

Two new species of the eccritotarsine plant bug genus *Ernestinus* Distant, 1911 (Heteroptera: Miridae: Bryocorinae) from Singapore

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Abstract. Two new species of the plant bug genus *Ernestinus* Distant, 1911 (Bryocorinae: Eccritotarsini), *E. singaporensis*, new species and *E. windsor*, new species, are described from Singapore. Findings of the new taxa also represent the first distributional record for the genus on this island nation. The host plant association was revealed for each new species; gregarious adults and every instar immature forms of both species were found to inhabit the leaves of *Alocasia* spp. (Araceae). An updated checklist is provided. *Ernestinus nigriscutum* Lin, 2001, described from Taiwan, is synonymised with *E. tetrastigma* Yasunaga, 2000, and *E. pallidiscutum* Poppius, 1915 is reported from Vietnam for the first time.

Key words. regional fauna; classification; morphology; plant association; SEM documentation

INTRODUCTION

The plant bug genus *Ernestinus* (Bryocorinae: Eccritotarsini) was proposed by Distant (1911) to accommodate a single Sri Lankan species, *E. mimicus* Distant, 1911. Subsequent workers have hitherto added and/or recorded seventeen nominal species from China, Japan, India, Indonesia, Laos, Nepal, Taiwan, Thailand, and Vietnam (Poppius, 1912, 1915a, 1915b; Yasunaga, 2000; Lin, 2001; Yasunaga & Ishikawa, 2016; Yeshwanth & Konstantinov, 2021; Liu et al., 2022).

The majority of *Ernestinus* members have been documented to make colonies, composed of adults and various (or often all) instar immature forms, on the leaves of Araceae monocots (usually abaxial surfaces) (Yasunaga et al., 2001; Yasunaga & Ishikawa, 2016). The gregarious adults and nymphs were observed to have been derived from several different lineages (mothers) (Ikeda et al., 2019). Because of such unique natural history, it is usually easy to locate the occurrences of these plant bugs. However, no species of *Ernestinus* has previously been reported from Singapore.

The present work represents a part of our recent attempts to clarify the plant bug fauna of Singapore and adjacent regions, subsequent to Yasunaga (2024a) and Yasunaga et al. (2025). Herein we report *Ernestinus* from Singapore for the first time as well as describe *E. singaporensis* and *E. windsor* as new to science, with documentation on their detailed morphology and natural history. An updated checklist is provided. *Ernestinus nigriscutum* Lin, 2001, originally described from Taiwan, is synonymised with *E. tetrastigma* Yasunaga, 2000 (Ryukyus, Japan), and *E. pallidiscutum* Poppius, 1915 is newly recorded from Vietnam.

MATERIAL AND METHODS

Most of the specimens examined in this work were collected by the authors and/or their colleagues, and are deposited in the following collections: NMNS: National Museum of Natural Science, Taichung, Taiwan (NMNS); Laboratory of Entomology, Tokyo University of Agriculture, Atsugi, Kanagawa, Japan (TUAK); T. Yasunaga Collection, Nagasaki, Japan (TYCN); Zoological Reference Collection, Lee Kong Chian Natural History Museum, National University of Singapore (ZRC).

Matrix code labels were attached to all type specimens, which uniquely identify each specimen, and are referred to as ‘unique specimen identifiers’ (USIs). The USI codes [e.g., AMNH_PBI 000123] comprise an institution and project code (AMNH_PBI) and a unique number (000123). These databased specimens are searchable (by names of species) on the website ‘Heteroptera Species Pages’ (<http://research.amnh.org/pbi/heteropterasespecies/page/>).

Terminology for the genitalic structures principally follows recent works treating taxa of the Eccritotarsini

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(Stonedahl, 1988; Yasunaga & Ishikawa, 2016; Ikeda et al., 2019; Yeshwanth & Konstantinov, 2021). Suprageneric classification system of the subfamily Bryocorinae follows Schuh (2002–2013) and Cassis & Schuh (2012). Only selected references are cited for known taxon, as comprehensive catalogues are now available (e.g., Schuh, 1995, 2002–2013; Aukema, 2018–2025).

Scanning electron micrographs were taken with a Hitachi Microscope® Series, TM3030 (for Fig. 7M–O) or TM4000 plus II (others). All measurements are in millimetres (mm); for most of the SEM images, scale bars are shown in micrometres (µm). The genitalic structures were also observed and photographed using a Nikon Eclipse Ci upright microscope, with a Photophase-Unit. In SEM images, male or female is shown with (M) or (F) when necessary (Figs. 5, 6). SEM documentation of the internal genitalia employed the methodology mentioned by Yasunaga (2024b, 2025).

TAXONOMY

Genus *Ernestinus* Distant, 1911

Ernestinus Distant, 1911: 311, type species by monotypy: *E. mimicus* Distant, 1911 (Sri Lanka); Yasunaga et al., 2001: 187 (diagnosis); Schuh, 2002–2013 (online catalogue); Yasunaga & Ishikawa, 2016: 424 (diagnosis, redescription, key to species); Aukema, 2018–2025 (online catalogue); Liu et al., 2022: 206–207 (diagnosis, key to Chinese species).

Diagnosis. This genus is recognised principally by the following characters: Body ovoid to elongate oval, with identical two-tone (fuscous and whitish) pattern on hemelytra (e.g., Fig. 3A, C, E), not sexually dimorphic; dorsum shiny, with uniformly or densely distributed simple setae; pronotum uniformly shiny fuscous, tumid, punctate, always with a medio-pronotal fovea; collar thick; legs immaculate, creamy white, generally short; and pretarsus with developed, circular or rhombic pseudopulvilli between claws. All instar nymphs are gregarious (often with adults as in Fig. 2E) and have almost entirely pure white body.

Distribution. Oriental Region including southern China, Taiwan and Wallacea (Flores, Lombok and Sulawesi), and the eastern Palearctic Region (SW Japan) (Yasunaga & Ishikawa, 2016; Yeshwanth & Konstantinov, 2021).

Biology. The majority of *Ernestinus* species are known to be associated with Araceae monocots, on which the adults and nymphs of all instar stages are often aggregated (Figs. 1E, F, 2F). Ikeda et al. (2019) documented the bionomics, life cycle, and colony structure for a Japanese species, *Ernestinus kasumi* Yasunaga & Ishikawa, 2016; the colony of this species is usually composed of the adults and every instar immature form derived from several different lineages (mothers). This temperate zone inhabitant is also reported to have four generations per year between mid-July and mid-November and overwinters in the adult stage. Nonetheless, *E. kasumi* was observed to have propagated even in winter

if the temperature was high enough and the host plant was provided in laboratory tests (Ikeda et al., 2019).

