plinthina) arnhemensis* Lessard, **sp.n.** holotype female: (a) dorsum; (b) side; (c) front; (d) profile.

Female. Length 9–12 mm. **Head**. Dense golden brown hairs. Frons parallel, slightly diverging, index 2.8, with dark brown tomentum. Frons brown, divided into two by paler golden brown areas meeting at median callus; ocellar tubercle slightly raised and greyish, hairs dark brown-black. Subcallus, parafacials and face dark brown with dark brown tomentum. **Antennae**. Scape and pedicle fawn, with dark brown-black hairs; flagellum yellowish brown. **Palpi**. First segment yellowish brown with long black hairs; second segment greatly flattened and extensively shallow bare area, consistent yellowish brown, and less rounded and more tapered shape, marginal hairs short black. Beard pale brown with dense black hairs towards lower margin of parafacials. **Thorax**. Scutum golden brown, with evanescent greyish brown median and dorsocentral vittae, dorsocentral panels darker brown, lateral margins greyish brown; hairs on disc black, white on pronotum. Scutellum pale yellowish brown to cream, hairs black on median and anterior margin, yellow to cream on apical and lateral margins; supra- and post-alar tufts conspicuous mixed pale cream-brown and black. Pleura golden brown to grey, anepisternum hairs predominantly black on dorsum and mixed pale cream to yellowish brown and black posterodorsally,

