

Second Vietnamese species of the myrmicine genus *Lophomyrmex* (Hymenoptera, Formicidae)

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Abstract

Lophomyrmex indosinensis sp. n. is described from southern Vietnam. It is distinguished from the related species of the *L. bedoti* group by the combination of the following characteristics: antennal scape long (SI >100), number of ommatidia along long axis of eye 8-9; vertex and temple very superficially coriaceous and strongly shiny; dorsal disc of pronotum with two or more standing hairs near anterior margin; lateral face of pronotum nearly smooth and shiny; with propodeum in profile posterior margin with several suberect hairs; propodeal spine more or less distinctly upward-directed with its apex distinctly higher than propodeal dorsum.

Keywords: *Lophomyrmex*, *L. bedoti* group, new species, Vietnam, nest site.

Introduction

The Oriental and Indo-Australian ant genus *Lophomyrmex* Emery, 1892 was revised by Rigato (1994), who recognized ten species in two species groups. In the *L. bedoti* Emery group the pronotal disc is laterally margined with irregular carinae, while in the *L. quadrispinosus* (Jerdon) group it bears a pair of lateral spines. Sheela and Ghosh (2008) and Bharti and Kumar (2012) added two species from India, both belonging to the *L. bedoti* group. Most species live on the ground level of primary and secondary forests, and nests in soil or decayed wood. Foragers are frequently collected from leaf litter and attracted to sugar baits (Eguchi and Yamane, 2003). *Lophomyrmex longicornis* Rigato, a Bornean endemic, actively forages in both the daytime and nighttime (Yamane *et al.* 1996).

Four species have been known from Thailand (Jaitrong and Nabhitabhata, 2005). However, in Vietnam only one species, *L. birmanus* Emery, 1893 belonging to the *L. quadrispinosus* group, has been recorded from central and southern regions (Eguchi *et al.* 2011). One of the authors, SH, collected an additional species belonging to the *L. bedoti* group from leaf litter in Southern

Vietnam. It is described here as a new species.

Materials and Methods

The workers examined were collected from two colonies in a relatively undisturbed secondary forest with hand sieving of leaf litter under decayed wood.

For measurements and indices we principally follow Bolton (1987) and Rigato (1994) as follows:

Eye length: maximum length of eye.

Eye width: maximum width of eye with head in profile but in a slightly oblique position.

Head length: length of head capsule excluding mandibles measured in full-face view in straight line from mid-point of anterior margin of clypeus to midpoint of posterior margin of head (very slight emargination of posterior margin of head can be ignored).

Head width: maximum width of head excluding eyes.

Scape length: maximum straight-line length of scape excluding basal constriction.

Propodeal spine length: with spine in full lateral view, straight dorsal distance from base of spine to apex; base of spine is defined as mid-point of

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concavity where propodeal dorsum and spine meet.

Hind tibial length: length of hind tibia excluding 'knee' that is concealed by apex of femur when leg is fully straightened.

Images were taken using a Canon EOS 50D with a Canon MP-E 65 mm 1-5 x macro lens, then processed using Combine ZM.

Lophomyrmex indosinensis Yamane et Hosoishi, sp. n. (Figs. 1-3)

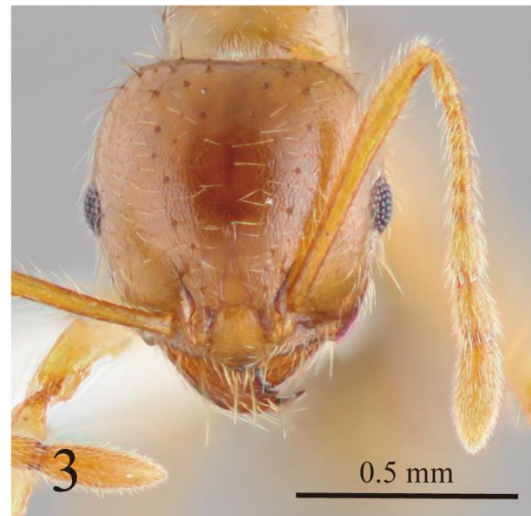
[urn:lsid:zoobank.org:act:5F10DA46-B553-42EC-9CCE-9C6A0E3711D8](https://doi.org/10.21203/rs.3.rs-1111111/v1)

Worker description. Measurements (in mm; n=5; mean in parentheses). Head width 0.72-0.76 (0.74), Head length 0.76-0.80 (0.78), Eye length (EL) 0.15-0.16 (0.16), Eye width (EW) 0.10-0.11 (0.10), Scape length (SL) 0.74-0.76 (0.75), Propodeal spine length 0.21-0.26 (0.24), Hind tibial length (0.70-0.74 (0.73). Cephalic index (CI) 93-97 (95), Scape index (SI) 100-103 (102), EL/EW 1.45-1.56 (1.51).

