

# The genus *Flavopimpla* Betrem (Insecta: Hymenoptera: Ichneumonidae) from Vietnam, with a new country record

*Ghi nhận mới một loài ong cự thuộc giống Flavopimpla Betrem (Insecta: Hymenoptera: Ichneumonidae) cho khu hệ côn trùng Việt Nam*

Short communication

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Up to date, three species of the genus *Flavopimpla* have been known from Vietnam, of which two species were described as new on the basis of the material collected from the country, viz. *F. lanugo* Pham, Broad & Wägele, 2013 from Xuan Son NP, Phu Tho Province and *F. vinhcuuensis* Pham, Broad & Wägele, 2013 from Phu Ly, Dong Nai Province. Resulted from recent field survey, one species *Flavopimpla nigromaculata* (Cameron) is recorded for the first time from the country and included to the previous key to already known *Flavopimpla* species of Vietnam. In addition, the distribution range of *F. lanugo* is extended northwards.

Cho đến nay, 3 loài thuộc giống ong cự *Flavopimpla* đã được ghi nhận ở Việt Nam, trong đó hai loài được miêu tả gần đây dựa trên các mẫu vật thu được trong nước bao gồm *F. lanugo* Pham, Broad & Wägele, 2013 ở Vườn Quốc gia Xuân Sơn, tỉnh Phú Thọ và *F. vinhcuuensis* Pham, Broad & Wägele, 2013 ở Phú Lý, tỉnh Đồng Nai. Dựa trên các chuyến khảo sát gần đây, loài *Flavopimpla nigromaculata* (Cameron) được ghi nhận lần đầu tiên cho khu hệ côn trùng Việt Nam và được đưa vào khóa định loại tới loài của giống này đã có trước đây. Bên cạnh đó, vùng phân bố của loài *F. lanugo* cũng được ghi nhận mở rộng về phía bắc.

**Keywords:** *Afrephialtes*, *Ephialtini*, taxonomy

## 1. Introduction

*Flavopimpla* is a relative small genus in the tribe Ephialtini, subfamily Pimplinae. Worldwide, a total of 20 species have been recorded [6], [15]. Representatives of this genus were recorded as parasitoids of wood-boring Lepidoptera (Pyralidae: Pyraustinae and Sesiidae) [1], [4], [14]. In Vietnam up to present, three *Flavopimpla* species were known, viz. *F. latianmulatus*, *F. lanugo* and *F. vinhcuuensis*, of which two latter species were described as new on the basis of material collected from the country and currently known only from their type localities [6], [8]. Based on recent field work, we record a further species as new for the country, *F. nigromaculata*, and insert this species to the key to Vietnamese *Flavopimpla* species, which modified after Pham et al. (2013) [6]. In addition, we report the distribution range of *F. lanugo* northwards to Tuyen Quang Province.

## 2. Materials and methods

Specimens were collected by hand net and Malaise trap from 2002–2017. The morphological terminology follows Gauld (1991) [2]. Photographs were taken with a Leica IC80HD camera attached to Leica M80 stereomicroscope. The scale bars in figure plates indicate 1 mm for the habitus and 0.5 mm for the propodeum.

Collections referred to in this paper are: Natural History Museum (BMNH), London, UK; Institute of Ecology and Biological Resources (IEBR), Hanoi, Vietnam; United Kingdom, Oxford, University Museum of Natural History (OUMNH); Netherlands Centre for Biodiversity Naturalis (RMNH), Leiden, Netherlands; and Zoological Research Museum Alexander Koenig (ZFMK), Bonn, Germany.

Other abbreviation in this paper is NP referred to National Park.

### 3. Results

#### *Flavopimpla Betrem, 1932*

*Flavopimpla Betrem, 1932*. Treubia, 14: 21. Type species: *Flavopimpla mangae* Betrem, 1932 = *nigromaculata* (Cameron, 1899); designated by Baltazar, 1961.

*Afrephialtes* Benoit, 1953. Rev. de Zool. Bot. Africaines, 48: [page!]; Type species: *Ephialtes navus* Tosquinet, 1896; synonymised by Townes (1969).

**Diagnosis.** Body moderately long; face almost flat, weakly convex medially; clypeus convex subbasally, depressed apically, with median apical notch; mandible teeth subequal; occipital carina complete, concave medio-dorsally; pronotum with epomia; mesoscutum moderately to strongly punctate, notauli short to moderately long, usually strong and sharp but sometimes weak; scutellum and metascutellum weakly to moderately convex, moderately to strongly punctate; mesopleuron polished, with sparse to moderately dense punctures, pubescent; metapleuron with submetapleural carina complete; intercoxal carina on metasternum abruptly angled posteriorly and meeting in a sharp carina between or in front of hind coxal foramina; propodeum without longitudinal groove medially, with posterior part of lateral longitudinal carina present; fore wing with areolet nearly trapezoidal, vein *2rs-m* always shorter than *3rs-m*; hind wing with first abscissa of vein *Cu1* shorter than vein *cu-a*; first tergite rather short; second tergite with basolateral groove deep and short; tergites 2–5 strongly punctate; tubercles on tergites 3–6 more or less distinct; ovipositor longer than fore wing, tip of lower valve with strong teeth, lower valve not lobed subapically.