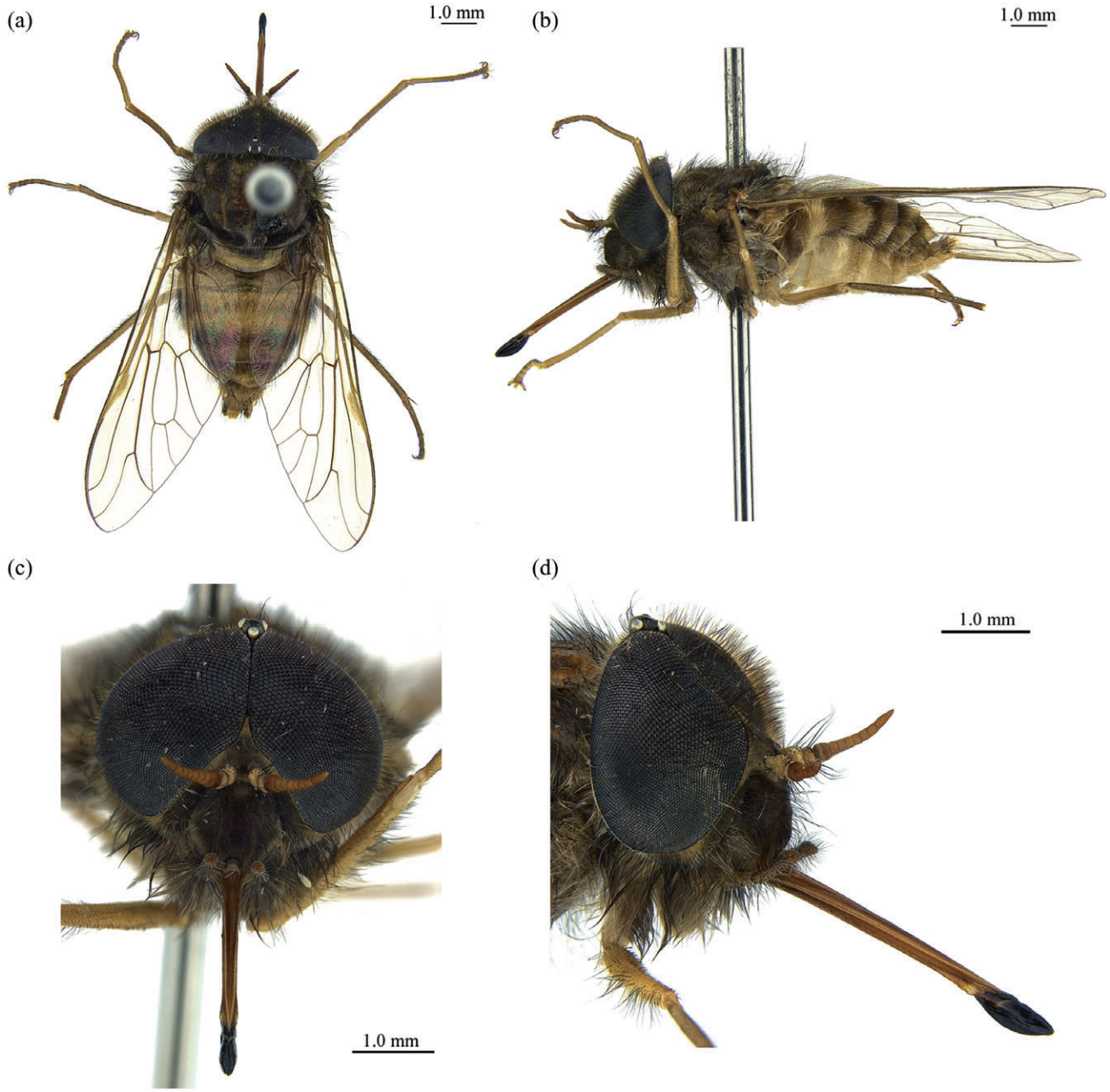

Fig. 3. *Scaptia (Plinthina) arnhemensis* Lessard, **sp.n.** paratype male: (a) dorsum; (b) side; (c) front; (d) profile.

propleural tuft black, mixed yellow-cream and black on katepisternum, mostly yellow-cream elsewhere. **Legs**. Coxa, femora and tarsomeres pale yellowish brown; femora with mixed cream and dark brown hairs, other segments with predominantly dark brown hairs, with short golden brown hairs on ventral surface of all tarsomeres. **Wings**. Lightly grey without conspicuous darker patterns, marbling extremely subtle, with an evanescent pale edge occurring on the posterior length of median vein; stigma subtle, yellowish brown; veins yellowish brown; R_4 angulate, with or without appendix; cell R_5 closed, short-petiolate. **Abdomen**. Golden brown without median vittae, tomentose, with moderately wide darker brown bands at base of tergites, widening slightly laterally; disc hairs on first tergite pale cream-yellow with black median, black on second tergite onwards, densest on darker basal bands, hairs of lateral margins alternating with black basal tufts and pale yellow-cream apical tufts, sparse. **Venter**. Uniformly pale yellowish brown to cream; hairs predominantly pale yellow-cream, with occasional black hairs, often sparse.

Male. Smaller (length 9 mm) and hairier than female. Eyes with upper facets enlarged, reddish brown (pinned), contrasting with small lower and posterior facets that are darker brown. Palpi yellowish brown, rod-like, with small apical dorsal pit with long black hairs. Ocellar tubercle conspicuously raised, slightly grey to dark brown-black, hairs black.

