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THE GENERA *Hoplammophila* de Beaumont, 1960 AND *Sceliphron* Klug, 1801 (Hymenoptera: Sphecidae) IN VIETNAM

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ABSTRACT

The genera *Hoplammophila* de Beaumont, 1960 and *Sceliphron* Klug, 1801 (Hymenoptera: Sphecidae) in Vietnam are studied. The genus *Hoplammophila*, with a single species and the genus *Sceliphron*, with two species and five subspecies are recorded. Two species *Hoplammophila aemulans* (Kohl, 1901) and *Sceliphron coromandelicum* (Lepeletier de Saint-Fargeau, 1845), are reported for the first time from Vietnam. Notes on the nest structure of *S. coromandelicum*, a key to the species and subspecies of the Vietnamese *Sceliphron* and their new distributional records are presented.

Keywords: Nest structure, new record, Oriental region, Sphecidae, taxonomy, Vietnam.

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INTRODUCTION

Hoplammophila de Beaumont, 1960 is a small genus of the subfamily Ammophilinae (Hymenoptera: Sphecidae), with four known species, *Hoplammophila aemulans* (Kohl, 1901), *Hoplammophila anatolica* (de Beaumont, 1960), *Hoplammophila armata* (Illiger, 1807), and *Hoplammophila clypeata* (Mocsáry, 1883) distributed mainly in the Palearctic region (Menke, 1974; Pulawski, 2024). This genus is characterized by the inner margin of leg claw toothed basally, the petiole socket semicircular dorsally, the female foretarsomere I asymmetric, the median lobe of the female clypeus truncate, the male clypeus triangular, metasomal segment II and usually III red, the mesosoma with erect pale setae, and a patch of appressed silver setae on the mesopleuron (Menke, 1974; Bohart & Menke, 1976). *H. aemulans* is distributed in both the Palearctic region (Turkey, China, Korea, Japan, and Russia) and the Oriental region (Laos & Taiwan) (Dollfuss, 2015; Pulawski, 2024). In this study, we find this species in Vietnam and record it as new for the country.

Sceliphron Klug, 1801 is a genus of the subfamily Sceliphrinae (Hymenoptera: Sphecidae), with 34 currently recognised species worldwide (Pulawski, 2024). The genus is divided into two subgenera, *Sceliphron* s. str. and *Hensenia* (as *Prosceliphron*) (van der Vecht & van Breugel, 1968; Hensen, 1987; Pagliano & Scaramozzino, 1990). The former consists of 22 species, and the latter consists of 11 species. *Sceliphron leptogaster* Cameron has not yet been placed in either of the two subgenera. Bohart & Menke (1976) and Pham (2016) believed that it can belong to Ammophilini.

In Vietnam, one species *Sceliphron deforme* (Smith, 1856) and five subspecies *Sceliphron javanum javanum* (Lepeletier de Saint-Fargeau, 1845), *Sceliphron javanum chinense* van Breugel, 1968, *Sceliphron javanum petiolare* Kohl, 1918, *Sceliphron madraspatanum madraspatnum* (Fabricius, 1781), *Sceliphron madraspatanum kohli* Sickmann, 1984 of the genus *Sceliphron* have been recorded in the previous studies (van der Vecht & van Breugel, 1968; Hensen, 1987; Pádr & Tkalců, 1991; Tano & Kurokawa, 2015; Pham et al., 2015, 2019, 2020; Pham, 2016; Dollfuss, 2016; Danilov, 2020). In this paper, we record *Sceliphron coromandelicum* (Lepeletier de Saint-Fargeau, 1845) for the first time from Vietnam, resulting in two species and five subspecies of the genus known from the country and present a key to these *Sceliphron* species and subspecies.

MATERIALS AND METHODS

Specimens were collected using both sweep nets and Malaise traps at many localities in Vietnam. Mud nests of species encountered were also collected. A single nest of *S. coromandelicum* collected at Yok Don National Park, Dak Lak province, on 15 August 2020 by Mr. Nguyen Dinh Duy, was dissected to take nest structures and nest contents. The nest contents, including cocoons, were put in glass tubes (5 cm long and 0.8 mm in diameter) and kept under laboratory conditions. The emerged adults were killed with a killing jar charged with ethyl acetate, pinned and dried. Information on the nesting site of *S. coromandelicum* was supplied by the collector.

Adult morphological and color characters were observed from pinned and dried specimens with the aid of a Nikon SMZ745 stereomicroscope. Measurements of body size were made with an ocular micrometer attached to the microscope. Photographs were taken with a digital camera attached to the Nikon SMZ800N digital stereomicroscope, then stacked by CombineZM. All images and plates were processed with Adobe Photoshop CS6. Bohart & Menke (1976) and Menke (1974) were used to identify *Hoplammophila*; Bohart & Menke (1976), van der Vecht & van Breugel (1968), and Hensen (1987) were used to identify *Sceliphron* species and subspecies. Information on the taxonomic history of *Hoplammophila* and *Sceliphron* and synonymy was taken from Pulawski (2024). The morphological terminology follows Bohart & Menke (1976).

The specimens examined in the present paper are deposited in the Institute of Biology (IB), Vietnam Academy of Science and Technology, Ha Noi, Vietnam.

RESULTS AND DISCUSSION

Order Hymenoptera Linnaeus, 1758

Family Sphecidae (Latreille, 1802)

Genus *Hoplammophila* de Beaumont, 1960, first record from Vietnam

Hoplammophila de Beaumont, 1960: 1. Type species: *Ammophila armata* (Illiger, 1807) [= *Sphex armatus* Illiger, 1807], by original designation.

Micadophila Tsuneki, 1962: 28. Type species: *Ammophila aemulans* Kohl, 1901, by original designation.

