

On several new or poorly-known Oriental Paradoxosomatidae (Diplopoda: Polydesmida), XXXI

О нескольких новых или плохоизученных ориентальных Paradoxosomatidae (Diplopoda: Polydesmida), XXXI

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КЛЮЧЕВЫЕ СЛОВА: *Chondromorpha*, *Delarthrum*, таксономия, новый вид, ключ, иконография, Непал.

ABSTRACT. This contribution is devoted to descriptions of two new identifiable paradoxosomatid species from Nepal: *Chondromorpha greke* sp.n. and *Delarthrum telnovi* sp.n. This is the first formal record of the genus *Chondromorpha* Silvestri, 1897 from Nepal, although it is rather to be regarded as a tropical Indian faunal element, not a Himalayan one. A tabular key to all six presently known species of *Chondromorpha* is given. In contrast, *Delarthrum telnovi* sp.n. belongs to the Himalayan *hingstoni*-group of the very large genus *Delarthrum* Attems, 1936, all 55 species of which, mostly Himalayan, range from the Western Ghats in the south to the Himalayas of Pakistan, Nepal, China/Tibet, and India in the north. Even though *Delarthrum telnovi* sp.n. shows unexpectedly considerable variations, both morphological and geographic, it is considered as a single polymorphous species.

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РЕЗЮМЕ. Данное сообщение посвящено описанию двух новых определяемых видов семейства Paradoxosomatidae из Непала: *Chondromorpha greke* sp.n. и *Delarthrum telnovi* sp.n. Это первая формальная находка рода *Chondromorpha* Silvestri, 1897 в Непале, хотя его скорее следует рассматривать в качестве тропического индийского фаунистического элемента, а не гималайского. Приведен ключ в виде таблицы для определения всех пока известных шести видов рода *Chondromorpha*. Напротив, вид *Delarthrum telnovi* sp.n. принадлежит к гималайской группе *hingstoni* большого рода *Delarthrum* Attems, 1936, все 55 видов которого, в основном гималайские, распространены от Западных Гатов на юге до Гималаев Пакистана, Непала, Китая (Ти-

бет) и Индии на севере. Хотя у вида *Delarthrum telnovi* sp.n. отмечаются неожиданно существенные вариации, как географические, так и морфологические, он признается лишь единым полиморфным видом.

Introduction

This paper is devoted to descriptions of two new species of paradoxosomatid millipedes from Nepal.

Material and methods

The samples underlying this contribution were sent to me for treatment by Dmitry Telnov (Riga, Latvia), shared between the collections of the Zoological Museum of the State University of Moscow (ZMUM), Russia and the Latvian National Museum of Natural History (Latvijas Nacionālais dabas muzejs) (LNDM), Riga, Latvia. The pictures were taken with a Canon EOS 5D digital camera and stacked using Zerene Stacker software. Final image processing was performed with Adobe Photoshop CC.