Most of the congeners distributed in tropical or subtropical climatic zones are found almost throughout the year and are considered to have multivoltine life cycles. *Ernestinus* species appear to prefer moist environments, and the tropical populations usually taper off during the dry season (Yasunaga & Ishikawa, 2018).

Discussion. Judging from their unique natural history, members of *Ernestinus* are currently regarded to constitute a monophyletic group relative to other SE Asian ecritotarsines. However, Yasunaga & Ishikawa (2016) recognised three morphologically different types based on the shape of the left paramere: (1) hypophysis moderately bifurcate; (2) hypophysis strongly flattened and bifurcate like a crab-nipper; and (3) apex of hypophysis terminated in a simple, small process. The species of type (2), without exception, have short antennomeres III and IV (their combined length much shorter than II). Based on this putative grouping, *E. singaporensis*, new species, belongs to (2) and *E. windsor*, new species, to (3). Incidentally, the female genitalic structures exhibit considerable interspecific variation in size and shape (Yasunaga & Ishikawa, 2016), especially structures of the posterior wall (cf. Figs. 7C, F–I, K). *Ernestinus* may require at least subgeneric divisions for proper classification.

Ikeda et al. (2019) reported that a unique structure, the ‘medio-pronotal pit (fovea)’, is present on the pronotum (e.g., Figs. 5C, F, 6C, F). This structure is currently assumed to be the synapomorphy shared by all known congeners of *Ernestinus* and some other ecritotarsines, most of which are known to make colonies composed of gregarious adults and nymphs on monocot breeding hosts (cf. Fig. 2E). In contrast with other mirid bugs, cannibalism has not been observed in species of *Ernestinus*. The medio-pronotal fovea is hypothesised to be a glandular organ, secreting certain pheromones to maintain the colonies in good order. On the other hand, continuing examinations by the first author using a Tabletop SEM have noted the presence of the medio-pronotal fovea in other Old World tropical genera, such as *Ambunticoris* Carvalho, 1981, *Harpedona* Distant, 1904b, *Mertila* Distant, 1904a, and *Prodromus* Distant, 1904b. In addition, habitus images provided by Hernandez & Henry (2010) and Alvarez-Zapata et al. (2022) show similar fovea in a number of New World ecritotarsines, including certain species of typical *Ecritotarsus* Stål, 1860.

During examination of specimens of known congeners for comparison with the present new species described below, we found that *Ernestinus nigriscutum* Lin, 2001 (described from Taiwan, Figs. 3K, 7M–O) is conspecific with *E. tetrastigma* Yasunaga, 2000, known from the Japanese Ryukyu Islands (Yasunaga, 2000; Yasunaga et al., 2001) and southern China (Liu et al., 2022). Based on the distribution pattern, *E. nigriscutum* was suspected to be a synonym of *E. tetrastigma* by a recent faunistic study (Liu et al., 2022). The structures of external features (Figs. 3K, 7M, N) and

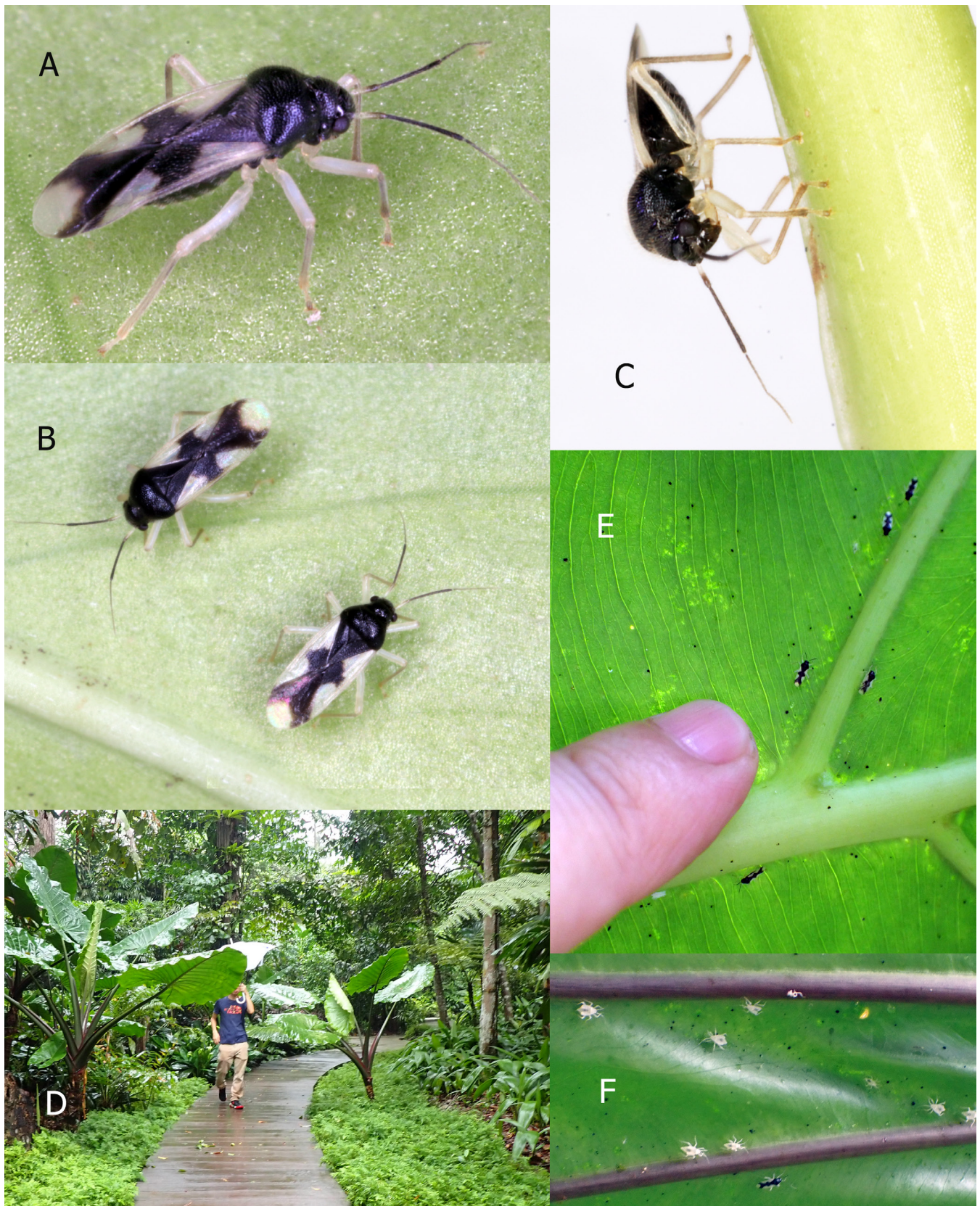


Fig. 1. Habitus images and habitat (breeding host) of *Ernestinus singaporensis*, new species. A–C, adults; D, host plant *Alocasia macrorrhizos* cv. (L.) G.Don (planted at Singapore Botanic Gardens); E, F, gregarious adults and immature forms on abaxial surface of host leaves.



