

## A new species and some new records of millipedes (Diplopoda) from southern Vietnam

### Новый вид и некоторые новые находки двупарноногих многоножек (Diplopoda) из Южного Вьетнама

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КЛЮЧЕВЫЕ СЛОВА: таксономия, *Touranella*, фаунистика, распространение, Индокитай.

ABSTRACT. A new species, *Touranella logunovi* sp.n., is described and new records of further 12 known millipede species, largely from two national parks in southern Vietnam, are given, based on a recent collection belonging to the Zoological Institute of the Russian Academy of Sciences in St. Petersburg, Russia.

РЕЗЮМЕ. На основе свежей коллекции многоножек-диплопод, принадлежащей Зоологическому институту РАН (Санкт-Петербург), описан новый вид, *Touranella logunovi* sp.n., и приведены новые находки еще 12 известных видов, собранных в основном в двух национальных парках на юге Вьетнама.

#### Introduction

The present contribution is devoted to a taxonomic treatment of the collection amassed recently by Dmitry V. Logunov, St. Petersburg, Russia, in southern Vietnam. Although his collection, to be transferred to and deposited in the Zoological Institute, Russian Academy of Sciences, St.-Petersburg (ZISP), largely comes from Vietnam's two national parks, both rather well explored as regards their millipede faunas, a new species has unexpectedly emerged from one of them. This paper is devoted to its description and it also puts on record 12 already known species of Diplopoda.

#### Material and methods

The material referred to in the present paper was collected by D.V. Logunov during an expedition to southern Vietnam organized and supervised by the Joint Russian-Vietnamese Tropical Research and Technological Center (Hanoi) in October to November 2023 (permits: 378/VQG-TTNC and 327/SNgV-LS-NVNONN). The pic-

tures were taken with a Canon EOS 5D digital camera and stacked using Zerene Stacker software. Final image processing was performed with Adobe Photoshop CC.

#### Faunistic part

Order Spherotheriida  
Family Zephroniidae

*Cryxus ovalis* (Linnaeus, 1758)

MATERIAL. 3 ♀♀ (ZISP), Vietnam, Dong Nai Prov., Cat Tien National Park, lowland tropical forest, N 11°25', E 107°25', 130–170 m a.s.l., 16.XI–9.XII.2023, D. Logunov leg.

REMARKS. Apparently, endemic to the Cat Tien National Park. The above samples are strict topotypes, the species being based on a neotype [Golovatch *et al.*, 2012].

*Sphaeropoeus bidouensis* Semenyuk, Golovatch et Wesener, 2020

MATERIAL. 1 ♀ (ZISP), Vietnam, Lam Dong Prov., Durong Distr., Bidoup – Nui Ba National Park, near field station, N 12°10'38.47", E 108°40'49.28", 1450–1500 m a.s.l., mid-montane mixed tropical forest, 26.X–11.XI.2023, D. Logunov leg.

REMARKS. Apparently, endemic to the Bidoup – Nui Ba National Park. The above sample is a strict topotype [Semenyuk *et al.*, 2020].

Order Glomerida  
Family Doderiidae

*Hyleoglomeris cattienensis* Golovatch et Semenyuk, 2016

MATERIAL. 1 ♂ (ZISP), Vietnam, Dong Nai Prov., Cat Tien National Park, lowland tropical forest, N 11°25', E 107°25', 130–170 m a.s.l., 16.XI–9.XII.2023, D. Logunov leg.

REMARKS. Apparently, endemic to the Cat Tien National Park. The above sample is a strict topotype [Golovatch, Semyuk, 2016].

Order Polydesmida  
Family Cryptodesmidae

*Ophrydesmus anichkini* Golovatch, 2015

MATERIAL. 1 ♂ (ZISP), Vietnam, Dong Nai Prov., Cat Tien National Park, lowland tropical forest, N 11°25', E 107°25', 130–170 m a.s.l., 16.XI–9.XII.2023, D. Logunov leg.

REMARKS. Apparently, endemic to the Cat Tien National Park. The above sample is a strict topotype [Golovatch, 2015].