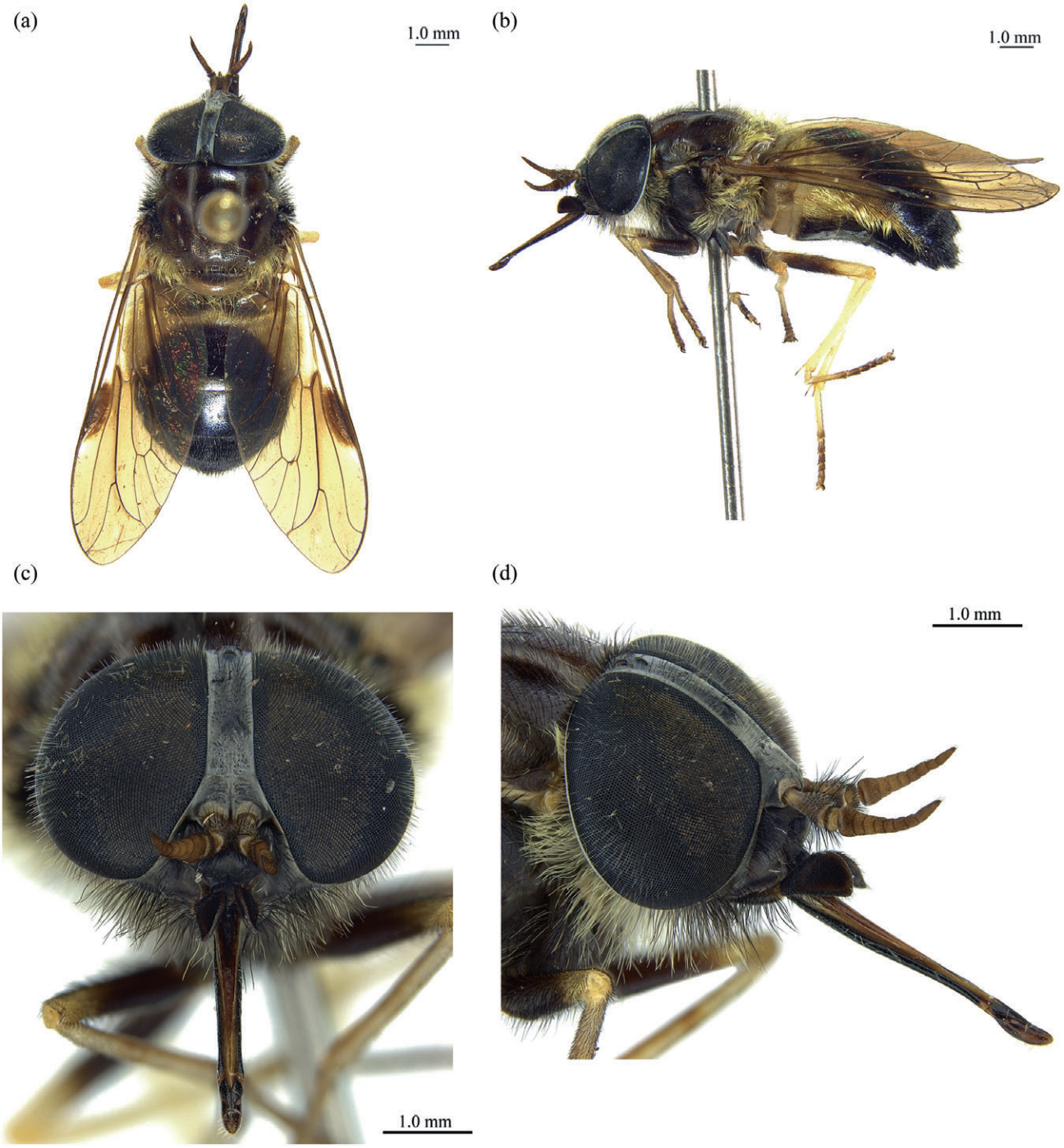

Fig. 4. *Scaptia (Plinthina) aurifulga* Lessard, **sp.n.** holotype female: (a) dorsum; (b) side; (c) front; (d) profile.

Distribution. Arnhem Land, N.E. NT, and the Kimberley region of WA, apparently absent from intervening populated areas such as Darwin (Fig. 1). This species significantly extends the known distribution of *Scaptia* into the Northern Territory and north-western Australia where it was previously thought absent.

Etymology. The specific epithet refers to the type locality.

Scaptia (Plinthina) aurifulga Lessard, sp.n. (Fig. 4)

Type material. Holotype female, N.E. Qld, Davies Creek, Nov, D.H. Colless (ANIC).

Diagnosis. A dark brown species (length 11 mm) with short, rounded and flattened palpi, wings inconspicuously marbled superficially similar to *S. (Pl.) divisa*, with strong stigma and medium petiole to cell R_5. Legs with pale cream to

white tibiae and first tarsomeres, contrasting to dark brown femora that are uniquely pale cream to white on posterior third. Distinguished from all other members of *S. (Plinthina)* by a conspicuous tapered pale yellow stripe on lateral margins of abdomen.

Female. Length 11 mm. **Head**. Eyes with dense brown hairs. Frons parallel, index 3.8, dark brown with obvious wide grey zones along eye margins, broadening at ocellar tubercle; hairs dark brown and sparse; ocellar tubercle slightly raised, greyish brown with hairs black. Subcallus dark brown, with grey zones along eye margins and base of antennae; face and parafacials shiny dark brown, parafacials grey towards eye margins, hairs dark brown. **Antennae**. Scape and pedicel grey to yellowish brown with long black hairs; flagellum uniformly yellowish brown. **Palpi**. First segment predominantly dark brown, hair long black; second dark brown at base and margins, lighter in extensive shallow bare area, marginal hairs short black. Beard mixed cream and brown, with dense black hairs at lower margins of parafacials. **Thorax**. Scutum shining rich brown, greyish brown median line, dorsocentral lines and suture line, as well as pronounced greyish lateral areas; disc hairs black, creamy white on pronotal lobes, pale yellow on median zone in front of scutellum, supra-alar tuft mixed with conspicuous pale yellow and black hair, post-alar tuft dense, conspicuous and pale yellow. Scutellum brown, more yellowish towards posterior margin, hairs pale yellow and long. Pleura greyish brown; hairs predominantly black on anepisternum, pale yellow on propleuron, pale yellow dorsally and black ventrally on katepisternum, and long pale yellow on katatergite. **Legs**. Coxa dark brown with hairs mixed black and pale yellow on fore and mid coxa, and pale yellow on hind coxa. Femora dark brown basally and pale cream to white on posterior third or more; hairs predominantly black, with pale yellow dorsal hairs on mid and hind femora; tibiae and first tarsomere pale cream to white, contrasting to base of femora, hairs pale cream to white, fore tibiae and tarsomere slightly darker than mid and hind tarsomeres, all with black hairs, remainder of tarsomeres yellowish brown, darkening at tarsi with dark brown hairs. **Wings**. Dark brown, marbling inconspicuous with pale edges present on the costal, cubitus, R_1 and medial veins, and posteriorly on R_1 below stigma; stigma dark brown, conspicuous; veins brown; R_4 angulate without appendix; petiole to cell R_5 short. **Abdomen**. Shining dark brown, distinguished from all other members of the subgenus by a striking pale yellow lateral margin stripe beginning broadly on tergite 2 and extending to tergite 4 where it tapers; disc hairs pale yellow on tergite 1 and on pale yellow lateral stripe, black elsewhere, hairs on lateral margin pale yellow on lateral stripe and on tuft of tergite 5, black on apical tergites, lack of golden tomentum on apical tergites. **Venter**. Shining, pale yellow on sternite 1, basal margin of sternite 2, and on lateral margins of sternite 2–4 that form stripe on lateral margins, all with disc hairs pale yellow; remainder of sternites brown with disc hairs black.