Fig. 2. Habitus images and habitat (breeding host) of *Ernestinus windsor*, new species. A, adults (left: female); B, adult and final (5th) instar nymph; C, final instar nymph; D, host plants, *Alocasia* sp. (growing along trail at Windsor Nature Reserve); E, *Alocasia longiloba* form 'Denudata' (at Singapore Botanic Gardens); F, gregarious adults and immature forms on abaxial surface of host leaf.

male genitalia (Fig. 7O) as well as measurements (cf. Table 1) are not significantly different between Japanese and Taiwanese populations, which we eventually concluded to be conspecific. *Ernestinus nigriscutum* is herein proposed as a new subjective synonym of *E. tetrastigma*.

Updated checklist of *Ernestinus*

Distributional records for known species follow Yasunaga & Ishikawa (2016), Yeshwanth & Konstantinov (2021), and Liu et al. (2022).

Family Miridae Hahn, 1833

Subfamily Bryocorinae Baerensprung, 1860

Tribe Eccritotarsini Berg, 1883

Subtribe Eccritotarsina Berg, 1833

Genus *Ernestinus* Distant, 1911

- Ernestinus amorphophalli* (Poppius, 1915b) — Distribution: Philippines (Luzon).
E. brevis Lin, 2001 — Taiwan.
E. kasumi Yasunaga & Ishikawa, 2016 (Fig. 7A–C) — Japan (Kyushu, Shikoku).
E. mimicus Distant, 1911 — India (Karnataka), Sri Lanka.
E. pallidiscutum (Poppius, 1915a) (Fig. 7D–F) — China (Guangdong, Guanxi, Guizhou, Hainan, Yunnan), Japan (Kyushu, Ryukyu Islands), Taiwan, Vietnam (new record: based on a pair of adult specimens collected at Ha Tay Prov., Ba Vi on 29 July 2000 by T. Ishikawa, TUAK).
E. puncticollis (Poppius, 1912) — Sulawesi.
E. ramkeshariae Yasunaga & Ishikawa, 2016 (Fig. 7G) — India (Karnataka, Manipur), Nepal (Kathmandu, Makawanpur, Pokhara).
E. sakaerat Yasunaga & Ishikawa, 2016 (Fig. 7H) — Thailand (Nakhon Ratchasima).
E. sarikanus Yasunaga & Ishikawa, 2016 (Fig. 7J–L) — Thailand (Nakhon Nayok).
E. siamensis Yasunaga & Ishikawa, 2016 — Thailand (Nakhon Nayok, Nakhon Ratchasima).
E. singaporensis Yasunaga, Yap & Hwang, new species — Singapore.
E. sundaculus Yasunaga & Ishikawa, 2016 — Indonesia (Bali, Java).
E. tabanan Yasunaga & Ishikawa, 2016 — Indonesia (Bali).
E. taiwanicus Yasunaga & Ishikawa, 2016 — Taiwan.
E. tetrastigma Yasunaga, 2000 [= *E. nigriscutum* Lin, 2001, **new synonymy**] (Fig. 3K, 7M–O) — China (Guangdong), Japan (Ryukyus), Taiwan.
E. vientianensis Yasunaga & Ishikawa, 2016 — Laos (Vientiane), Vietnam.
E. wallaceanus Yasunaga & Ishikawa, 2016 — Indonesia (Flores, Lombok).
E. windsor Yasunaga, Yap & Hwang, new species — Singapore.
E. xanthetrus Yasunaga & Ishikawa, 2016 — Laos (Vientiane), Vietnam.

Ernestinus singaporensis, new species (Figs. 1A–F, 3E–H, 4A–E, 5A–O)

Type material. **Holotype:** male, **SINGAPORE:** Singapore Botanic Gardens, Cluny Road, 1.320900°N, 103.816636°E,

under leaf of *Alocasia macrorrhizos*, coll. T. Yasunaga & E. H. Yap, 21 August 2023 (ZRC) (AMNH_PBI 00378823). **Paratypes:** **SINGAPORE:** 13 males, 12 females, same data as for holotype (TYCN, ZRC); 1 male, Fort Canning Park, 1.29306°N, 103.84601°E, under leaf of *Alocasia* sp., coll. E. H. Yap, 22 April 2025, (ZRC_BDP0373089); 1 female, same locality as previous, coll. E. H. Yap, 15 January 2026 (ZRC_BDP0454557); 3 males, same locality, coll. T. Yasunaga & E. H. Yap, 15 January 2026 (ZRC_BDP0454558–60).

Diagnosis. This new species is recognised by its relatively elongate, moderate-sized body; short antennomeres III and IV (combined length shorter than antennomere II); densely distributed, whitish upright setae on pronotum; thick collar; widely pale cuneus with infusate apical $\frac{1}{3}$; and uniformly pale coxae. The new species belongs to the group of species with the crab-nipper-shaped left paramere. This new species is externally similar to a Nepali congener, *Ernestinus ramkeshariae* Yasunaga & Ishikawa, 2016, from which *E. singaporensis*, new species, can be distinguished by the longer antennomere II that is obviously longer than III or IV, uniformly darkened scutellum lacking reddish spot, and crab-nipper-shaped hypophysis of the left paramere.