*Trichopeltis cometis* (Attems, 1938)

MATERIAL. 1 ♀ (ZISP), Vietnam, Lam Dong Prov., Durong Distr., Bidoup – Nui Ba National Park, near field station, N 12°10'38.47", E 108°40'49.28", 1450–1500 m a.s.l., mid-montane mixed tropical forest, 26.X–11.XI.2023, D. Logunov leg.

REMARK. This species is widespread across Vietnam, Laos and Cambodia [Golovatch, Akkari, 2016], yet being formally new to the fauna of the Bidoup – Nui Ba National Park.

Family Paradoxosomatidae

*Hylomus cattienensis* (Nguyen, Golovatch et Anichkin, 2005)

MATERIAL. 4 ♂♂, 3 ♀♀ (ZISP), Vietnam, Dong Nai Prov., Cat Tien National Park, lowland tropical forest, N 11°25', E 107°25', 130–170 m a.s.l., 16.XI–9.XII.2023, D. Logunov leg.

REMARKS. Apparently, endemic to the Cat Tien National Park. The above samples are strict topotypes [Nguyen *et al.*, 2005; Srisonchai *et al.*, 2018].

*Nedyopus dawydoffiae* (Attems, 1953)

MATERIAL. 1 ♀ (ZISP), Vietnam, Lam Dong Prov., Durong Distr., Bidoup – Nui Ba National Park, near field station, N 12°10'38.47", E 108°40'49.28", 1450–1500 m a.s.l., mid-montane mixed tropical forest, 26.X–11.XI.2023, D. Logunov leg.

REMARKS. This species is marked through its characteristic colour pattern. It has hitherto been recorded only from Peak Lang Biang and the Bidoup – Nui Ba National Park, both near Dalat, Vietnam [Golovatch, 2009a].

*Orthomorpha arboricola* (Attems, 1937)

MATERIAL. 1 ♂, 2 ♀♀ (ZISP), Vietnam, Lam Dong Prov., Durong Distr., Bidoup – Nui Ba National Park, near field station, N 12°10'38.47", E 108°40'49.28", 1450–1500 m a.s.l., mid-montane mixed tropical forest, 26.X–11.XI.2023, D. Logunov leg.

REMARKS. This species has only been known from Vietnam's Lam Dong and Khanh Hoa provinces [Likhitrakarn *et al.*, 2019]. Being formally new to the fauna of the Bidoup – Nui Ba National Park, it has been found to coexist with *O. rotundicollis* in some places [Likhitrakarn *et al.*, 2019].

*Orthomorpha rotundicollis* (Attems, 1937)

MATERIAL. 12 ♂♂, 23 ♀♀, 7 juv. (ZISP), Vietnam, Dong Nai Prov., Cat Tien National Park, lowland tropical forest, N 11°25', E 107°25', 130–170 m a.s.l., 16.XI–9.XII.2023, D. Logunov leg.

REMARKS. Originally, this species was described both from Laos (Xiangkhoang Prov., Xiangkhoang Plateau, Xiang Kuang) and Vietnam (Lamdong Prov., Peak Lang Biang and Dalat) [Likhitrakarn *et al.*, 2011], later recorded also from Dong Nai Province, including the Cat Tien National Park [Likhitrakarn *et al.*, 2019]. Both *O. rotundicollis* and *O. arboricola* are known to often coexist in some places.

*Touranella hirsuta* Golovatch, 2009  
Figs 1–3.

MATERIAL. 1 ♀ (ZISP), Vietnam, Lam Dong Prov., Durong Distr., Bidoup – Nui Ba National Park, near field station, N 12°10'38.47", E 108°40'49.28", 1450–1500 m a.s.l., mid-montane mixed tropical forest, 26.X–11.XI.2023, D. Logunov leg.

REMARKS. Apparently, endemic to the Bidoup – Nui Ba National Park. Above is a strict topotype of this species [Golovatch, 2009b], easily distinguishable from congeners by the clear, abundant and setigerous tuberculations on the metaterga (Figs 1–3). The fresh ♀ measures ca 11 mm in length, and 1.0 and 1.2 mm in midbody width (vs 10–11 mm in ♀ in length, as given in the original description).

*Touranella logunovi* sp.n.  
Figs 4–13.

MATERIAL. Holotype ♂ (ZISP), Vietnam, Lam Dong Prov., Durong Distr., Bidoup – Nui Ba National Park, near field station, N 12°10'38.47", E 108°40'49.28", 1450–1500 m a.s.l., mid-montane mixed tropical forest, 26.X–11.XI.2023, D. Logunov leg.