Distribution. Known only from Davies Creek, Qld (Fig. 1).

Etymology. This specific epithet derives from the Latin for golden yellow lightning and refers to the striking lateral band present on the abdomen.

Scaptia (Plinthina) beyonceae Lessard, sp.n. (Fig. 5)

Type material. Holotype female, Qld, Mount Haig 21 km N.E.E. of Atherton, Nov, 1981, D.H. Colless (ANIC). Paratype female (1) Qld, 20 km S.E. of Mareeba, Nov, 1981, D.H. Colless; Paratype female (1), Qld, Mount Spec, 15.55S 146.09E, 880 m, 4 November–1 December 1995, M. Cermak.

Other material examined. N Qld: 1 female, 16 km up Davies Creek Road, Mareeba, 2.xii.1984–7.i.1985, Storey and Titmarsh (QDPI).

Diagnosis. A small brown species (length 9 mm), distinguished from all other members of *S. (Plinthina)* by its larger more rounded, broad flattened palpi, conspicuous golden tomentum on tergite four onwards. Legs superficially similar to *S. (Pl.) aurifulga*, but with distinct femora that are almost entirely brown. Wings brownish grey and inconspicuously marbled, superficially similar to *S. (Pl.) divisa*, with pale edges occurring on medial vein and above stigma on R_1; short petiole to R_5.

Female. Length 9 mm. **Head**. Eyes with dense brown hairs. Frons parallel, slightly diverging, index 3, dark brown, most intense near centre, with greyish brown zone along both sides of ocellar tubercle, hairs dark brown; ocellar tubercle slightly raised, dark brown to greyish, hairs black. Subcallus dark brown at centre, greyish towards eye margins and base of antennae; parafacials and face brown to greyish, with dark brown hairs. **Antennae**. Scape and pedicel greyish brown, with long black hairs; flagellum pale yellow brown, darkest at tip and base. **Palpi**. First segment brown, with long black hairs; second larger, flat and rounded, extensive shallow bare area dark brown, marginal hairs short black. Beard predominantly dark greyish brown with black hairs at lower margins of parafacials. **Thorax**. Scutum and scutellum uniformly brown, sublateral areas relatively wide and not sharply differentiated from more greyish brown lateral areas, dorsocentral lines and evanescent median line greyish white and relatively narrow, dorsocentral lines wider and paler near anterior margin and at suture; scutum hairs dark brown to black on disc, greyish white on pronotal lobe, supra- and post-alar tufts mixed creamy white and black; scutellum hairs mixed black and cream. Pleura brown, with black hairs on katepisternum, predominantly black with mixed cream to light brown on anepisternum, katatergite hairs dark brown anteriorly, long cream posteriorly, black elsewhere. **Legs**. Coxae brown with predominantly dark brown to black hairs; femora almost completely brown, with predominantly black hairs, femora contrasting to distinguishable pale cream to white tarsi and first tarsomeres with hairs pale cream to white, remainder of tarsomeres brown, darkening at tarsi, hairs black. **Wings**. Brownish grey, marbling inconspicuous,