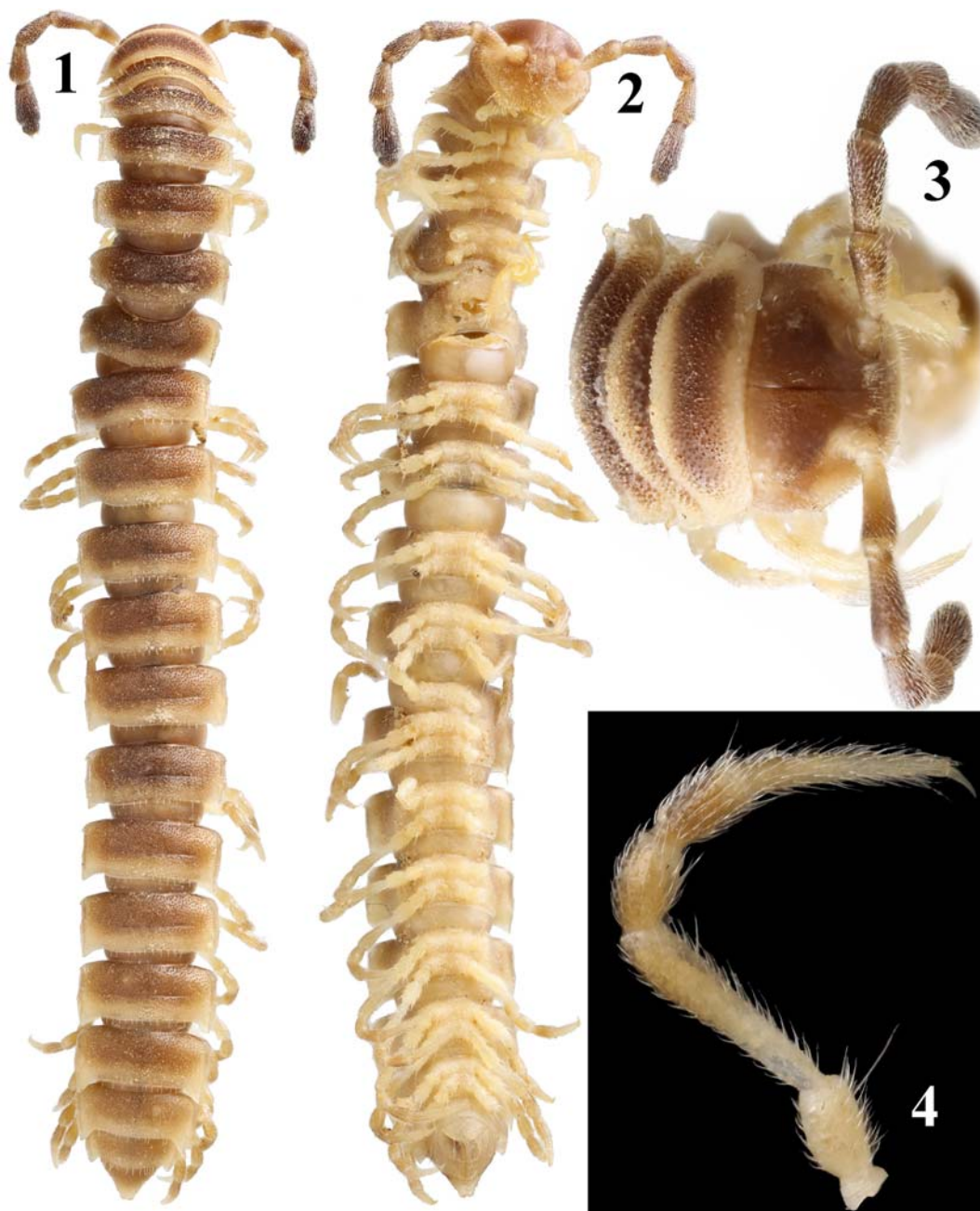
Taxonomic part

Chondromorpha greke sp.n.

Figs 1–9, 58.

MATERIAL. HOLOTYPE ♂ (presently fragmented) (ZMUM), Nepal, Lumbini Prov., Banke Distr., ca 15 km SEE of Khaskusma, 30 km NW of Lamahi, Kali Khola, N 27°57'38", E 82°14'1", 235 m a.s.l., half-dry lowland forest (Fig. 58), 4.VII.2022, K. Greke & D. Telnov leg.

DIAGNOSIS. At present, five lowland- to foothill-dwelling species of the basically South Asian genus *Chondromorpha* Silvestri, 1897, have been recognized: *C. kaimura* Turk, 1947 (a cave in Bihar state, northern India), *C. kelaarti* (Humbert, 1865) (much of India and Sri Lanka, also introduced to Great Britain), *C. mammifera* Attems, 1936 (distributed across



Figs 1–4. *Chondromorpha greke* sp.n., ♂ holotype. 1, 2 — habitus, dorsal and ventral views, respectively; 3 — anterior part of body, frontodorsal view; 4 — leg 9, lateral view. Photographs by K.V. Makarov, taken not to scale.

Рис. 1–4. *Chondromorpha greke* sp.n., голотип ♂. 1, 2 — общий вид, соответственно сверху и снизу; 3 — передняя часть тела, одновременно спереди и сверху; 4 — нога 9, сбоку. Фотографии К.В. Макарова, снято без масштаба.