#### *Flavopimpla lanugo* Pham, Broad & Wägele, 2013

*Flavopimpla lanugo* Pham, Broad & Wägele, 2013. Biologia 68/4: 721. Holotype: ♀, Vietnam: Phu Tho, Xuan Son NP (BMNH).

**Diagnosis.** Metapleuron with sparse hairs, ventral part entirely impunctate; first tergite nearly as long as apical width; tergites 2–4 with apical transverse smooth bands extending about 0.2–0.25× length of each tergite; ovipositor decurved, 5.4× as long as hind tibia, tip weakly swollen, upper valve slightly broader than lower valve.

**Material examined.** Phu Tho Province, Xuan Son NP: 1♀ (BMNH), 300 m, 05–10.vii.2009, type specimen; 1♀ (ZFMK), 10–30.iii.2010, paratype specimen, 300 m, Malaise trap, Khuat Dang Long leg; Tuyen Quang Province, Na Hang, Sinh Long: 3♀ (IEBR), 13.ix.2017; 3♀ (IEBR), 14.ix.2017, hand net, Hoang Vu Tru & Pham Van Phu leg.

**Distribution:** Previously known only from its type locality, Xuan Son National Park, Phu Tho Province [6]. These records extend the distribution of this species northwards to Tuyen Quang Province.

#### *Flavopimpla latiannulatus* (Cameron, 1907)

*Ephialtes latiannulatus* Cameron, 1907. Tijdschr. Ent., 50: 96. Holotype: ♀, India: Sikkim (BMNH).

*Flavopimpla latiannulatus*: Townes, Townes & Gupta (1961).

**Diagnosis.** Ovipositor about 6.5× as long as hind tibia, with bulbous tip, upper valve distinctly deeper than lower; body black with reddish markings on tergites 1–3.

**Material examined.** Ha Noi, Thach That, Tan Xa: 1♀ (IEBR), 05–15.vi.2002, Malaise trap, Khuat Dang Long leg.; Dong Nai Province, Cat Tien NP: 1♀ (RMNH), 100 m a.s.l., 09–30.iv.2007, Malaise trap, Mai Phu Quy & Nguyen Thanh Manh leg.

**Distribution.** This species was recorded for the first time by Pham et al. (2011) [8]. Outside Vietnam, it has been recorded from China, India, and Sri Lanka [15].

#### *Flavopimpla nigromaculata* (Cameron, 1899)

*Ephialtes nigromaculatus* Cameron, 1899. Mem. Proc. Manchester Lit. Phil. Soc., 43(3): 150. Holotype: ♀, India: Khasi Hills (OUMNH).

*Flavopimpla mangae* Betrem, 1932. Treubia, 14: 25. Holotype: ♀, Java: Bogor kp. Tjimanggoe (destroyed at end of World War II).

*Flavopimpla nigromaculata mangae*: Gupta & Tikar (1969).

**Diagnosis.** Metasomal tergites with dense, coarse punctures; first sternite extending beyond level of spiracle; ovipositor about 4.5× as long as hind tibia, tip of valves subequal, cylindric; body yellow with black markings

**Material examined.** Kon Tum Province, Chu Mom Ray NP: 1♀ (IEBR), ii.2015, Malaise trap, Hoang Thi Phuong leg.

**Distribution.** It is the first record of this species from Vietnam. Outside Vietnam, it has been recorded from India, Indonesia, Malaysia, Taiwan and the Philippines [15].

**Remarks.** Currently two subspecies are recognized: *F. nigromaculata nigromaculata* and *F. nigromaculata mangae* by the present of black markings on hind coxa, hind femur, hind trochanter and epinemium of the latter while these markings are all absent in the former. The female specimen from Vietnam is closer to the subspecies *F. nigromaculata mangae*, however its epinemium is entirely yellow.

#### *Flavopimpla vinhcuuensis* Pham, Broad & Wägele, 2013

*Flavopimpla vinhcuuensis* Pham, Broad & Wägele, 2013. Biologia 68/4: 723. Holotype: ♀, Vietnam: Dong Nai, Vinh Cuu, Phu Ly (IEBR).

**Diagnosis.** Metasomal tergites with dense, coarse punctures; first sternite deeply notched posteriorly; ovipositor straight, 5.4× length of hind tibia, ovipositor tip weakly swollen, lower valve slightly broader than upper valve; body black, legs reddish.