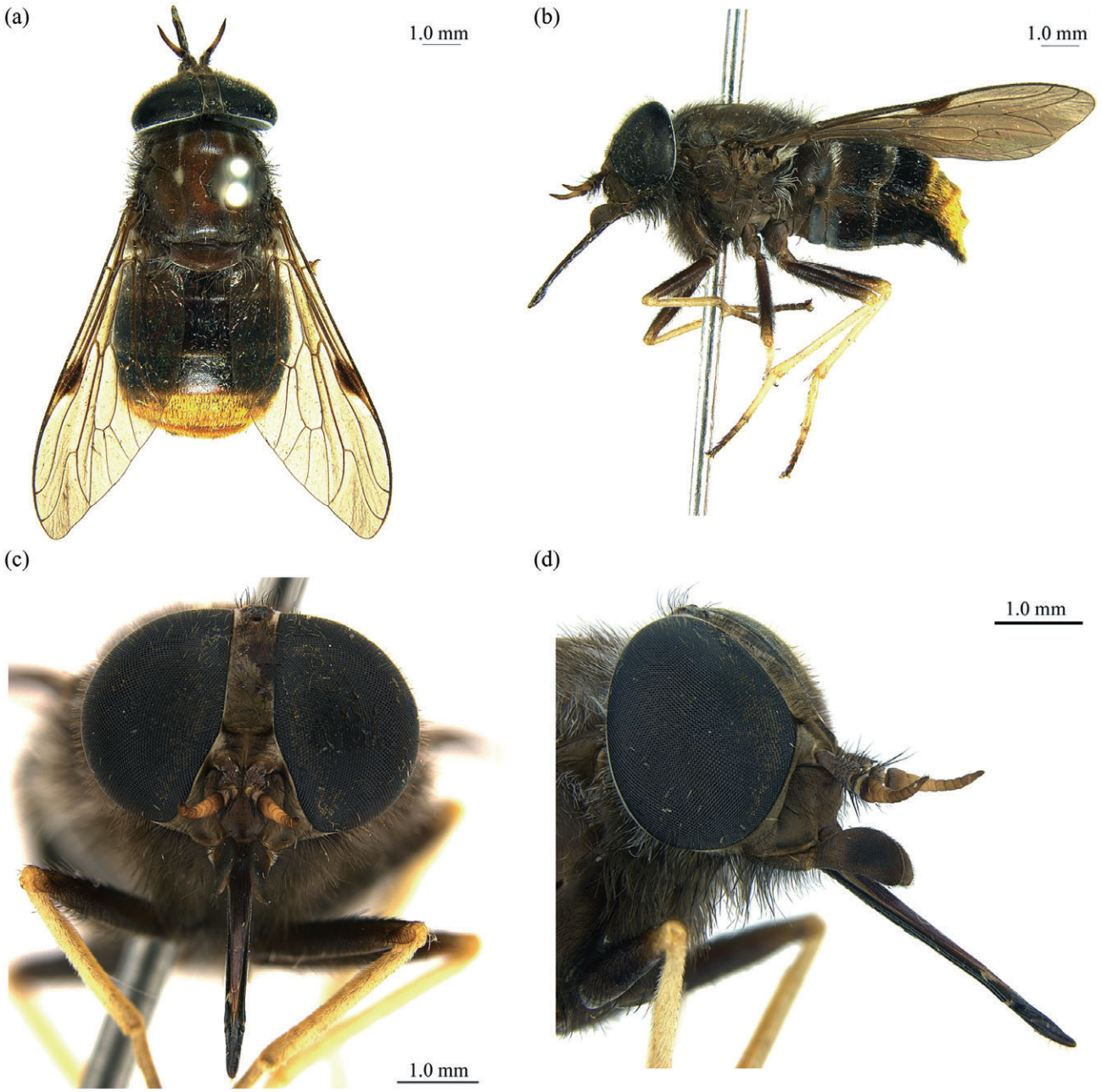

Fig. 5. *Scaptia (Plinthina) beyonceae* Lessard, **sp.n.** holotype female: (a) dorsum; (b) side; (c) front; (d) profile.

with pale edges only occurring on medial vein and base of R_4; stigma prominent dark brown; veins brown; R_4 angulate without appendix; petiole to cell R_5 short. **Abdomen**. Shiny, first three tergites dark brown to black, hair black on disc, white on lateral margins of tergite 1 and apical margin of tergite 2, tergites 4 onward distinctly gold, hairs dense, golden. **Venter**. Dark brown to black, with relatively wide golden brown bands at apical margins of sternites; hairs predominantly black, white towards centre and lateral margins of sternite 2.

Remarks. The Davies Creek specimen appears to be slightly darker and hairier overall, but otherwise similar. This is most likely due to fading or intraspecific variation.

Distribution. N.E. Qld from Mount Haig to Mareeba (Fig. 1).

Etymology. This specific epithet is in honour of the performer Beyoncé.

Scaptia (Plinthina) nelsonae Lessard, sp.n. (Fig. 6)

Type material. Holotype female, WA, Morgan Falls, 15.02S 126.40E, 16–17 August 1975, I.F.B. Common and M.S. Upton (ANIC).