***Hoplammophila aemulans* (Kohl, 1901)** (Figs. 1a–f, 2)

Material examined. VIETNAM: **Kon Tum** province: 1♀, Pasy fall, Đak Long, Kon Plong, 30.iv.2016, Tu Thanh Nguyen leg., sweep net.

Distribution. Vietnam (first record): Kon Tum (Fig. 2). *Elsewhere*: China, Japan, Korea, Russia, Taiwan, Laos, Turkey (Pulawski, 2024).

Remarks. *Hoplammophila aemulans* is very rare in Vietnam. We have collected no specimen of the species during many collection trips between 2015 and 2024. A single specimen was collected by our friend, Mr. Nguyen Thanh Tu, at Pasy Waterfall, Đak Long, Kon Plong district, Kon Tum province, on 30 April 2016.

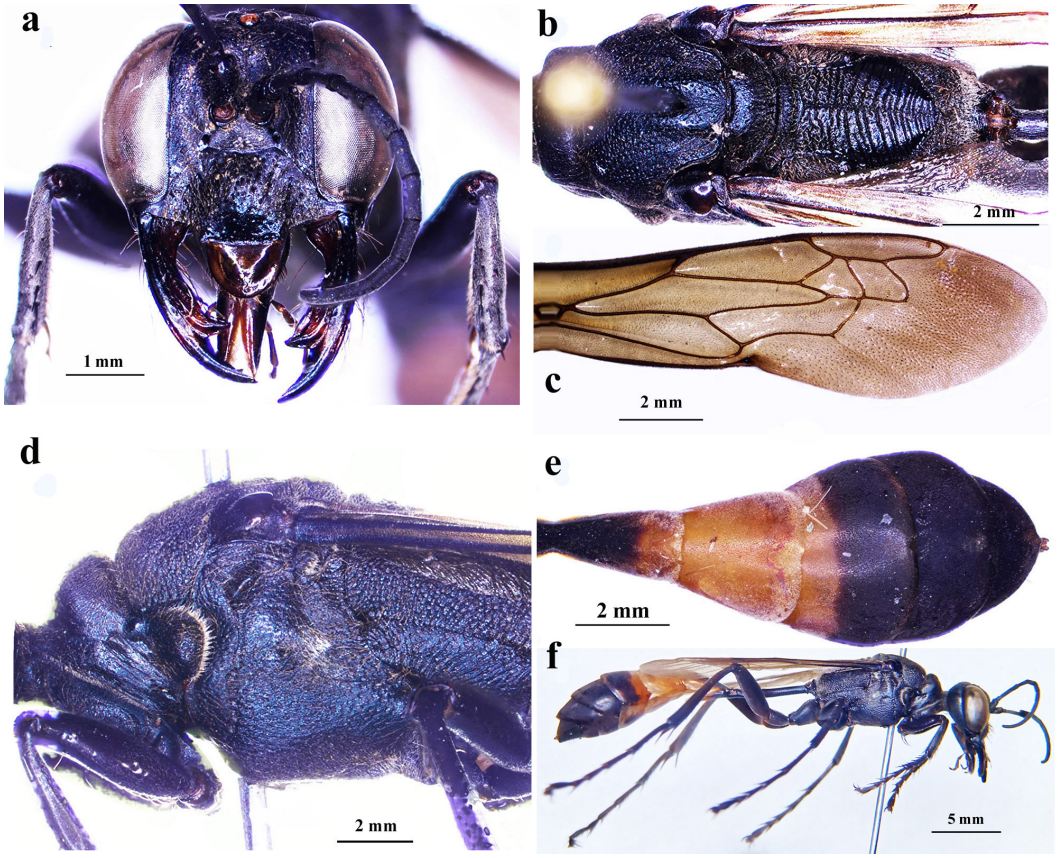

Figure 1. Hoplammophila aemulans (Kohl, 1901) ♀: (a) head, facial view; (b) mesosoma, dorsal view; (c) forewing; (d) mesosoma, lateral view; (e) metasoma, dorsal view; (f) habitus, lateral view

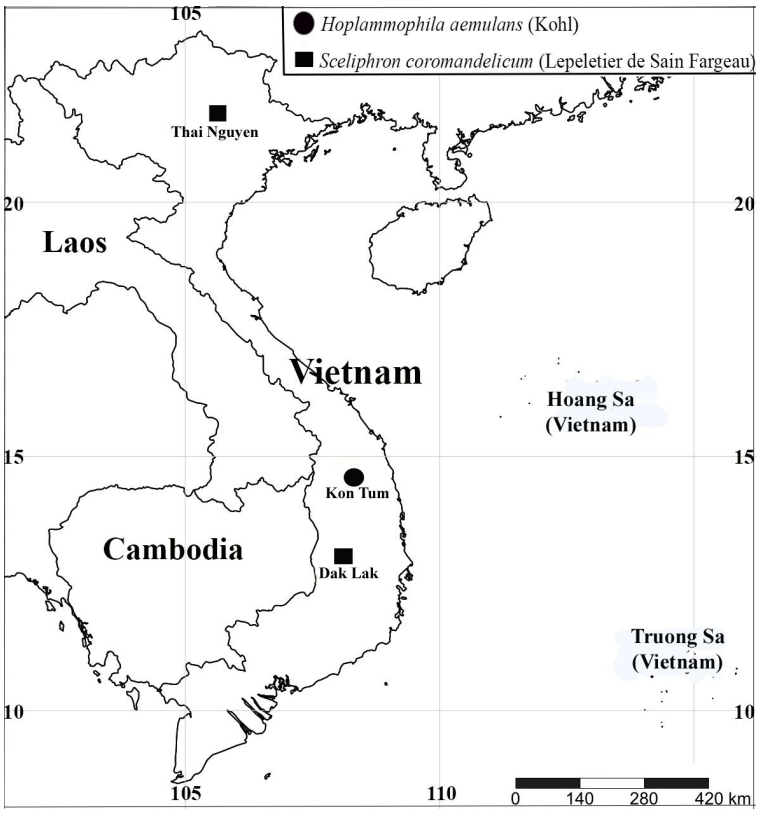

Figure 2. Distributional localities of *Hoplammophila aemulans* and *Sceliphron coromandelicum* in Vietnam

Genus *Sceliphron* Klug, 1801

Sceliphron Klug, 1801: 561. Type species: *Sphex spirifex* Linnaeus, 1758, designated by Bingham, 1897: 235.