Head slightly longer than broad, with straight to very weakly convex posterior margin in profile. Clypeus with anterior margin bearing median process. Mandible with large apical tooth followed by smaller second tooth, low triangular third tooth, and several small denticles of variable size. Eye longer than broad but not very elongate, anteriorly not pointed, with 8-9 ommatidia along long axis. Antennal scape relatively long, extending beyond posterior margin of head by much more than length of antennal pedicel (second segment). Pronotum laterally with small tubercle (often with another smaller one); short carina(e) may exist around tubercles but generally weakly developed. In profile mesonotum more or less distinctly elevated at 2/5 length of its slope so that anterior concavity can be seen just behind pronotum. Propodeum with weakly convex dorsal outline; lateral carina on declivity weak, not darkened; propodeal spines nearly as long as propodeal height, diverging with apical portion weakly curved outwardly, obliquely upward-directed with apex distinctly higher than propodeal dorsum. With waist in profile, dorsal outline of petiole shallowly concave, peduncle not distinctly demarcated from node; node apically

round or at most with indistinct anterodorsal angle; postpetiole globular with evenly curved dorsal outline, nearly as long as high.

Head weakly and superficially sculptured; area between eye and clypeus longitudinally striate; frontal lobe rather strongly sculptured; temple behind eye and venter of head almost smooth and strongly shiny. Clypeus finely transversely



Figures 1-3. *Lophomyrmex indosinensis*. 1, Lateral view of body; 2, Dorsal view of body; 3, Full-face view of head.

striate mixed with superficial microreticulation except in basal and apical smooth portions. Mandible densely covered with longitudinal striae and mat except for narrow shiny belt along basal and masticatory margins. Pronotum entirely superficially sculptured and shiny; mesothrax, metapleuron and propodeum densely sculptured except for propodeal declivity rather smooth and shiny; mesopleuron more regularly punctate than other parts and interspaces smooth and shiny. Waist extensively sculptured; anterior and dorsal faces of postpetiolar node more or less smooth. Legs superficially sculptured to smooth except for coxae where sculpture is stronger (fore coxa with much weaker sculpture). Dorsum of head with many long standing hairs; hairs on lateral and ventral faces of head tend to be decumbent. Suberect hairs on antennal scape dense and long, some of which are longer than scape width. Pronotum in frontal view with a pair of anterior erect hairs located at short distance from lateral margin and often additional hairs located more mesad (some of these hairs may be missing); mesonotum with two pairs of short but stiff erect hairs; propodeal dorsum without long erect hairs; propodeal declivity in profile with several short and soft hairs.

Body concolorous brown to dark brown; in paler individuals mesosoma yellowish brown, and head and gaster dark; mandible reddish brown; antenna and legs paler than mesosoma.

Remarks. The specific differences between the species of the *L. bedoti* group are often very slight. It is highly recommended when identifying species to use series of specimens from colonies. The present new species is similar to *L. longicornis* Rigato, endemic to Borneo, in having a long antennal scape and weak body sculpture. However, in *L. longicornis*, the hairs on the antennal scape are nearly appressed, the pair of anterior erect hairs on the pronotum are absent, the hairs of the mesonotal dorsum are short, soft and oblique, the propodeal declivity has a pair of complete lateral carinae that are darkened, the posterior margin of the propodeum bears no short hairs, and the propodeal spine is longer, measuring 0.35-0.39 mm (0.21-0.26 mm in *L. indosinensis*).

Lophomyrmex bedoti Emery (Borneo to Southern Thailand) and *L. striatulus* Rigato (Thailand) are also related to *L. indosinensis*, but these species can be separated by the following differences:

L. indosinensis: CI 93-97 (95), SL 0.74-0.76 mm (0.75 mm), SI 100-103 (102). Eye weakly narrowed anteriorly, with anterior apex round, EL 0.15-0.16 mm (0.16 mm), number of ommatidia along long axis 8-9, EL/EW 1.46-1.56 (1.51). Area between antennal insertion and eye superficially striate, rather shiny. Vertex and temple very superficially coriaceous and strongly shiny. Seen from above pronotal dorsum with pair of small lateral tubercles; lateral carinae generally weakly developed. Lateral face of pronotum nearly smooth and shiny. With propodeum in profile posterior margin with several suberect hairs (rarely inconspicuous); propodeal spine more or less distinctly upward-directed with its apex distinctly higher than propodeal dorsum.