Diagnosis. A small dark brown species (length 11 mm), superficially similar to *S. (Pl.) arnhemensis* but distinguished by its black abdomen and venter, with relatively long, narrow

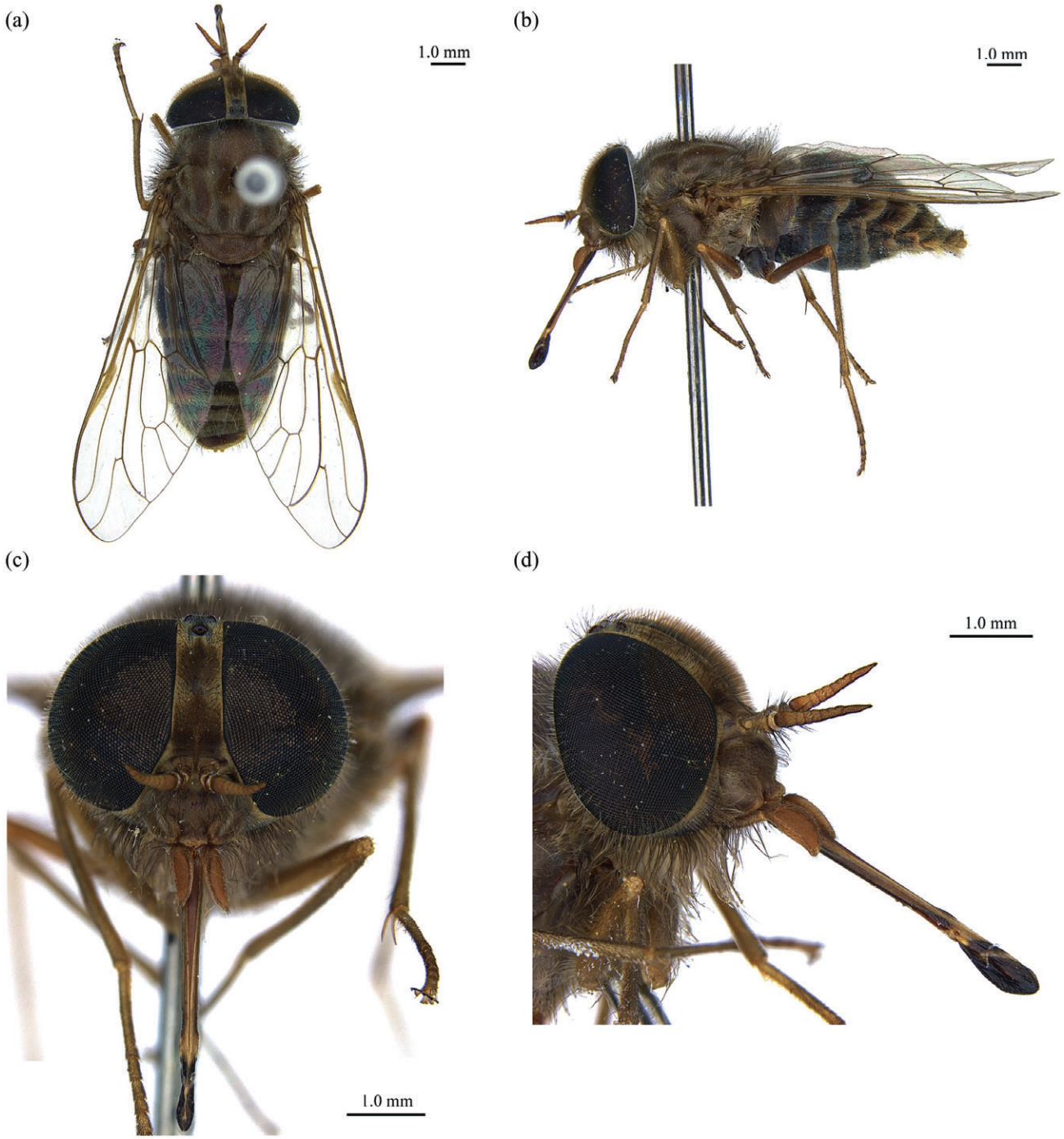

Fig. 6. *Scaptia (Plinthina) nelsonae* Lessard, **sp.n.** holotype female: (a) dorsum; (b) side; (c) front; (d) profile.

pointed palpi that are distinct from other members of the subgenus.

Female. Length 11 mm. **Head**. Eyes with dense brown hairs. Frons parallel, index 2.7, brown with lighter fawn around eye margins, tomentum brown; ocellar tubercle raised, blackish grey with dark brown hairs. Subcallus and face brown, parafacials greyish brown with fawn along eye margins, face and parafacials with dark brown hairs. **Antennae**. Scape and pedicel fawn with dark brown hairs; flagellum consistent yellowish brown. Palpi first segment yellowish brown with long dark brown hairs; second yellowish brown, relatively long, pointed at the tip being the narrowest for the subgenus, marginal hairs short black. Beard cream to light brown, with dark brown hairs at lower margins of parafacials. **Thorax**. Scutum brown, with pale greyish brown evanescent vittae on median and dorsocentral lines, more greyish towards lateral margins; hairs on disc brown, fairly long, white on pronotum, supra-alar tuft mixed cream and dark brown, post-alar tuft cream anteriorly and dark brown posteriorly. Pleura greyish