Pelopoeus Latreille, 1802: 334. Type species: *Pelopoeus spirifex*, Fabricius [= *Pelopoeus spirifex* of Fabricius, 1804 = *Sphex spirifex* Linnaeus, 1758], designated by Latreille 1810: 438.

Pelopaeus Latreille, 1804: 180. Lapsus or emendation of *Pelopoeus*.

Sceliphrum W. Schulz, 1906: 192. Emendation of *Sceliphron* Klug, 1801.

Prosceliphron van der Vecht, 1968: 192. Type species: *Sceliphron coromandelicum* (Lepeletier de Saint-Fargeau, 1845) [= *Pelopoeus coromandelicus* Lepeletier de Saint-Fargeau, 1845], by original designation. Junior homonym of *Prosceliphron* Frenguelli, 1946.

Hensenia Pagliano and Scaramozzino, 1990: 5. Substitute name for *Prosceliphron* van der Vecht, 1968.

Key to the Vietnamese species and subspecies of *Sceliphron*

(because specimens of *S. (Sceliphron) javanum javanum* were not available, its characters presented in this key were taken from its original description by Lepeletier de Saint-Fargeau (1845))

1. Inner margin of mandible not toothed; inner eye margins sub-parallel in lower half; mesosoma dull; mesopleuron and metapleuron conspicuously striate; terminal metasomal sternum of females with longitudinal carina medially…….....…….subgenus *Hensenia*. 2

- Inner margin of mandible toothed; inner eye margins distinctly converging in lower half; mesosoma shiny; mesopleuron and metapleuron without striae; terminal metasomal sternum of females without longitudinal carina medially…..……..…..…..…...subgenus *Sceliphron*. 3

2. Clypeus black except yellow spot medially; mesopleuron without yellow spot; petiole yellow, slightly curved; fore femur brownish yellow apically; metasomal tergum I not swollen apically; metasomal terga wholly black (Figs. 3a-e)……..…….

…….....*S. (Hensenia) coromandelicum* (Lepeletier de Saint-Fargeau)

- Clypeus yellow; mesopleuron with yellow spot below tegula; petiole black, strongly curved; fore femur dark brown apically; metasomal tergum I conspicuously swollen apically; metasomal terga with yellow and red brown bands (Figs. 4a-b)……...
……...…...*S. (Hensenia) deforme* (Smith)

3. Dorsal margin of hind coxa angular anteriorly; mesosoma entirely black; fore and mid tibiae reddish brown; body length 2.0–3.8 cm……..…….....4

- Dorsal margin of hind coxa rounded anteriorly; mesosoma yellowly marked; fore and mid tibiae yellow; body length 1.4–2.2 cm……..…….……..6

4. At least apical third of hind femur black, black part obviously separated from yellow part; body length 2.0−2.2 cm (Fig. 4d)…….....*S. (Sceliphron) javanum petiolare* Kohl

- Less than apical third of hind femur blackish, brownish yellow part bounded by apical blackish and basal yellow parts……5

5. Fore and mid femora black with apex brown, fore and mid tibiae yellow to brownish, body length 3.8 cm……...*S. (Sceliphron) javanum javanum* (Lepeletier de Saint-Fargeau)

- Apical third of fore and mid femora and fore and mid tibiae red, body length 2.6−2.7 cm (Fig. 4c)…….....*S. (Sceliphron) javanum chinense* van Breugel

6. Mesopleuron wholly black (Fig. 4e)……..
……...*S. (Sceliphron) madraspatanum madraspatanum* (Fabricius)

- Mesopleuron with yellow spots below tegula (Fig. 4f)…….……...….....
……..*S. (Sceliphron) madraspatanum kohli* Sickmann

***Sceliphron coromandelicum* (Lepeletier de Saint-Fargeau, 1845)**, first record from Vietnam (Figs. 3a–e, 2)

Material examined. VIETNAM: **Dak Lak** province: 2♀, 1♂, Yok Don National Park, 25.viii–2.ix.2020, Dong Dinh Nguyen leg., emerged from a nest collected on 15 August 2020. **Thai Nguyen** province: 1♀, Trung Thanh, Pho Yen, 26.vi.2024, Phong Huy Pham leg., sweep net, shrubs.

Distribution. Vietnam (first record): Dak Lak, Thai Nguyen (Fig. 2). *Elsewhere*: Bangladesh, Cambodia, India, Laos, Malaysia, Myanmar, Sri Lanka, Thailand (Pulawski, 2024).

Remarks. *S. coromandelicum* was originally described from India by Lepeletier de Saint-Fargeau in 1845 as *Pelopaeus coromandelicum*. The species has, hitherto, been recorded only from the Oriental region. Iwata (1964) stated that *S. coromandelicum* is rather rare in Thailand and Cambodia, because only two females have been collected there. *S. coromandelicum* is also rare in Vietnam because during a lot of collection trips from 2015 to 2024, we collected only one female and a single nest of the species in north and central Vietnam, respectively.