DIAGNOSIS. Based on the latest review of *Touranella* Attems, 1937 [Nguyen *et al.*, 2023], the new species differs readily from all nine hitherto known congeners, including the sympatric *T. hirsuta* (see above), in the characteristic setation pattern of mostly four transverse rows of usually 5–6+5–6 long setae each on postcollum metaterga, combined with a roundly spatuliform process on stalk between ♂ coxae 4, a very short and strong base of the gonopodal femorite supporting an untwisted solenophore with an acuminate tip and only a little shorter solenomere, both latter similarly slender and strong (Figs 4–13).

DESCRIPTION. Length ca 13.5 mm, width of midbody pro- and metazona 0.9 mm and 1.2 mm, respectively (♂). Colouration dark chocolate brown with contrasting pale ozoopore regions, tips of antennae, tergal setae, venter and basal podomeres; paraterga, tip of epiproct, strictures and distal podomeres lighter grey- to yellow-brown; gonopod telopodites yellow (Figs 4–8).

Body moniliform, tegument generally smooth and shining, only in places faintly rugulose. Antennae moderately long and slender, slightly clavate, reaching past ring 3 when stretched dorsally; in length, antennomere 3>2=4=5=6>1=7 (Figs 4–7). Head setose nearly throughout, more sparsely so on vertex; epicranial suture faint; genae rounded. Interantennal isthmus ca 1.2 times as broad as diameter of antennal socket (Figs 6, 7). Collum suboval, with four transverse rows of 5–6 setae each side, only fore and caudal rows being regular; paraterga



**Figs 1–3.** *Touranella hirsuta* Golovatch, 2009, ♀ from Bidoup – Nui Ba National Park, habitus, dorsal, lateral and ventral views, respectively. Photographs by K.V. Makarov, not taken to scale.

**Рис. 1–3.** *Touranella hirsuta* Golovatch, 2009, ♀ из национального парка Bidoup – Nui Ba, общий вид, соответственно сверху, сбоку и снизу. Фотографии К.В. Макарова, снято без масштаба.

roundly angular caudally and finely rimmed (Fig. 5). In width, head = rings 5–16 > 2=4 > 3; body gradually and gently tapering caudally on rings 17–19 (Fig. 4). Postcollum paraterga poorly developed, set at about half metatergal height, only a little thicker on pore-bearing rings than on poreless ones, with

several indistinct, partly setigerous incisions at lateral margin, poorly delimited both dorsally and especially ventrally, faintly arcuate to nearly straight, on pore-bearing rings mostly drawn caudally into small, blunt to increasingly acute teeth produced past rear tergal margin only on rings 18 and 19. Ozopores vis-



**Figs 4–8.** *Touranella logunovi* sp.n., ♂ holotype from Bidoup – Nui Ba National Park. 4–6 — habitus in dorsal, lateral and ventral views, respectively; 7 — anterior half of body, ventral view; 8 — caudal part of body, ventral view. Photographs by K.V. Makarov, not taken to scale.

**Рис. 4–8.** *Touranella logunovi* sp.n., голотип ♂ из национального парка Бидоуп – Нуи Ба, 4–6 — общий вид, соответственно сверху, сбоку и снизу; 7 — передняя половина тела, снизу; 8 — задняя часть тела, снизу. Фотографии К.В. Макарова, снято без масштаба.

ible from above, lying inside oblong grooves a little in front of caudal corners of poriferous paraterga (Fig. 4). Metatergal transverse sulci starting with ring 4, but deep, strongly developed, mostly crescent-shaped, smooth and almost reaching the bases of paraterga on rings 5–18, clearly dividing each metatergum into two halves (Fig. 4). A shallow, but largely evident axial sulcus or line visible on both halves of metaterga 5–19 (Fig. 4). Strictures between pro- and metazona deep and narrow, clearly ribbed dorsally and laterally, smooth ventrally (Figs 4–7). Most of postcollum metaterga with four transverse rows of 5–6 setae in each row, two rows each half and both fore and caudal rows usually being more regular and complete; setae long, ca 1/3 as long as metaterga, pattern clearly traceable at least through insertion points (Figs 4, 5). Limbus thin and entire. Epiproct subtruncate, faintly concave at tip,

with small papillae laterally (Fig. 4). Hypoproct subtrapeziform, paramedian setigerous papillae at caudal margin small, but evident (Fig. 7). Pleurosternal carinae small rounded crests visible only on rings 2–4.