brown; hairs predominantly cream, with mixed cream and dark brown tufts on anepisternum and dark brown hairs ventrally on katepisternum. **Legs**. Fore and mid coxa greyish brown, hind coxa black; fore and mid legs light brown, darker brown in hind legs; femora hairs mostly cream to light yellowish brown and long, with shorter black hairs posterodorsally, hairs short and densely black dorsally on tibia and tarsomeres, golden brown ventrally. **Wings**. Light grey with less noticeable marbling, pale edges most pronounced around discal cell and median vein; stigma less prominent, yellowish brown; veins brown; R_4 angulate with short appendix; cell R_5 short-petiolate. **Abdomen**. Slightly elongated and narrow, mainly black with brown intrusions; disc hairs black medially and blonde towards lateral margins on tergite 1, black on tergites 2 onward, with short blonde hairs on apical margins, lateral margins mixed blonde and black. Venter black with brown intrusions, hairs mostly blonde, black on apical sternites.

Distribution. Known only from the holotype from the Kimberley, Western Australia (Fig. 1). This species also significantly extends the known distribution of *Scaptia* into north-western Australia.

Etymology. This specific epithet is in honour of Dr Leigh Nelson for her contribution to Dipterology.

Scaptia (Plinthina) nigripuncta Lessard, sp.n. (Fig. 7)

Type material. Holotype female, S.E. Qld, Lamington National Park, 28.234°S 153.141°E, 14–24 January 2007, C. Lambkin and N. Starick (QM #T165588) (ANIC). Paratype female (1) Lamington National Park, Qld, 28.192°S 153.124°E, 14–24 January 2007, C. Lambkin and N. Starick (QM #T165589); Paratype female (1) Lamington National Park, Qld, 28.227°S 153.131°E, 14–24 January 2007, C. Lambkin and N. Starick (QM #T165590).

Other material examined. SE Qld: 3 females Mount Glorious, Hiller Property, 27°20′S 152°46′E, 12.xii.1998–28.i.1999, N. Power (QM).

Diagnosis. A small golden yellow-brown species (length 9–11) similar to *S. (Pl.) arnhemensis*, but distinguished by its cream beard, diverging frons, shorter more rounded palpi, dark brownish grey wings, petiole to cell R_5 extremely short, vague abdominal markings, and venter with lateral rows of black markings.

Female. Length 9–11 mm. **Head**. Eyes with dense golden brown hairs. Frons diverging, index 3.3, with dark brown tomentum. Frons lighter golden brown and without being divided into darker zones; ocellar tubercle slightly raised, dark brown with black hairs. Subcallus, parafacials and face golden brown with short brown hairs. **Antennae**. Scape and pedestal fawn with black hairs; flagellum yellowish brown. **Palpi**. First segment golden brown with long black hairs; second segment yellowish brown, extensively flattened, smaller, slightly rounded and less tapered; marginal hairs sparse short black. Beard cream, black hairs at lower margins of parafacials. **Thorax**. Scutum golden yellowish brown, with darker greyish brown vittae on dorsocentral lines, lateral margins and transverse suture, with dorsocentral panels light golden brown; disc hairs mixed with short golden brown and longer black hairs, supra-alar tuft mixed black and blonde to golden brown, postalar tuft blonde to golden brown anteriorly and black posteriorly. Scutellum greyish brown predominantly with blonde to golden brown hairs. Pleura yellowish brown, with dark brown-black marking on suture between katatergite and katepimeron; pleura hairs predominantly yellowish brown, with mixed yellowish brown and dark brown hairs on anepisternum and katepisternum, cream hairs on propleuron and katatergite. **Legs**. Fore coxa light yellowish brown, pale yellow-cream on mid and hind. Femora pale yellow-cream with long dark brown to black hairs, tibiae and tarsomeres pale yellow-cream, with short dense golden brown hairs. **Wings**. Brownish grey, marbling very subtle with pale edges occurring on median vein and above stigma on vein R_1; stigma brown, less conspicuous; veins yellowish brown; R_4 curved, without appendix; petiole to cell R_5 extremely short, with cell R_5 closing very close to or on wing margin. **Abdomen**. Golden yellowish brown, tomentose, lack of obvious banding, with vague darkening on tergites 2 onwards, most prominent towards median, apical quarter of tergites brown and without dark markings, tergites 6 onwards dark golden brown; disc hairs on first tergite blonde to golden brown at base and dark brown apically, predominantly golden brown on remainder of abdomen, with golden yellow hairs on apical margins of tergite 3 onwards, hairs on lateral margins of abdomen mixed golden brown and dark brown to black. **Venter**. Pale yellow to cream, darker golden brown from sternite 6 onwards, marked with three distinct black lateral rows on both lateral margins and median of sternites 2–5; disc hairs predominantly pale yellow to cream on sternites 1–5, black on sternites 6 onwards.