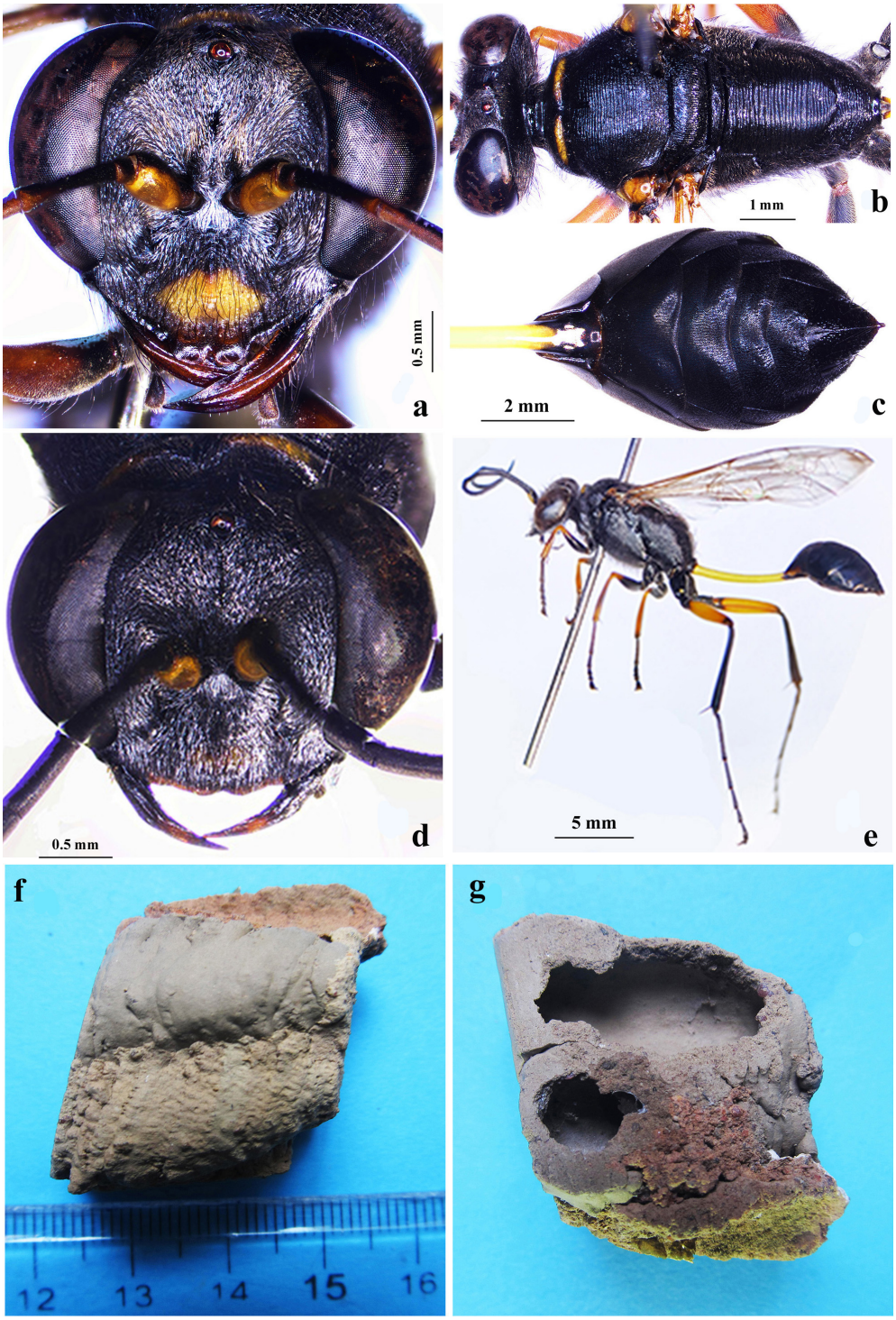

Figure 3. *Sceliphron coromandelicum* (Lepeletier de Saint-Fargeau, 1845): (a) ♀, head, frontal view; (b) ♀, head and mesosoma, dorsal view; (c) ♀, metasoma, ventral view; (d) ♂, head, frontal view; (e) ♂, habitus, lateral view; (f–g) nest structure, (f) outside surface of the nest cell, (g) inside surface of the nest cell

Notes on nest (Figs. 2f–g). A nest of *S. coromandelicum* was found attached to a wall corner of a human stilt house, about 3.3 m from the ground on 15 August 2020. This nest was then collected and dissected. It consisted of three cells, two built with greyish mud and one built with brownish mud. The nest cells were pipe-shaped, narrowed at the top end and moderately extended at the bottom end, 2.4 cm long and 1.3 cm wide (as measured at the middle) for a male cell and 2.6–2.7 cm long and 1.5 cm wide (as measured at the middle) for two female cells. The inside of the nest cells was smooth, and their external surface was rough. The cell wall ranged from 1.1 to 1.5 mm in thickness. The cell entrance, 6 mm in diameter for a male cell and 7 mm in diameter for two female cells, was plugged with mud. All three cells contained cocoons at the time of the collection. The cocoon was brownish, torpedo-shaped (round at the top end and truncate at the bottom end), 1.5 cm long and 0.6 cm wide for a male cocoon, 1.7–1.8 cm long and 0.7 cm wide for two female cocoons. An adult male emerged on 25 August 2020, and two adult females emerged between 31 August and 2 September 2020. This studied nest was built against two old mud nests, probably of the same species, because the nest structure was similar, suggesting that *S. coromandelicum* nests aggregately at preceding nesting sites.