**Material examined.** Dong Nai Province, Vinh Cuu, Phu Ly: 1♀ (IEBR), 100 m a.s.l., 04.iv.2009, hand net, T. V. Hoang leg., type specimen.

**Distribution:** Currently known only from its type locality [6].

Insertion of *Flavopimpla nigromaculata* in the key to Vietnamese species of Pham et al. (2013):

1'. Body yellow with black markings (Fig. 1a); propodeum dorsally with punctures at basolateral part only (Fig. 1c).....*F. nigromaculata*

-. Body entirely black or black with reddish brown markings (Fig. 1b); propodeum dorsally with more dense punctures (Fig. 1d).....1

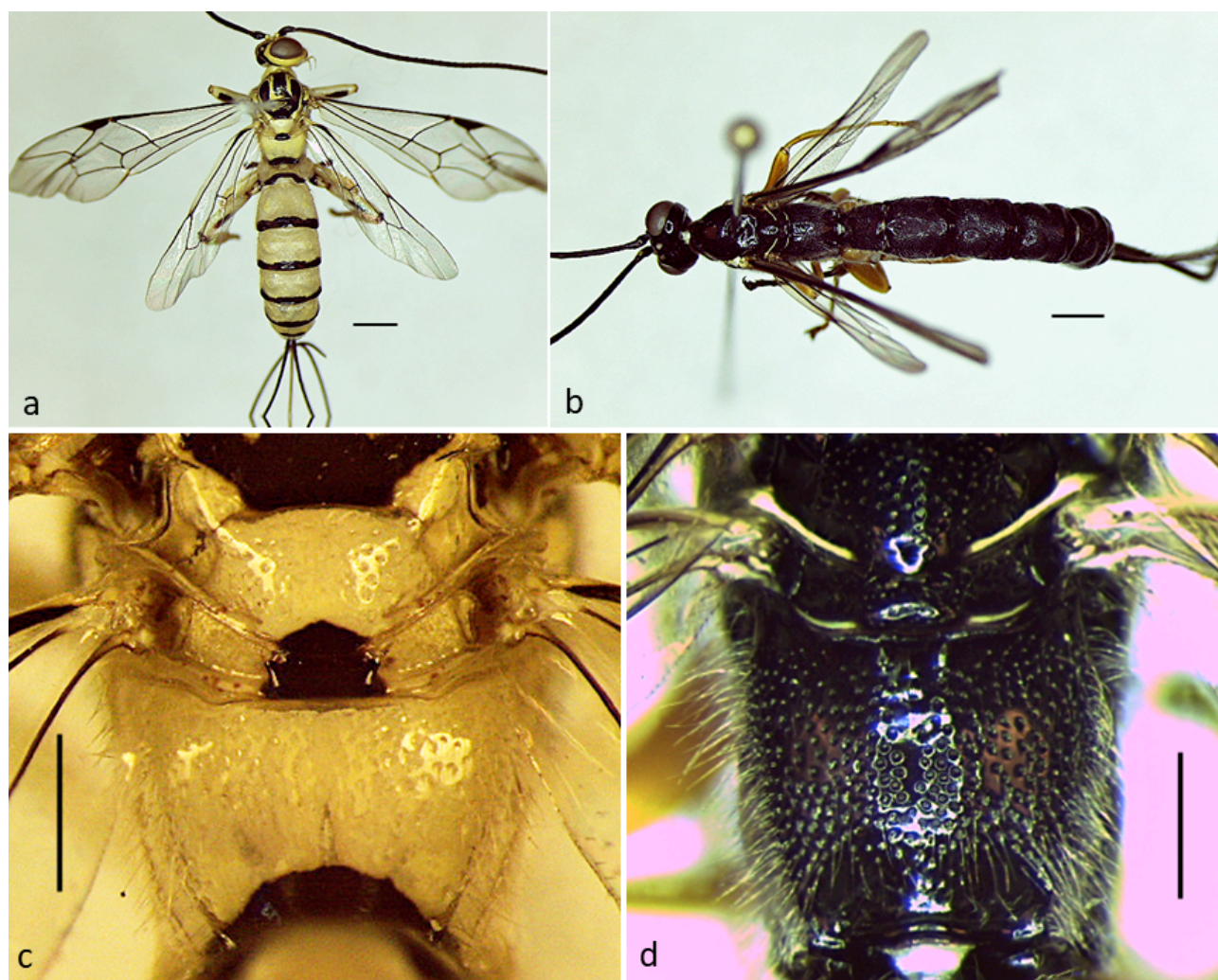


Figure 1. a. dorsal view of *Flavopimpla nigromaculata* from Kon Tum Province; b. dorsal view of *F. lanugo* from Tuyen Quang Province; c. propodeum of *F. nigromaculata*; d. propodeum of *F. lanugo*.