Remarks. One specimen from Mount Glorious, Qld, is more tomentose and slightly darker brown in shade for the frons, subcallus, parafacials and face. Its palpi are also a darker shade of brown to the rest, and appear to be more rounded and not tapered at all. The scutum colour is duller than others, and the lateral rows of black markings on the venter are less obvious.

Distribution. South-eastern Qld (Fig. 1).

Etymology. This specific epithet is derived from the Latin for black dot and refers to the markings on the venter.

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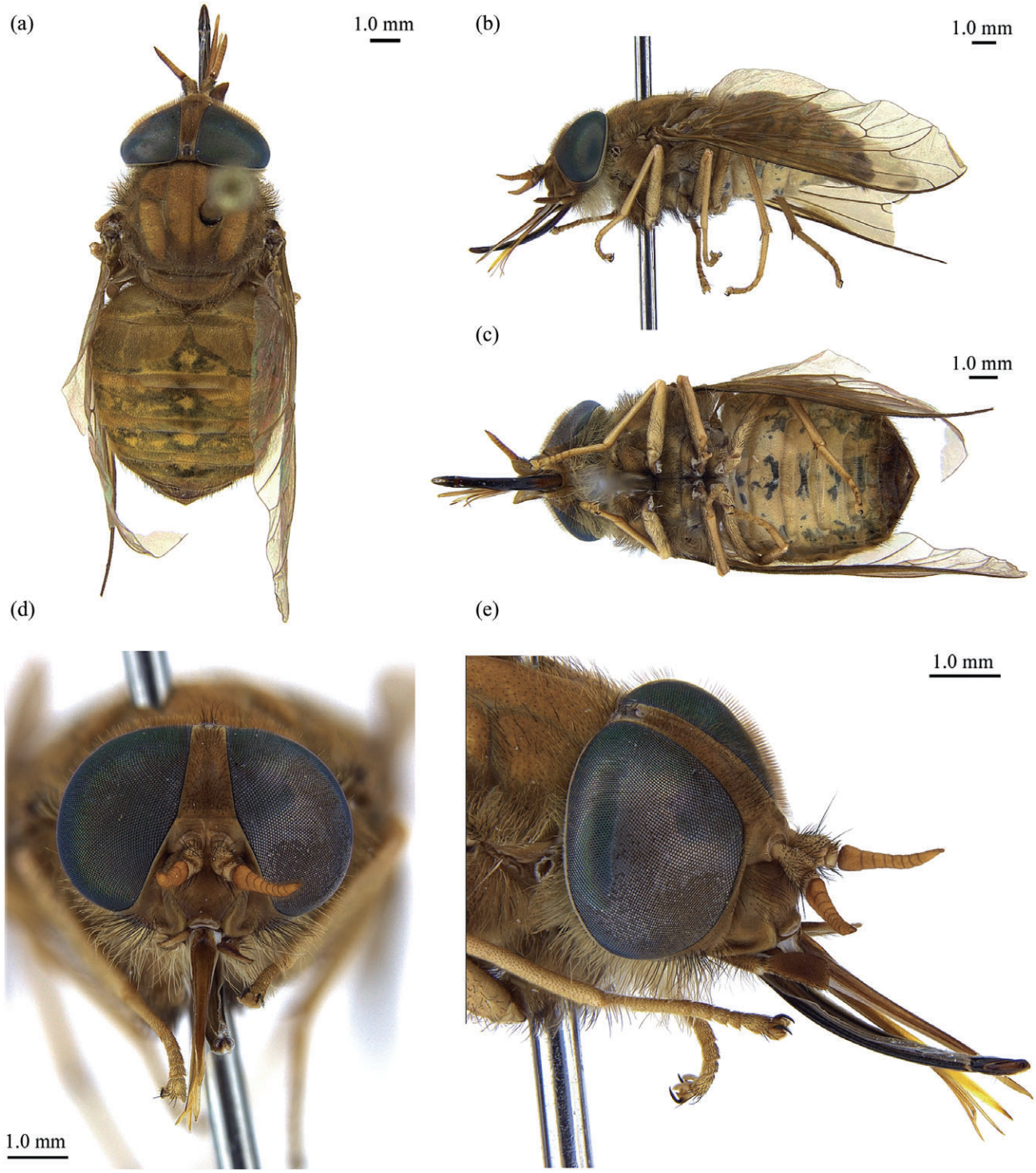

Fig. 7. *Scaptia (Plinthina) nigripuncta* Lessard, **sp.n.** holotype female: (a) dorsum; (b) side; (c) venter; (d) front; (e) profile.

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