***Sceliphron deforme* (F. Smith, 1856)** (Figs. 4a-b)

Material examined. VIETNAM: **Ha Noi** city: 4♀, 1♂, Ba Vi National Park, Ba Vi, 400 m, 28.v.2016, Phong Huy Pham leg.. **Vinh Phuc** province: 2♀, 2♂, Me Linh Station for Biodiversity, Ngoc Thach, Me Linh, 25.v.2013, 5.vi.2014, Hoa Thi Dang leg.; 14♀, 9♂, Me Linh Station for Biodiversity, Ngoc Thach, Me Linh, 1–3.vi.2018, Phong Huy Pham leg.; 2♀, Tam Dao National Park, Tam Dao, 1–10.vi.2012, Long Dang Khuat leg.. **Quang Ninh** province: 1♂, Uong Bi city, 22.ii.2022, Duy Van Nguyen leg., an old nest. **Hoa Binh** province: 1♀, Mai Chau Town, Mai Chai district, 3.vi.2012, Phong Huy Pham leg.; 6♀, 3♂, My Tan, Tan Thanh, Luong Son, 16.v.2018, 20.viii.2018, 6.vi.2019, 27.vii.2019, Phong Huy Pham leg.; 3♀, 1♂, Kim Son, Kim Boi, 14.vi.2019, 26.vii.2019, Phong Huy Pham leg.; 1♀, Mo Da, Hạ Bi, Kim Boi, 14.vi.2019, Phong Huy Pham leg.. **Son La** province: 1♀, Son La city, 10–20.vii.2017, Long Dang Khuat leg., Malaise trap; 1♂, Copia Nature Reserve, Thuan Chau, 15.v.2017, 1025m, Phong Huy Pham leg.; 2♀, 2♂, Kho Hong, Xuan Nha, Van Ho, 21-22.ix.2023, Phong Huy Pham leg.; 2♂, Ta Co, Sop Cop, Sop Cop, 1–2.x.2023, Phong Huy Pham leg.. **Lao Cai** province: 3♀, Ban Lac, Sa Pa & Bat Xat, 5.ix.2019, 25.v.2022, Phong Huy Pham, Nhi Thi Pham leg., a fresh nest. **Lang Son** province: 2♀, Quang Lac, Lang Son city, 22.viii.2023, Linh Van Khuc leg., two old nests. **Phu Tho** province: 1♀, 2♂, Thu Cuc, Tan Son, 29.viii.2023, Manh Thanh Nguyen leg., a fresh nest. **Cao Bang** province: 3♀, Pac Po & Ngoc Dong, Ha Quang, 10–14.ix. 2023, Phong Huy Pham leg., a fresh nest. **Ha Giang** province: 2♀, Bat Dai Son, Quan Ba, 16–17.ix.2023, Phong Huy Pham leg.. **Thai Nguyen** province: 1♀, 26.vi.2024, Trung Thanh, Pho Yen, Phong Huy Pham leg., sweep net, shrubs.

Distribution. Vietnam: Hoa Binh (Hensen, 1987: 238; Pham, 2016: 687; Pham et al., 2019: 73; Pham et al., 2020: 157), Thai Nguyen (Pham et al., 2019: 73), Vinh Phuc (Pham et al., 2019: 73; Dollfuss, 2016: 1170); Cao Bang, Ha Giang, Ha Noi, Lang Son, Lao Cai, Phu Tho, Quang Ninh, Son La (new records). *Elsewhere*: China: Hong Kong, Japan, India, Korea, Laos, Mongolia, Montenegro, Myanmar, Philippines, Russia, Southeast Kazakhstan, Taiwan, Tajikistan, Thailand (Pulawski, 2024; Pham & Nguyen, 2023).

***Sceliphron javanum javanum* (Lepeletier de Saint-Fargeau, 1845)**

Material examined. No available in this study.

Distribution: Vietnam: Ba Ria Vung Tau, Dong Nai, Ninh Thuan (Dollfuss, 2016: 1176). *Elsewhere*: Indonesia, Malaysia, China, India, Sri Lanka, Pakistan, Thailand, Cambodia, China (Hong Kong), Laos, Nepal (Pulawski, 2024).

***Sceliphron javanum chinense* van Breugel, 1968** (Fig. 4c)

Material examined. VIETNAM: **Son La** province: 7♀, 5♂, Kho Hong and Ban Bun, Chieng Xuan, Van Ho, 13.vi.2018, 20.ix.2023, Phong Huy Pham leg., emerged from three nests. **Thua Thien Hue** province: 3♀, 2♂, Phong My, Phong Dien, 23.v.2023, Hoa Thi Dang leg., a fresh nest. **Dak Lak** province: 2♀, Kon Ka King National Park, 26.vi.2019, Tran Thi Phuong Uyen leg.. **Ha Tinh** province: 1♀, Tram Co, Vu Quang National Park, Vu Quang, 26.v.2024, Phong Huy Pham leg., a nest. **Nghe An** province: 1♀, Tram Choang, Pu Mat National Park, Con Cuong, 23.v.2024, Phong Huy Pham leg., sweep net, forest.

Distribution. Vietnam: Dong Nai (Pádr & Tkalců, 1991: 23); Ho Chi Minh, Tay Ninh (van der Vecht & van Breugel, 1968: 245); Hoa Binh (Pham et al., 2020: 157); Dak Lak, Ha Tinh, Nghe An, Son La, Thua Thien Hue (new records). *Elsewhere*: China, India, Laos (Pulawski, 2024).

***Sceliphron javanum petiolare* Kohl, 1918** (Fig. 4d)

Material examined. VIETNAM: **Quang Ninh** province: 1♂, Po Hen, Quang Duc, Hai Ha, 5.iv.2018, Phong Huy Pham leg., emerged from a nest collected on 24 January 2018. **Son La** province: 1♀, 5♂, Na An, Xuan Nha, Van Ho, 25.iii
emerged from a nest collected on 21 October 2018. **Cao Bang** province: 2♀, Pac Po and Ngoc Dong, Ha Quang, 6.v.2022, 11.ix.2023, Phong Huy Pham leg., two fresh nests.