L. bedoti: CI 94-100 (96), SL 0.64-0.70 mm (0.67 mm), SI 87-94 (91). Eye distinctly narrowed anteriorly, EL 0.13-0.16 mm (0.15 mm), number of ommatidia along long axis 6-7 (rarely 8), EL/EW 1.60-1.83 (1.72). Area between antennal insertion and eye finely but distinctly striate, and mat. Vertex and upper gena weakly sculptured and weakly shiny. Seen from above pronotal dorsum margined laterally with irregular carinae that are darkened. Lateral face of pronotum longitudinally, finely striate, or nearly smooth, and shiny. With propodeum in profile posterior margin generally without suberect hairs; propodeal spine more or less distinctly upward-directed with its apex distinctly higher than propodeal dorsum.

L. striatulus: CI 94-103 (98), SL 0.58-0.62 mm (0.61 mm), SI 84-91 (88). Eye distinctly narrowed anteriorly often with pointed apex, EL 0.14-0.16 mm (0.15 mm), number of ommatidia along long axis 6-7, EL/EW 1.63-2.11 (1.87). Area between antennal insertion and eye distinctly striate, and mat. Vertex and upper gena more strongly sculptured and very weakly shiny. Seen from above pronotal dorsum margined laterally with irregular carinae that are darkened. Lateral face of pronotum longitudinally, finely but distinctly striate, and nearly mat. With propodeum in profile posterior

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margin generally without suberect hairs (sometimes with a few very fine hairs present); propodeal spine nearly backward-directed with its apex only slightly higher than propodeal dorsum.

Material examined. Holotype: worker, Hon Ba National Park (900 m alt.), Khánh Hòa, S. Vietnam (12°06'N, 108°58'E), 20.ii.2014, S. Hosoishi leg., ex leaf litter, SH14-Vie-24, deposited in IEBR (Entomological Collection of the Institute of Ecology and Biological Resources, Hanoi, Vietnam). Paratypes: 14 workers and 2 winged queens, same data as holotype (BMNH, CASC, IEBR, KUM, SKYC). Nontype material: 5 workers, same locality and collector, SH14-Vie-20.

Biological notes. This species inhabits well-developed forests (Figs. 4, 5), and nests in leaf litter under dead wood on the ground.



Figures 4-5. Scenery of collecting sites (900 m alt.) in Hon Ba National Park, Vietnam.

Key to species occurring in South China, Indo-china and Thailand (workers)

1. In dorsal view pronotum anteriorly with pair of lateral spines/teeth (*quadrispinosus* group).2
- In dorsal view pronotum without pair of lateral spines/teeth, but with lateral irregular carinae only (*bedoti* group).3
2. Pronotal spine short, mere denticle. Antennal scape short, with head in full-face view hardly extending beyond posterior margin of head. Taiwan. ***L. taiwanae* Forel**
- Pronotal spine distinctly protruding and apically bluntly pointed. Antennal scape relatively long, with head in full-face view distinctly surpassing posterior margin of head. Thailand, Myanmar, Vietnam, Sri Lanka.....***L. birmanus* Emery**
3. Mesosoma extensively smooth and shiny; only upper portion of mesopleuron reticulate. Malay Peninsula, Thailand. ***L. lucidus* Menozzi**
- Mesosoma extensively sculptured; only pronotum often smooth4
4. Antennal scape long, with head in full-face view distinctly surpassing posterior margin of head; SI 100-103. Eye weakly narrowed anteriorly with rounded apex; number of ommatidia along long axis of eye 8-9. S. Vietnam..... ***L. indosinensis* Yamane et Hosoishi**
- Antennal scape shorter, hardly reaching posterior margin of head; SI smaller than 95 (generally ca. 90). Eye strongly narrowed anteriorly, often with pointed apex; number of ommatidia along long axis of eye 6-7 (rarely 8).....5
5. Lateral face of pronotum and head behind and below eye shiny, at most faintly sculptured. Propodeal spine more or less distinctly upward-directed with its apex much higher than propodeal dorsum. Palawan, Borneo, Sumatra, Malay Peninsula, Thailand, Myanmar, India, Sri Lanka. ***L. bedoti* Emery**
- Lateral face of pronotum and head behind and below eye at least superficially sculptured. Propodeal spine nearly backward-directed with its apex only

slightly higher than propodeal dorsum.
Thailand. *L. striatulus* Rigato

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