Description. Body relatively elongate-ovoid, subparallel-sided, moderate in size; basic colouration fuscous; dorsal surface shiny, with densely distributed, pale, simple setae. **Head:** Shiny fuscous, almost vertical; frons slightly swollen; clypeus weakly arched. **Antenna:** Fuscous, generally short; antennomere I pale, except for infusate apical $\frac{1}{4}$ – $\frac{1}{3}$, about as thick as apical part of antennomere II; antennomere II fuscous, weakly clavate; combined length of antennomeres III and IV shorter than antennomere II. **Labium:** Creamy yellow, broad, slightly surpassing apex of mesocoxa. **Thorax:** Pronotum shiny fuscous, uniformly punctate except on ovoid calli, with roundly inflated disk that covers whole mesoscutum and anterior part of scutellum; medio-pronotal fovea as in Fig. 5F; collar thick, mesal length greater than head in dorsal view; mesoscutum (under pronotal disk) smooth, with sensillae as in Fig. 5G–H; setae on scutellum relatively dense; pleura fuscous; metathoracic scent efferent system as in Fig. 5E. **Hemelytron:** Creamy white, weakly shining, semi-transparent; clavus entirely fuscous; median part of corium with dark, trapezoidal macula (cf. Fig. 1B); apical $\frac{1}{4}$ – $\frac{1}{3}$ of cuneus darkened; membrane pale, semi-transparent, triangularly darkened anteriorly, with pale apical part. **Legs:** Almost entirely creamy yellow (fading to pale brown in dry-preserved specimens); pretarsal structures as in Fig. 5K. **Abdomen:** Totally shiny fuscous, relatively long. **Male genitalia** (Figs. 4A–E, 5I): Pygophore rather cylindrical, about as long as wide; left paramere with crab-nipper-shaped hypophysis (Fig. 4D); right paramere relatively short, truncate apically; vesica J-shaped, short (Fig. 4E). **Female genitalia** (Fig. 5L–O): Genital chamber relatively wide (Fig. 5L); interramal sclerite of posterior wall densely covered with scaly microstructures (Fig. 5N), with a pair of projections (Fig. 5O).

Measurements. See Table 1.

Table 1. Measurements for species of *Ernestinus singaporensis* (*Es*), *E. windsor* (*Ew*) and *E. tetrastigma* (*Et*). Abbreviations — F: female, FM: femur, HT: holotype, L: length, LBM: labium, M: male, PRN: pronotum, PT: paratype, TB: tibia, TW: Taiwanese specimens (NMNS), VTX: vertex (interocular space), W: width.

		Body	Head	VTX	PRN	Max	Antennomere L				LBM	Metaleg L	
		L	W	W	W	W	I	II	III	IV	L	FM	TB
<i>Es</i>	HT-M	3.19	0.63	0.41	1.04	1.08	0.29	0.87	0.39	0.32	0.93	1.05	1.19
	PT-M	3.11	0.62	0.38	1.01	1.07	0.29	0.87	0.45	0.38	0.95	1.04	1.19
	PT-M	3.21	0.62	0.39	1.02	1.10	0.30	0.87	0.45	0.35	0.98	1.04	1.17
	PT-F	3.23	0.65	0.41	1.08	1.17	0.29	0.77	0.36	0.32	1.01	1.04	1.20
	PT-F	3.38	0.66	0.42	1.08	1.19	0.30	0.75	0.38	0.33	1.02	1.02	1.19
	PT-F	3.26	0.65	0.41	1.05	1.16	0.29	0.74	0.36	0.35	0.99	1.02	1.17
<i>Ew</i>	HT-M	2.67	0.57	0.35	0.87	0.90	0.30	0.50	0.45	0.39	0.75	0.87	0.90
	PT-M	2.74	0.59	0.33	0.87	0.99	0.32	0.57	0.56	0.47	0.78	0.89	0.93
	PT-M	2.65	0.57	0.35	0.87	0.95	0.30	0.51	0.59	0.42	0.78	0.75	0.83
	PT-F	2.87	0.60	0.35	0.90	1.05	0.31	0.51	0.53	0.44	0.74	0.89	0.90
	PT-F	2.89	0.59	0.36	0.92	1.04	0.32	0.49	0.50	0.47	0.83	0.90	0.92
	PT-F	2.77	0.60	0.33	0.90	1.05	0.27	0.50	0.47	0.36	0.77	0.86	0.89
<i>Et</i>	HT-M	2.92	0.62	0.41	0.96	1.16	0.24	0.60	0.48	0.35	0.90	0.93	1.02
	PT-M	3.36	0.65	0.41	1.13	1.25	0.29	0.68	0.57	0.41	0.90	1.01	1.16
	PT-F	3.04	0.66	0.42	1.08	1.34	0.26	0.56	0.50	0.33	0.87	1.02	1.05
	TW-M	3.11	0.66	0.41	1.13	1.31	0.29	0.68	0.53	–	0.86	1.05	1.14
	TW-F	2.99	0.63	0.41	1.04	1.20	0.27	0.60	0.49	–	0.87	0.92	1.04
	TW-F	3.38	0.71	0.41	1.20	1.41	0.26	0.62	–	–	0.87	1.08	1.13

Etymology. Named for the finding of this new species from Singapore; an adjective.

Distribution. Singapore.

Biology. Confirmed breeding host is *Alocasia macrorrhizos* cv. (L.) G.Don. (Fig. 1D) and *Alocasia* sp. (Fig. 2D). The identity of the second host plant pictured in Fig. 2D cannot be ascertained as the plant was an immature specimen. Two locally-occurring species, *A. odora* and *A. macrorrhizos*, look similar in terms of vegetative characters when immature. Collection records suggest the present new species has two or more generations per year.

Ernestinus windsor, new species
(Figs. 2A–E, 3A–D, 4F–I, 6A–O)

Type material. **Holotype:** male, **SINGAPORE:** Windsor Nature Park, 30 Venus Drive, 1.360420°N, 103.824120°E, under leaf of *Alocasia* sp., coll. T. Yasunaga, 15 August 2023 (ZRC) (AMNH_PBI 00378824). **Paratypes:** **SINGAPORE:** 7 males, 6 females, same data as for holotype (TYCN, ZRC); 4 males, same locality as holotype, coll. T. Yasunaga, 14 August 2023 (TYCN); 1 female, Singapore Botanic Gardens, Cluny Road, 1.320900°N, 103.816636°E, coll. T.