Distribution. Vietnam: Dong Nai (Pádr & Tkalců, 1991: 23); Cao Bang, Quang Ninh, Son La (new records). *Elsewhere*: Indonesia (Pulawski, 2024).

***Sceliphron madraspatanum madraspatanum* (Fabricius, 1781)** (Fig. 4e)

Material examined. VIETNAM: **Son La** province: 2♀, 1♂, Chieu village, Muong Thai, Phu Yen, 10–11.viii.2017, Phong Huy Pham leg.; 1♀, Son La city, 1–10.v.2017, Long Dang Khuat leg., Malaise Trap; 1♀, Copia Nature Reserve, Thuan Chau, 14.v.2017, Phong Huy Pham leg., >1000 m; 1♀, 4♂, Muong Sang, Moc Chau, 6.vi.2019, Phong Huy Pham leg.. **Hoa Binh** province: 1♂, Da Phuc, Yen Thuy, 1–10.ix.2002, Long Dang Khuat leg., Malaise Trap; 1♂, Thanh Nong, Lac Thuy, 5.viii.2017, Phong Huy Pham leg.; 2♀, 1♂, Lac village, Mai Chau, 12.vi.2018, Phong Huy Pham leg.; 1♂, Thanh Nong, Lac Thuy, 5.viii.2017, Phong Huy Pham leg.. **Lao Cai** province: 1♂, 30 Km northwest of Ha Noi – Lao Cai highway, Sa Pa, 11.ix.2017, Phong Huy Pham leg.; 2♀, Nam Pung, Bat Xat, 12.vi.2022, Nhi Thi Pham leg.. **Ha Giang** province: 1♂, Phuong Do, Ha Giang city, 25.iv.2017, Thanh Tien Nguyen leg.. **Vinh Phuc** province: 1♂, Me Linh Station for Biodiversity, Ngoc Thach, Me Linh, 4.iv–4.v.2001, Long Dang Khuat leg., Malaise trap. **Ha Noi** city: 1♀, 2♂, Ba Vi National Park, Ba Vi, 400 m, 10.vi.2016, Phong Huy Pham leg.. **Nam Dinh** province: 2♂, Xuan Thuy National Park, Xuan Thuy, 11.v.2016, Phong Huy Pham leg.. **Thai Nguyen** province: 2♀, 1♂, Phu Luong, 6.vii.2017, 20.vii.2019, Hoa Thi Dang leg.. **Bac Ninh** province: 4♀, 1♂, Tan Hong, Tu Son, 16–26.iv.2018, Phong Huy Pham leg., emerged from three nests collected on 16 February 2018. **Quang Ngai** province: 2♀, Dong village, An Hai, Ly Son, 5.viii.2017, Hoa Thi Dang leg.. **Lang Son** province: 1♂, Quang Lac, Lang Son city, 12.iii.2022, Linh Van Khuc leg., an old nest. 9.iv.2019, Phong Huy Pham leg.,
Thua Thien Hue province: 2♀, 1♂, Phong My, Phong Dien, 23.v.2023, Hoa Thi Dang leg.. **Ha Tinh** province: 2♀, 2♂, Tram Co, Vu Quang National Park, Vu Quang, 26.v.2024, Phong Huy Pham leg., a nest. **Nghe An** province: 3♀, 3♂, Tram Choang, Pu Mat National Park, Con Cuong, 23.v.2024, Phong Huy Pham leg., sweep net, forest.

Distribution. Vietnam: Ban Me Thuot, Kien Giang, Tay Ninh (van der Vecht & van Breugel, 1968: 207); Nam Cat Tien National Park (Pádr & Tkalců, 1991: 23; Dollfuss, 2016: 1178); Vinh Phuc, Ha Noi (Bac Ninh, Ha Noi Dollfuss, 2016: 1178; Pham et al., 2019: 73, 2020:157), Hoa Binh, Thai Nguyen (Pham et al., 2019: 73; Pham et al., 2020:

157); Ha Giang, Ha Tinh, Lang Son, Lao Cai, Nam Dinh, Nghe An, Quang Ngai, Son La, Thua Thien Hue (new records). *Elsewhere*: Afghanistan, Bangladesh, Bulgaria, China, Croatia, France, India, Indonesia, Iran, Iraq, Italy, Japan, Greece, Kazakhstan, Korea, Kyrgyzstan, Laos, Malaysia, Montenegro, New Zealand, Oman, Pakistan, Philippines, Russia, Sri Lanka, Syria, Taiwan, Tajikistan, Thailand, Turkmenistan, Turkey, Ukraine, United Arab Emirates, Uzbekistan, Zaire (Pulawski, 2024; Pham & Nguyen, 2023).