Sterna with faint cross-impressions, sparsely setose, without modifications except for a conspicuous, long, apically rounded, setose process on stalk between coxae 4 (♂) (Figs 6, 7). Legs very long and slender, densely setose, but devoid of tarsal brushes, about 2.5–3.0 times as long as midbody height, prefemora not swollen laterally (Figs 5–7); only each femur 1 with a distinct, curved, rounded, ventro-parabasal adenostyle (♂); gonopores inconspicuous. In length, femora = tarsi > prefemora = postfemora = tibiae > coxae.

Gonopods (Figs 9–13) rather simple. Coxite (cx) subcylindrical, only slightly shorter than telopodite, with a distomesal



**Figs 9–11.** *Touranella logunovi* sp.n., ♂ holotype from Bidoup – Nui Ba National Park, left gonopod, dorsolateral, dorsal and mesal views, respectively. Photographs by K. V. Makarov, not taken to scale.

**Рис. 9–11.** *Touranella logunovi* sp.n., голотип ♂ из национального парка Bidoup – Nui Ba, левый гонопод, соответственно сверху и сбоку, сверху и изнутри. Фотографии К.В. Макарова, снято без масштаба.

cannula as usual. Prefemorite (**prf**) short, densely setose as usual. Femorite (**fe**) very strongly reduced, without process. Postfemoral region particularly long, slender, suberect and only slightly twisted, consisting of a rod-shaped solenomere (**sl**) and a slightly longer solenophore (**sph**), the latter acuminate on top and distally sheathing much of **sl**.

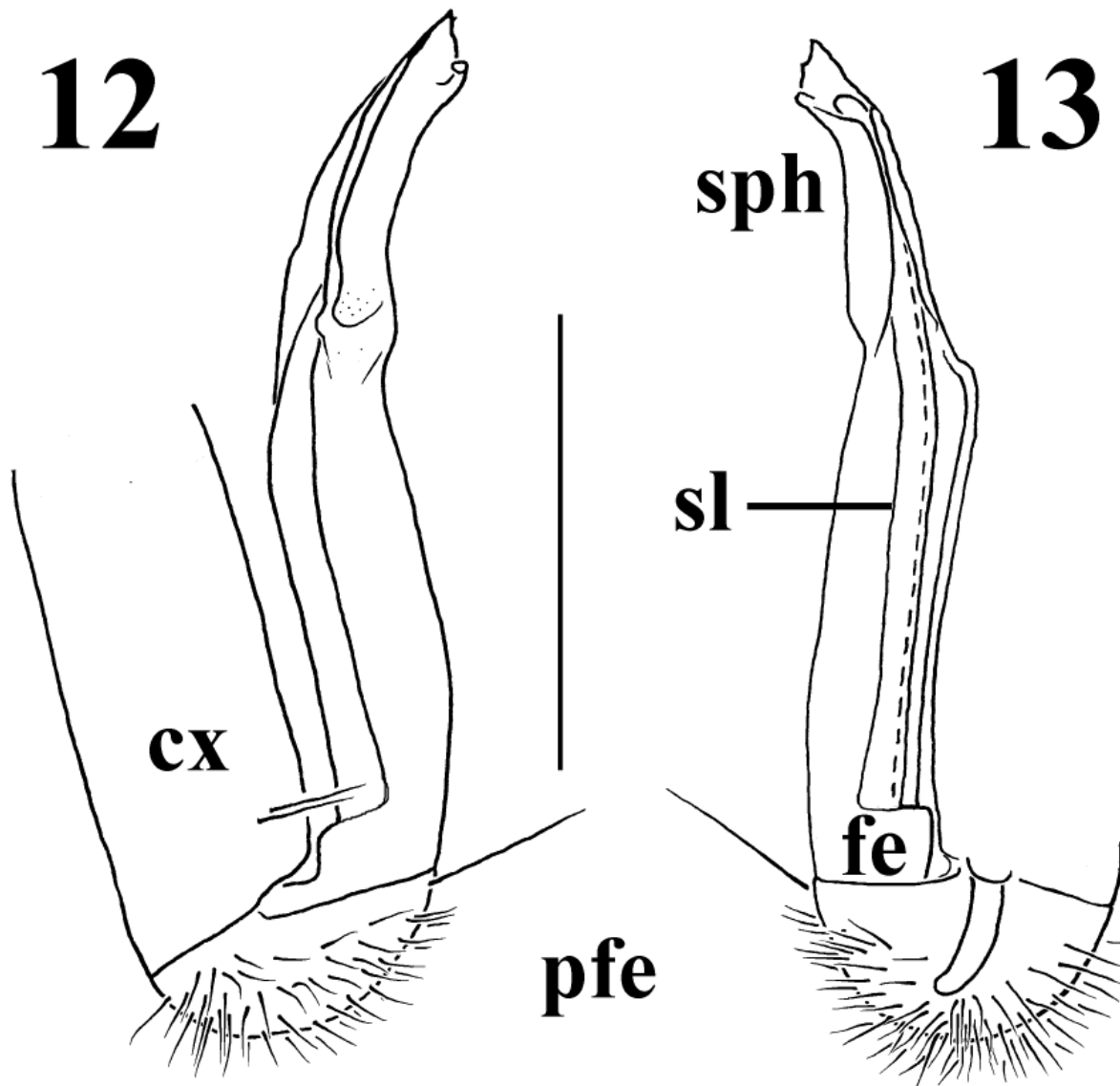
REMARKS. Sympatry among *Touranella* species is noteworthy. Thus, the Bidoup – Nui Ba National Park in southern Vietnam appears to support as many as three *Touranella* species: *T. peculiaris* Golovatch, 2009, *T. hirsuta* Golovatch, 2009, and *T. logunovi* sp.n., while the Cat Tien National Park, also in southern Vietnam, harbours *T. moniliformis* Golovatch et Semenyuk, 2018 and *T. cattiensis* Golovatch et Semenyuk, 2010 (see Nguyen *et al.* [2023]).