Yasunaga & E. H. Yap, 21 August 2023 (TYCN); 1 male, 1 female, Singapore Botanic Gardens, Potting Yard, under leaf of *Alocasia longiloba*, coll. E. H. Yap, 12 December 2024 (ZRC_BDP0373643–4); 3 males, 3 females, Singapore Botanic Gardens, The Rainforest, 1.31370°N, 103.81620°E, under leaf of *Alocasia* sp., coll. E. H. Yap, 15 January 2026 (ZRC_BDP0454561–6); 2 males, 3 females, Singapore Botanic Gardens, The Rainforest, 1.31370°N, 103.81620°E, under leaf of *Alocasia longiloba*, coll. E. H. Yap, 15 January 2026 (ZRC_BDP0454567–71).

Diagnosis. This new species is recognised by its relatively small size; short antennomere II much shorter than width of head across eyes; reddish or yellowish brown pronotal collar; somewhat rounded lateral margin of hemelytron; flattened left paramere with sword-like hypophysis tapered toward apex; and conspicuously elongate, C-shaped endosoma. The new species is most similar and closely related to a Thai congener, *Ernestinus sarikanus* Yasunaga & Ishikawa, 2016, from which *E. windsor*, new species, can be distinguished readily by the widely darkened antennomere I with pale base, entirely pale coxae and broader apical part of left paramere.

Description. Body oval, small; basic colouration fuscous; dorsal surface with uniformly distributed, silky, erect or

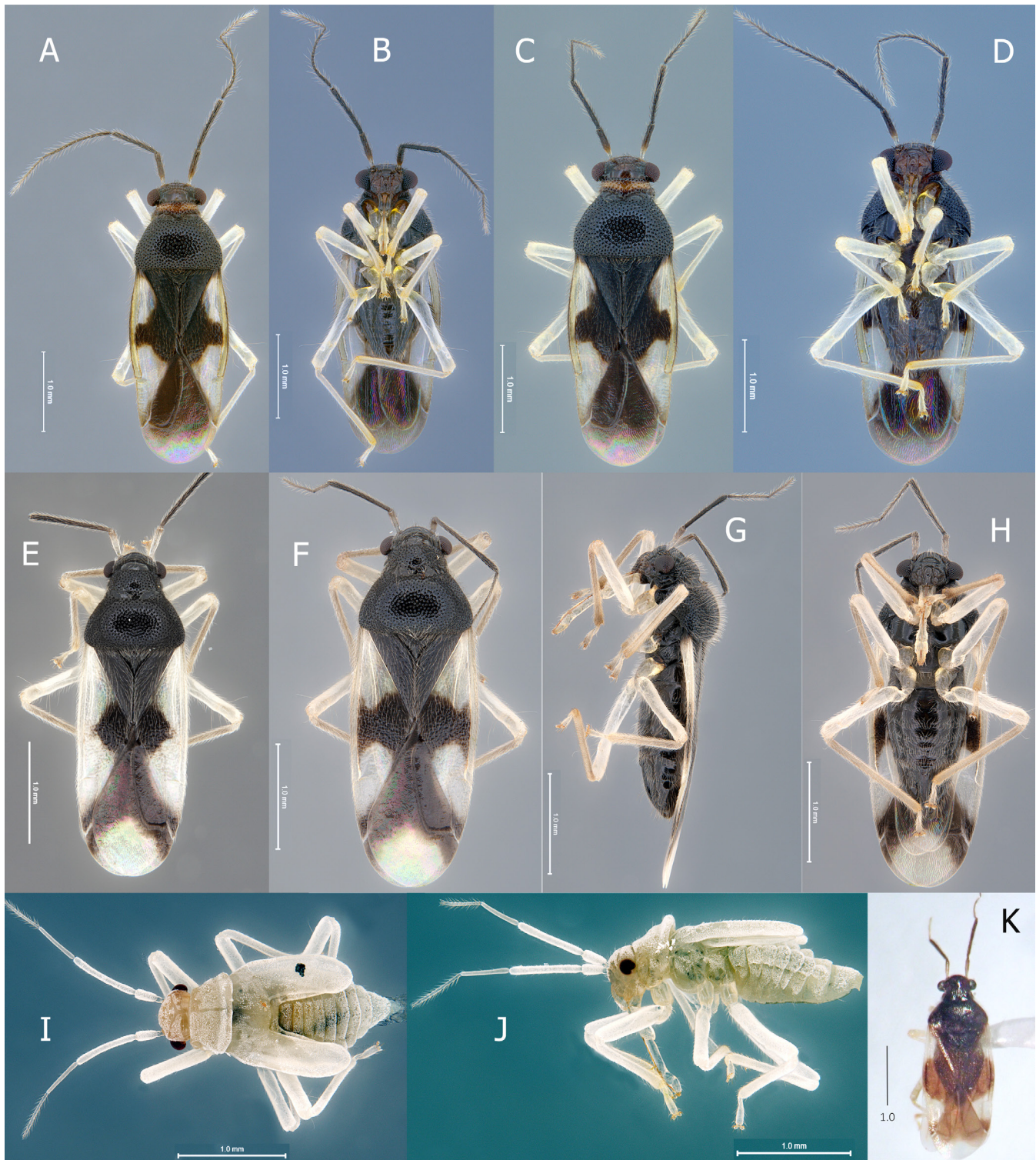


Fig. 3. Habitus images of *Ernestinus windsor*, new species (A–D), *E. singaporensis*, new species (E–J) and *Ernestinus tetrastigma* Yasunaga from Taiwan (NMNS) (K). A, B, F–H, K, male adults; C–E, female adults; I, J, final (5th) instar nymph.

semierect setae. **Head:** Shiny fuscous, almost vertical, somewhat rounded in front; clypeus weakly arched. **Antenna:** Fuscous, generally short; antennomere I pale, except for infuscate apical $\frac{1}{4}$ – $\frac{1}{3}$, about as thick as apical part of antennomere II; antennomere II fuscous, weakly clavate; combined length of antennomeres III and IV shorter than antennomere II. **Labium:** Creamy yellow, short, reaching but not exceeding apex of mesocoxa. **Thorax:** Pronotum shiny fuscous, uniformly punctate except on narrow, smooth calli,

with weakly inflated disk that covers whole mesoscutum and anterior part of scutellum; medio-pronotal fovea as in Fig. 6F, slightly larger than each puncture (or setal socket); anterior half of collar pale brown, mesal length less than head in dorsal view; mesoscutum (under pronotal disk) with densely distributed, micro-setae and several sensillae as in Fig. 6G, H; setae on scutellum sparsely distributed; pleura shiny fuscous; metathoracic scent efferent system as in Fig. 6E. **Hemelytron:** Creamy white, weakly shining,