***Sceliphron madraspatanum kohli* Sickmann, 1894** (Fig. 4f)

Material examined. VIETNAM: **Hoa Binh** province: 1♂, Bao Hieu, Yen Thuy, 17.viii.2002, Mai Quynh Pham leg.; 1♂, Bao Hieu, Yen Thuy, 5.viii.2017, Phong Huy Phạm leg.; 1♀, Da Phuc, Yen Thuy, 10–20.ix.2002, Mai Quynh Pham leg., Malaise trap; 1♀, Mo Da, Ha Bi, Kim Boi, 14.vi.2019, Phong Huy Phạm leg.; 2♀, Kim Boi, 5–15.vi.2012, Long Dang Khuat leg., Malaise trap; 1♀, Tan Thanh, Luong Son, 5–20.v.2018, Hoa Thi Dang leg., Malaise trap; 1♂, Hien Luong, Da Bac, 2.vi.2012, Phong Huy Phạm leg.. **Son La** province: 1♀, 1♂, Chieu village, Muong Thai, Phu Yen, 11.viii.2017, Phong Huy Phạm leg.; 4♀, 1♂, Kho Hong, Xuan Nha, Van Ho, 22.ix.2023, Phong Huy Pham leg.; 1♂, Ta Co, Sop Cop, Sop Cop, 2.x.2023, Phong Huy Pham leg.. **Ha Noi** city: 2♂, Ba Vi National Park, Ba Vi, 10.vii.2016, Phong Huy Pham leg.; 1♀, Mieu Mon, Chuong My, 18.ix.2016; Phong Huy Pham leg.; 1♀, Da Ton, Gia Lam, 4–14.v.2001, Long Dang Khuat leg., Malaise trap; 1♀, Co Nhue, Tu Liem, 22.vi–2.vii.2001, N.T. Nguyen leg., Malaise trap; 7♀, 4♂, Co Nhue 2, Tu Liem, 26.iv.2016, 27.vi.2019, 28.ix.2020, 22.viii.2022, 25.ix.2022, 3.v.2023, 14.vi.2023, 29.vii.2023, Phong Huy Pham leg., sweep nets, emerged from nests. **Quang Ninh** province: 2♀, Uong Bi. 24.vi.2023, Linh Van Khuc leg.; 1♂, Tien Yen town, 12.vii.2018, Phong Huy Pham leg., emerged from a nest collected on 10 July 2018. **Phu Tho** province: 1♀, 2♂, Thu Cuc, Tan Son, 2.vi.2011, M.T. Nguyen leg., a fresh nest; 1♂, Tan Son, 20.v.2011, Phong Huy Pham leg.; 2♀, 2♂, Xuan Dai, Tan Son, 19.v.2011, Phong Huy Pham leg.; 4♂, Lai Dong, Tan Son, 20.v.2011, Phong Huy Pham leg.. **Thai Binh** province: 3♀, 4♂, Thai Binh city, 15–26.iv.2016, Phong Huy Pham leg., emerged from three nests collected on 15 January 2016; 2♀, 2♂, Hong Minh, Hung Ha, 20.v.2015, Phong Huy Pham leg.; 5♀, 4♂, Phuong Cong, Dong Hoang, Dong Minh and Tay Giang, Tien Hai, 15.v.2016, 16.vii.2017, 29.vii.2018, 26.vii.2019, Phong Huy Pham leg,. **Lang Son** province: 1♀, Quang Lac, Lang Son city, 12.iii.2022, Linh Van Khuc leg., an old nest. **Nam Dinh** province: 1♂, Xuan Thuy National Park, Xuan Thuy, 11.v.2016, Phong Huy Pham leg.; 4♀, 4♂, Yen Binh, Y Yen, 16–28.vi.2017, Hoa Thi Dang leg., emerged from a nest collected on 6 February 2017. **Ninh Binh** province: 1♂, Bai Dinh Temple, Gia Vien, 25.vi.2017, Phong Huy Pham leg.; 1♂, Ninh Binh city, 20.vi.2017, Phong Huy Pham leg.. **Thai Nguyen** province: 1♂, Phu Luong, 15.vii.2017, Hoa Thi Dang leg.; 3♀, Van Phu, Thanh Cong, Pho Yen, 11.xi.2023, Phong Huy Pham leg.. **Thanh Hoa** province: 1♀, 3♂, Sam Son city, 10.vii.2018, 15.vii.2020, Phong Huy Pham leg.. **Nghe An** province: 5♀, 5♂, Cua Lo, 11–13.vii.2017, 8.vii.2019, 3–6.vii.2023, Phong Huy Pham leg., Malaise trap, sweep net; 1♀, 2♂, Sen village, Kim Lien, Nam Dan, 18.vii.2017, Phong Huy Pham leg., emerged from 2 nests collected on 12 July 2017. **Dak Lak** province: 2♂, Ea Kar town, 16.viii.2018, Tu Thanh Nguyen leg.. **Lao Cai** province: 1♀, Ban Lac, Sa Pa and Bat Xat, 5.ix.2019, Phong Huy Pham leg., a fresh nest. **Cao Bang** province: 1♀, Pac Po, Ha Quang, 13.ix. 2023, Phong Huy Pham leg., a fresh nest. **Binh Phuoc** province: 1♂, Bu Gia Map, 15.vi.2022, Hoa Thi Dang leg.. **Ha Giang** province: 2♀, Bat Dai Son, Quan Ba, 16–17.ix.2023, Phong Huy Pham leg.. **Thua Thien Hue** province: 3♀, Phong My, Phong Dien, 23.v.2023, Hoa Thi Dang leg.. **Tay Ninh** province: 4♀, 3♂, Phan, Duong Minh Chau & Ninh Son, Tay Ninh City, 01–15.iii.2023, 15–30.vi.2023, 1–15.vii.2023, Tho Van Le leg., Malaise trap.