Order Spirobolida  
Family Trigoniulidae

*Atopochetus dollfusii* (Pocock, 1893)

MATERIAL. 2 ♂♂, 17 juv. (ZISP), Vietnam, Dong Nai Prov., Cat Tien National Park, lowland tropical forest, N 11°25', E 107°25', 130–170 m a.s.l., 16.XI–9.XII.2023, D. Logunov leg.

REMARK. This large species is widespread in southern Vietnam and Cambodia [Pimvichai *et al.*, 2018, 2022], yet the above record is formally new to the fauna of the Cat Tien National Park.



**Figs 12, 13.** *Touranella logunovi* sp.n., ♂ holotype from Bidoup – Nui Ba National Park, right gonopod, lateral and mesal views, respectively. Designations in text. Scale bar: 0.5 mm.

**Рис. 12, 13.** *Touranella logunovi* sp.n., голотип ♂ из национального парка Bidoup – Nui Ba, правый гонопод, соответственно сбоку и изнутри. Обозначения в тексте. Масштаб 0,5 мм.

Order Spirostreptida  
Family Pachybolidae

*Thyropygus carli* (Attems, 1938)

MATERIAL. 1 ♂ (ZISP), Vietnam, Dong Nai Prov., Cat Tien National Park, lowland tropical forest, N 11°25', E 107°25', 130–170 m a.s.l., 16.XI–9.XII.2023; 3 ♂♂, 2 ♀♀ (ZISP), Khanh Hoa Prov., Nha Trang, Trai Thuy Hill, Long Song Pagoda, stairs to Buddha statue, N 12°15', E 109°11', 30–50 m a.s.l., 24.X.2023; 4 ♂♂ (ZISP), Khanh Hoa Prov., Dien Thanh, Dien Toan, stairs to Suoi Do Pagoda, N 12°13'19.7", E 109°06'03.4", 50–70 m a.s.l., 25.X.2023, all D. Logunov leg.

REMARK. This very large species has only been known from near Nha Trang, the type locality, and in the Cat Tien National Park, both southern Vietnam [Pimvichai *et al.*, 2011; Golovatch *et al.*, 2011]. This is among the largest diplopods reported so far from Vietnam.

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