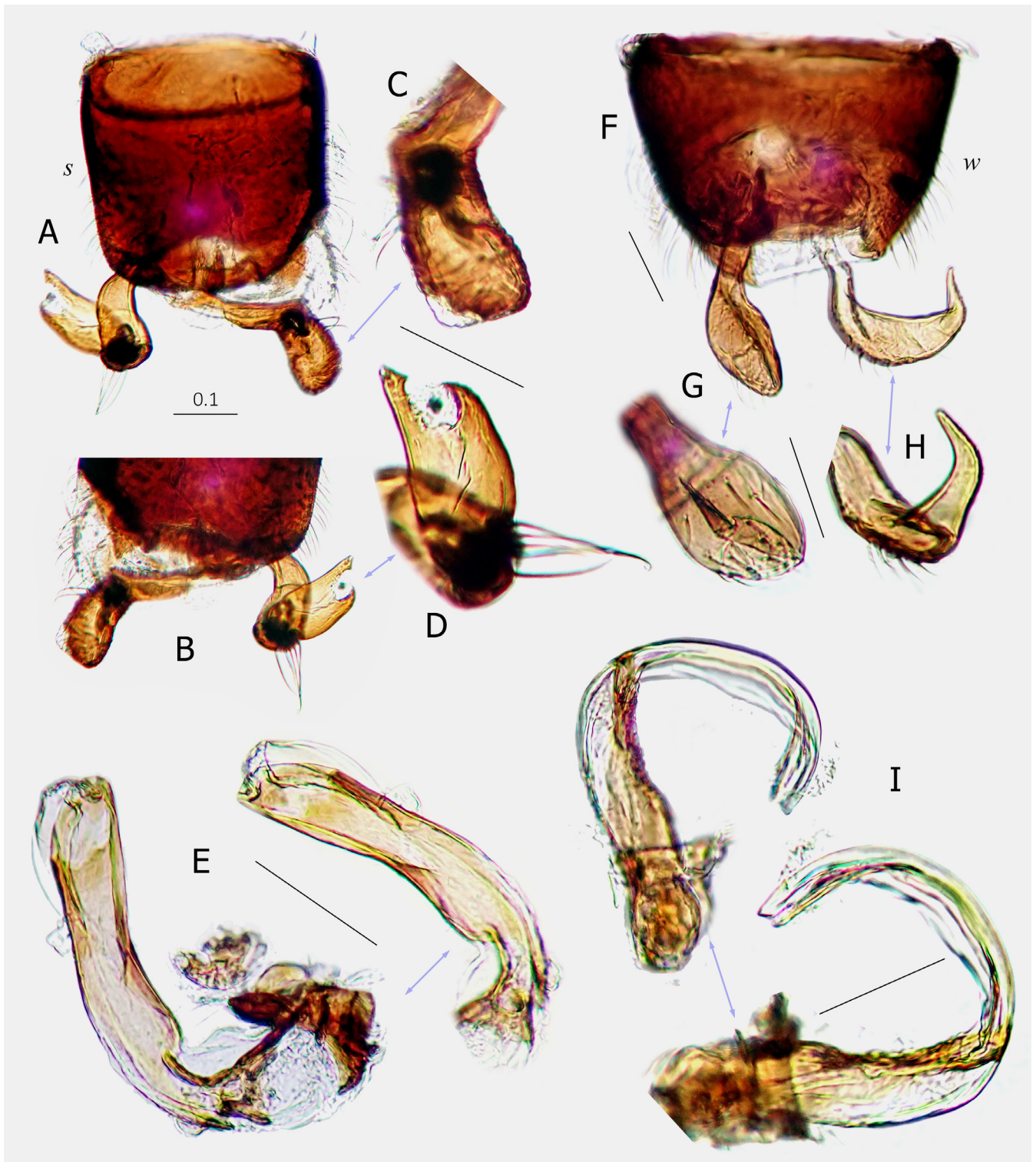


Fig. 4. Male genitalia of *Ernestinus singaporensis*, new species (A–D) and *E. windsor*, new species (F–I). A, B, F, genital segment (pygophore) with parameres; C, G, right paramere; D, H, left paramere; E, I, vesica.

semi-transparent; clavus entirely fuscous; median part of corium with a dark, subtriangular macula (cf. Fig. 1B); lateral margin of exocorium narrowly brown; apex of cuneus narrowly dark brown; membrane darkened anteriorly, with pale, semi-transparent distal margin. **Legs:** Almost entirely creamy yellow; apex of each tibia and tarsus suffused with brown; pretarsal structures as in Fig. 6K. **Abdomen:** Totally shiny fuscous, short. **Male genitalia** (Figs. 4F–I, 6I): Pygophore rather trapeziform; apical part of right

paramere bulbous, flattened (Fig. 4G); left paramere with tapered hypophysis (Fig. 4H); right paramere relatively short, truncate apically; vesica C-shaped, long (Fig. 4I). **Female genitalia** (Fig. 6L–O): Genital chamber relatively wide (Fig. 6L); interramal sclerite of posterior wall densely covered with comb-like scaly microstructures, without any projection nor keel (Fig. 6N, O).

Measurements. See Table 1.