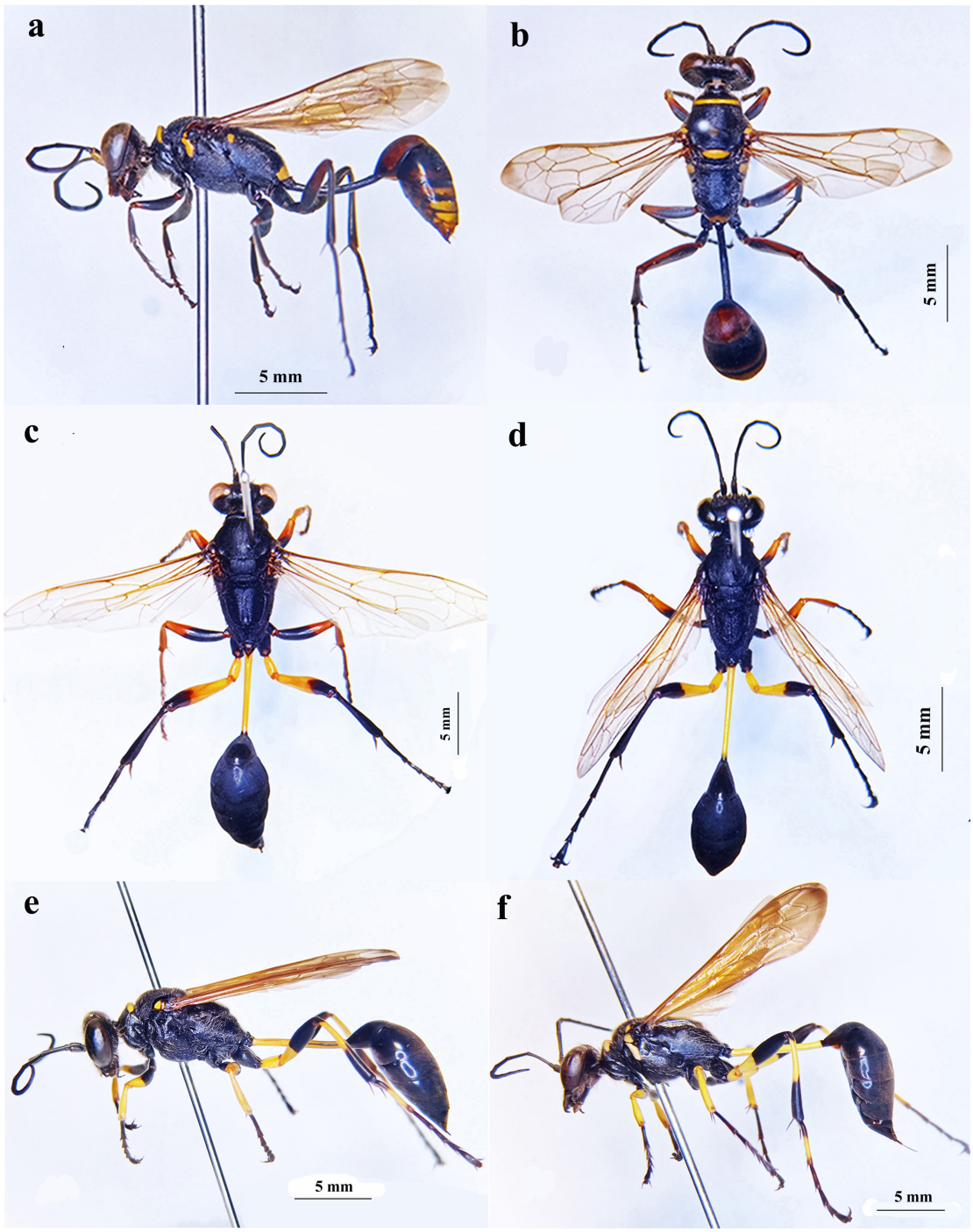

Figure 4. Subspecies of *Sceliphron* Kohl: (a–b) *Sceliphron deforme deforme* (F. Smith, 1856), ♀, (a) habitus, lateral view; (b) habitus, dorsal view; (c) *Sceliphron javanum chinense* van Breugel, 1968, ♀, habitus, dorsal view; (d) *Sceliphron javanum petiolare* Kohl, 1918, ♀, habitus, dorsal view; (e) *Sceliphron madraspatanum madraspatanum* (Fabricius, 1781), ♀, habitus, lateral view; (f) *Sceliphron madraspatanum kohli* Sickmann, 1894, ♀, habitus, lateral view

Distribution. Vietnam: Ha Noi (van der Vecht & van Breugel, 1968: 204); Dong Nai (Pádr & Tkalců, 1991: 23); Da Nang (Tano & Kurokawa, 2015: 26); Quang Ninh, Thai Binh (Pham, 2016: 687); Hoa Binh (Pham et al., 2020: 157); Cao Bang, Dak Lak, Ha Giang, Lang Son, Lao Cai, Nam Dinh, Nghe An, Ninh Binh, Phu Tho, Son La, Tay Ninh, Thai Nguyen, Thanh Hoa, Thua Thien Hue (new records). *Elsewhere*: China, Japan, Korea (Pulawski, 2024).

CONCLUSION

Based on a large number of specimens collected in Vietnam, we examine two genera *Hoplammophila* and *Sceliphron* belonging to the family Sphecidae resulting in the former with a single species (*H. aemulans* (Kohl, 1901)) and the latter with two species (*S. coromandelicum* (Lepeletier de Saint-Fargeau, 1845) and *S. deforme* (F. Smith, 1856)) and five subspecies (*S. javanum javanum* (Lepeletier de Saint-Fargeau, 1845); *S. javanum chinense* van Breugel, 1968; *S. javanum petiolare* Kohl, 1918; *S. madraspatanum madraspatanum* (Fabricius, 1781); and *S. madraspatanum kohli* Sickmann, 1894) being recorded for the country. The genus *Hoplammophila* and *S. coromandelicum* are reported for the first time from Vietnam. New distribution records of the other species and a key to the species and subspecies of the Vietnamese *Sceliphron*, and the nest structure of *S. coromandelicum* are produced. Our findings provide a better understanding of taxonomical systems of sphecid species in Vietnam and contribute to studies of phylogeny in Sphecidae.

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