## 4. Conclusion

Ichneumonidae is a monophyletic group of hymenopterous parasitoids and one of the most species-rich families of insects. In Vietnam, the number of recognised species of Ichneumonidae has been increased remarkably during recent years. In 2016, a total of 247 Ichneumonidae species in 88 genera and 18 subfamilies have been recorded from the country [5], [11]. In 2017, 285 species belonging to 96 genera and 19 subfamily have been known [7], [9], [10], [13]. It is emphasized that during recent 10 years, one genus and no less than 80 species have been described as new for science on the basis of material collected from Vietnam. This paper is one among our effort to enrich the knowledge of the diversity of this natural enemy group in Vietnam in order to increase their role in agriculture and forestry.

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## 5. References

- [1] Fitton M.G., Shaw M.R. & Gauld I.D. (1988). Pimpline Ichneumonflies. Hymenoptera, Ichneumonidae (Pimplinae). Handbooks for the Identification of British Insects, 7 (1), 110 pp.
- [2] Gauld, I.D. (1991) The Ichneumonidae of Costa Rica, 1. Memoirs of the American Entomological Institute, 47, 1-589.
- [3] Gupta, V.K & Tikar, D.T (1969) Taxonomic identity

- of Pimpline genera *Flavopimpla* Betrem and *Afrephialtes* Benoit (Hymenoptera: Ichneumonidae). *Oriental Insects*, 3: 269-277.
- [4] Gupta, V.K. & Tikar, D.T. (1976) *Ichneumonologia Orientalis* or a monographic study of Ichneumonidae of the Oriental Region, Part I. The tribe Pimplini (Hymenoptera: Ichneumonidae: Pimplinae). *Oriental Insects Monograph*, 1, 1-313.
- [5] Pham Thi Nhi, Khuat Dang Long (2016) A checklist of the family Ichneumonidae (Hymenoptera: Ichneumonoidea) from Vietnam. *Tap Chi Sinh Hoc*, 38(4), 411-441.
- [6] Pham, N.T., Broad, G.R. & Wägele, W.J. (2013) Review of the genus *Flavopimpla* (Hymenoptera: Ichneumonidae: Pimplinae) from Vietnam with descriptions of two new species. *Biologia*, 64/4: 720-726.
- [7] Pham Thi Nhi, Hoang Vu Tru, Cao Thi Quynh Nga, Pham Van Phu, Cao Thi Kim Thu, Le My Hanh, Khuat Dang Long (2017) Species composition of insects at Copia special-use forest, Son La Province. *Proceedings of the 7th National Scientific Conference on Ecology and Biological resources*. Publishing House for Science and Technology, Hanoi: 858-865.
- [8] Pham Thi Nhi, Khuat Dang Long, Dang Thi Hoa (2011) New records of Pimplinae (Hymenoptera: Ichneumonidae) from Vietnam. *Proceedings of the 7th Vietnam National Conference on Entomology*. Agricultural Publishing House, Hanoi: 210-217.
- [9] Pham Thi Nhi, Khuat Dang Long, Cornelis van Achterberg (2017). First records of the genus *Eugalta* Cameron, 1899 (Hymenoptera: Ichneumonidae: Poemeniinae) from Vietnam. *Tap chi Sinh hoc*, 39(4): 467-473. DOI: 10.15625/0866-7160/v39n4.11242.
- [10] Pham, N.T., van Achterberg, C., Broad, G.R. & Matsumoto, R. (2017) First record of the genus *Yezoceryx* Uchida (Ichneumonidae: Acaenitinae) from Vietnam with descriptions of nine new species. *Zootaxa*, 4311(3): 345-372.
- [11] Shimizu, S., Konishi, K. (2016) New record of the genus *Dictyonotus* Kriechbaumer, 1894 (Hymenoptera: Ichneumonidae: Ophioninae) from Vietnam. *Japanese Journal of Systematic Entomology*, 22(2): 159-160.
- [12] Townes, H.K.; Townes, M. & Gupta, V.K. (1961) A catalogue and reclassification of the Indo-Australian Ichneumonidae. *Memoirs of the American Entomological Institute*. No.1. 522 pp.
- [13] Vas, Z. (2017) Data to the Vietnamese ichneumon wasp fauna with description of a new *Teleutaea* species (Hymenoptera: Ichneumonidae). *Folia Entomologica Hungarica*, 78: 101-110.
- [14] Yaseen, M. & Bennett, F.D. (1972) Studies on the shootborer *Hypsipyla grandella* (Zeller) (Lepidoptera Pyralidae). XIII. Methods for breeding parasites for release against *Hypsipyla* spp. in Latin America. *Turrialba*, 22: 463-467.
- [15] Yu, D. S., van Achterberg, C. & Horstmann, K. (2012) *Taxapad 2012, Ichneumonoidea 2011*. Database on flash-drive. In, Ottawa, Ontario, Canada.