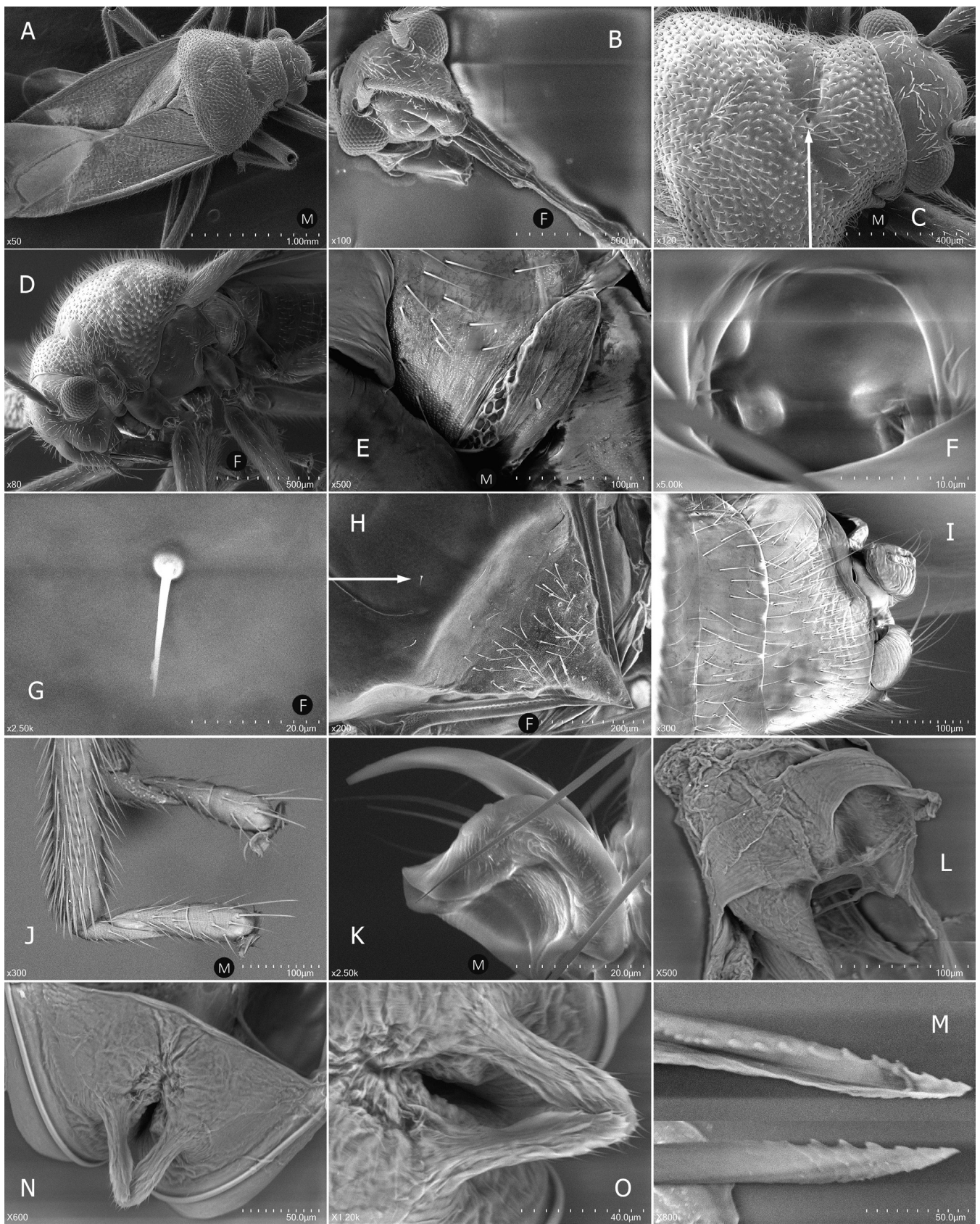


Fig. 5. Scanning electron micrographs for *Ernestinus singaporensis*, new species. A, dorsal habitus; B, head and labium; C, head and pronotum; D, anterior body, left lateral view; E, left metathoracic scent efferent system; F, medio-pronotal fovea; G, mesoscutal sensillum; H, mesoscutum and scutellum (pronotum removed); I, male genital segment (pygophore), left lateral view; J, metatarsi; K, pretarsal structure of metaleg; L, genital chamber; M, apical part of ovipositor (gonapophysis I); N, O, posterior wall.

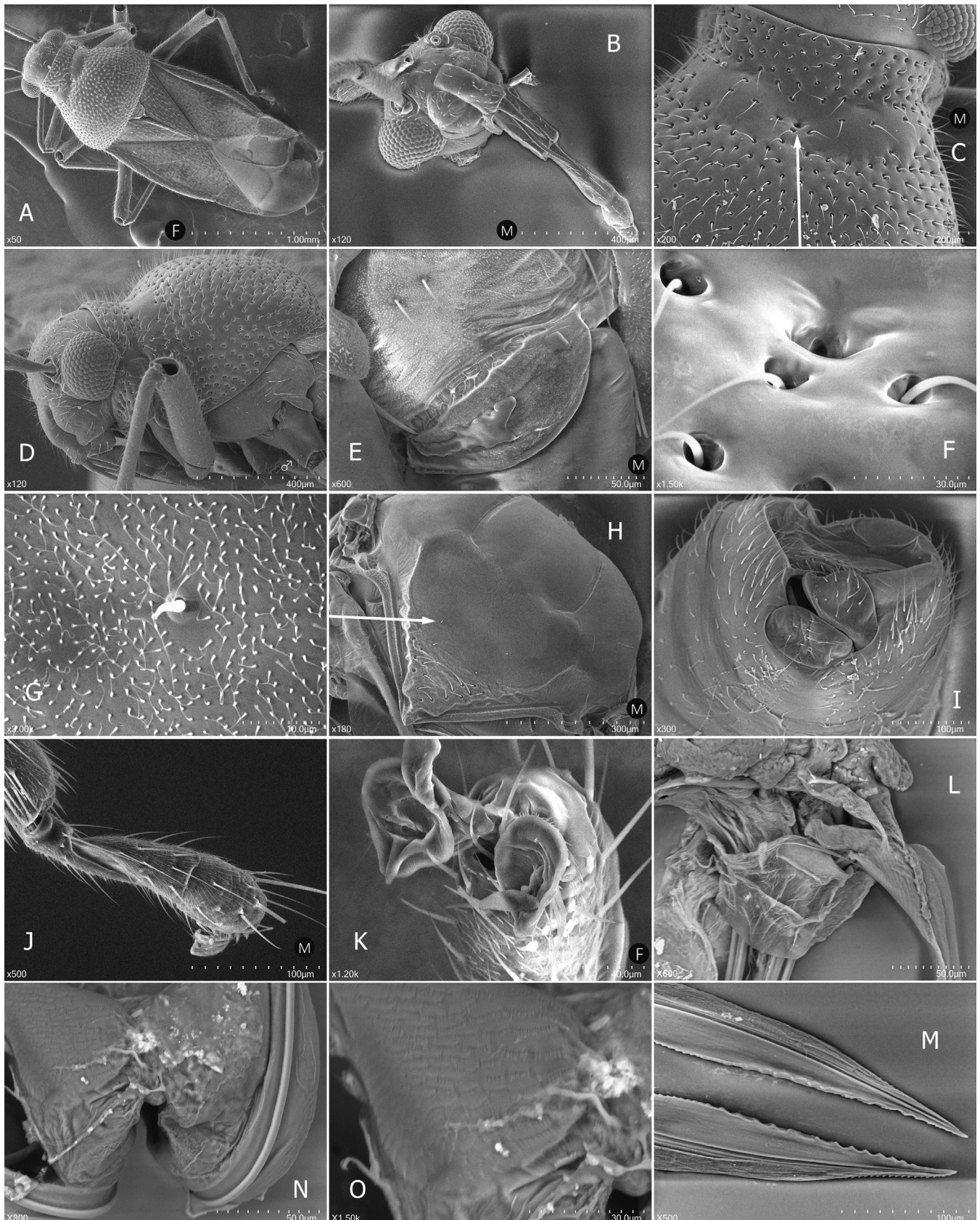


Fig. 6. Scanning electron micrographs for *Ernestinus windsor*, new species. A, dorsal habitus; B, head and labium; C, head and pronotum; D, anterior body, left lateral view; E, left metathoracic scent efferent system; F, medio-pronotal fovea; G, mesoscutal sensillum; H, mesoscutum and scutellum (pronotum removed); I, male genital segment (pygophore), caudal view; J, metatarsus; K, pretarsal structure of metaleg; L, genital chamber; M, apical part of ovipositor (gonapophysis I); N, O, posterior wall.

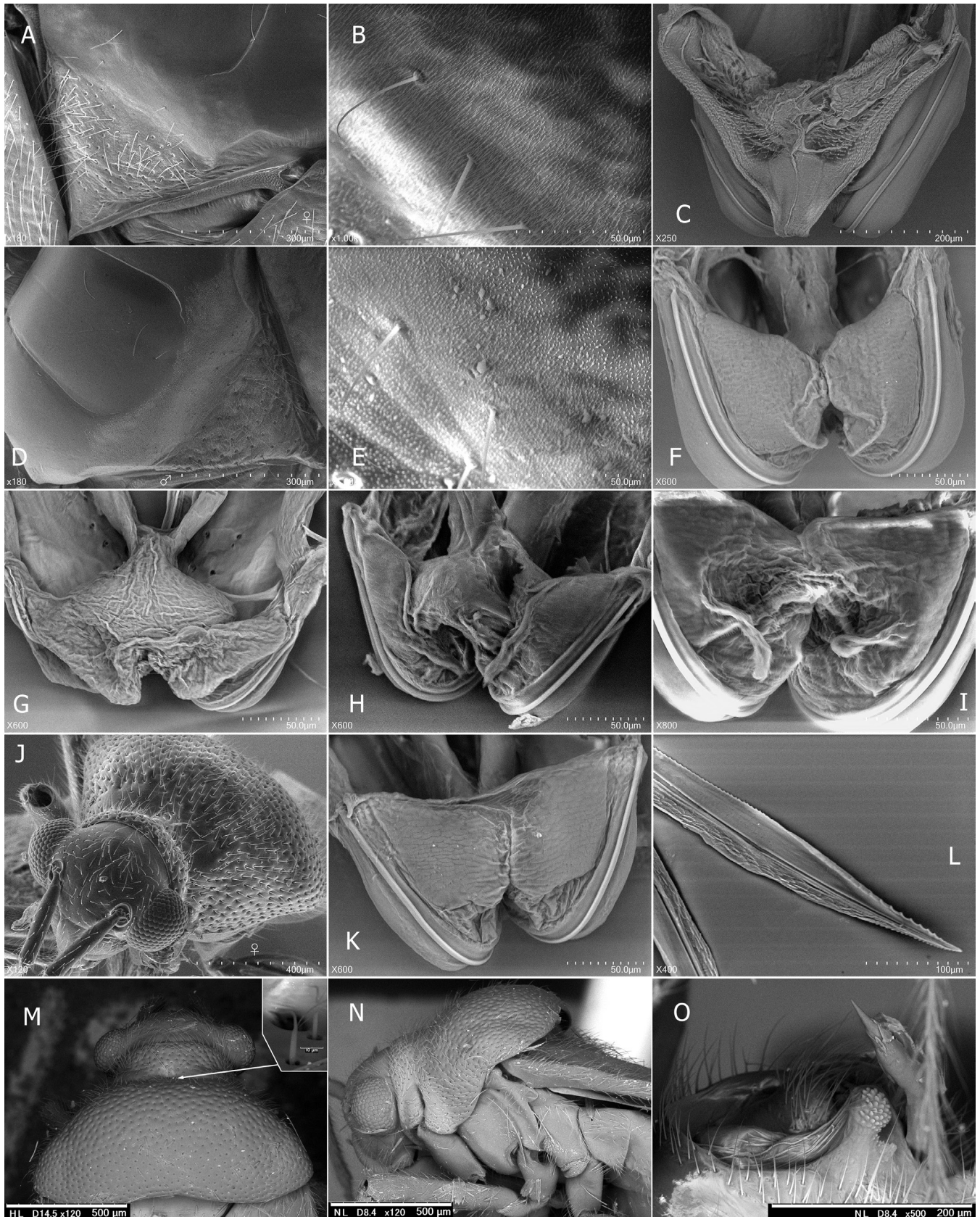


Fig. 7. Scanning electron micrographs for *Ernestinus kasumi*, paratype (from Kochi, Japan) (A–C), *E. pallidiscutum* (Pingtung, Taiwan) (D–F), *E. ramkeshariae*, paratype (Chitwan, Nepal) (G), *E. sakaerat*, paratype (Nakhon Ratchasima, Thailand) (H), *E. tetrastigma*, paratype (Ishigaki Island, Japan) (I), *E. sarikanus*, paratype (Nakhon Nayok, Thailand) (J–L) and *E. tetrastigma*, male (Taiwan, NMNS) (M–O). A, D, mesoscutum and scutellum; B, F, mesoscutal sensilla; C, F–G, I, K, posterior wall; J, head and pronotum, anterior view; L, apical part of ovipositor (gonapophysis I); M, head and pronotum, dorsal view (with magnified medio-pronotal fovea); N, anterior body, left lateral view; O, male genital segment (pygophore), left lateral view.

Etymology. Named for the type locality, Windsor Nature Park of Singapore; a noun in apposition.

Distribution. Singapore.

Biology. Confirmed breeding hosts are *Alocasia longiloba* Miq. (Fig. 2E) and *Alocasia* sp. (Fig. 2D). One adult was found on *A. macrorrhizos* cv. (L.) G. Don. (Fig. 1D), but we have not found any immature forms on this plant. The first host plant, *Alocasia longiloba*, belongs to a species-complex. The wild plants occurring in Singapore belong to the form ‘Denudata’ (Dr. P. Boyce, pers. comm.). Collection records suggest this new species has a multivoltine life cycle.

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