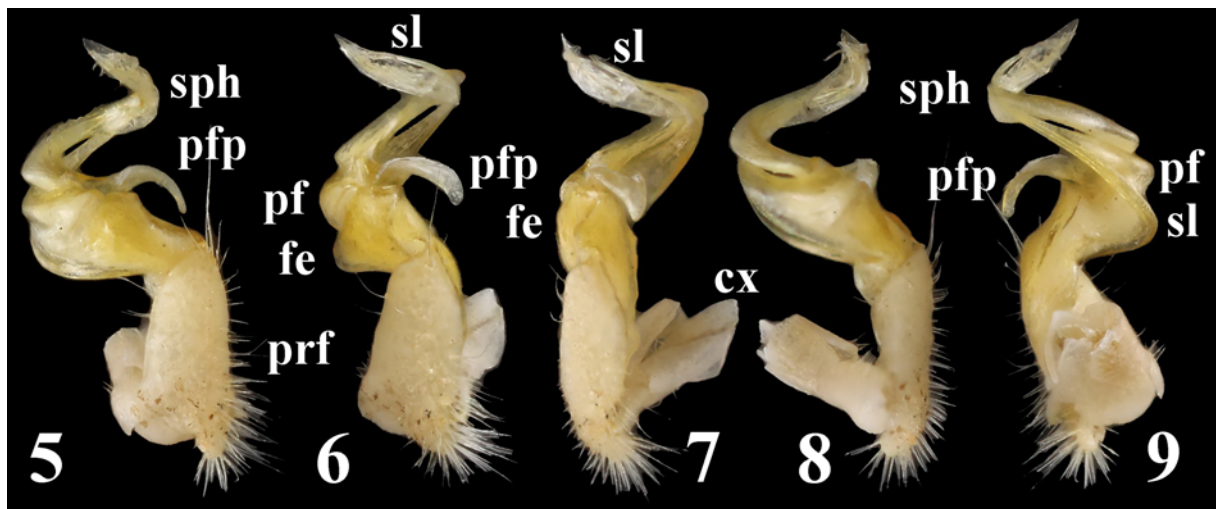
much of India), *C. severini* Silvestri, 1897 (the type species, also occurring across much of India), and *C. xanthotricha* (Attems, 1898) (pantropical) [Silvestri, 1897; Attems, 1936, 1937; Turk, 1947; Sankaran, Sebastian, 2017; Likhitrakarn *et al.*, 2017; Almeida *et al.*, 2022]. The new species differs from congeners by the following combination of characters, these being arranged below in a tabular form (Table).

NAME. Honours Kristina Greke (LNDM), malacologist and one of the collectors who participated in the 2022 trip to Nepal; noun in apposition.

DESCRIPTION. Length ca 16 mm, width of midbody pro- and metazonae 1.5 and 2.0 mm (♂), respectively. Coloration in alcohol mainly brown, pattern indistinctly cingulate due to darker, brown anterior halves of metaterga and protergal regions adjacent to strictures, vaguely contrasting to lighter greyish or yellowish paraterga, posterior (transparent) halves of metaterga, most parts of proterga, legs, venter and tip of epiproct; tergal setae pallid, while antennae mostly contrasting dark brown (Figs 1–9).

Table. The main distinguishing characters of *Chondromorpha* species.
Таблица. Основные отличительные признаки видов рода *Chondromorpha*.

Character / Species	Adult body width	Shape of midbody paraterga	Ventral parabasal adenostyles on certain ♂ femora	Sternal lobe or tubercles between ♂ coxae 4	Gonopodal femorite
<i>C. greke</i> sp.n.	ca 2 mm	sides straight, anterior shoulders only slightly curved, anterolateral tooth present (Figs 1, 2)	absent (Fig. 4)	small paramedian globules (Fig. 2)	stout, but well discernible (Figs 5–9, fe)
<i>C. kaimura</i>	>2 mm	sides and anterior shoulders straight, anterolateral tooth absent (Fig. 10)	absent	distinct, slender and high paramedian processes	stout, but well discernible
<i>C. kelaarti</i>	>2 mm	anterior shoulders angular and broadly convex, anterolateral tooth absent (Fig. 11)	present	distinct and large paramedian tubercles	elongate and well discernible
<i>C. mammifera</i>	>2 mm	anterior shoulders regularly and strongly convex, anterolateral tooth absent (Fig. 12)	present	distinct and large paramedian tubercles (Fig. 18)	very short and barely discernible (Fig. 19, fe)
<i>C. severini</i>	>2 mm	anterior shoulders angular and only slightly convex, anterolateral tooth absent (Fig. 14)	present (Fig. 16, a)	a single rounded lobe (Fig. 15)	stout, but well discernible (Fig. 17, fe)
<i>C. xanthotricha</i>	<2 mm	anterior shoulders angular and only slightly convex, anterolateral tooth present (Fig. 13)	absent	small paramedian cones	stout, but well discernible



Figs 5–9. *Chondromorpha greke* sp.n., ♂ holotype. Right gonopod, subventral, ventral, mesal, lateral and subdorsal views, respectively. Photographs by K.V. Makarov, taken not to scale. Designations: cx — coxite; fe — femorite; pf — postfemorite; pfp — postfemoral process; prf — prefemorite; sl — solenomere; sph — solenophore.

Рис. 5–9. *Chondromorpha greke* sp.n., голотип ♂. Правый гонопод, соответственно почти снизу, снизу, изнутри, сбоку и почти сверху. Фотографии К.В. Макарова, снято без масштаба. Обозначения: cx — коксит; fe — феморит; pf — постфеморит; pfp — постфеморальный отросток; prf — префеморит; sl — соленомер; sph — соленофор.

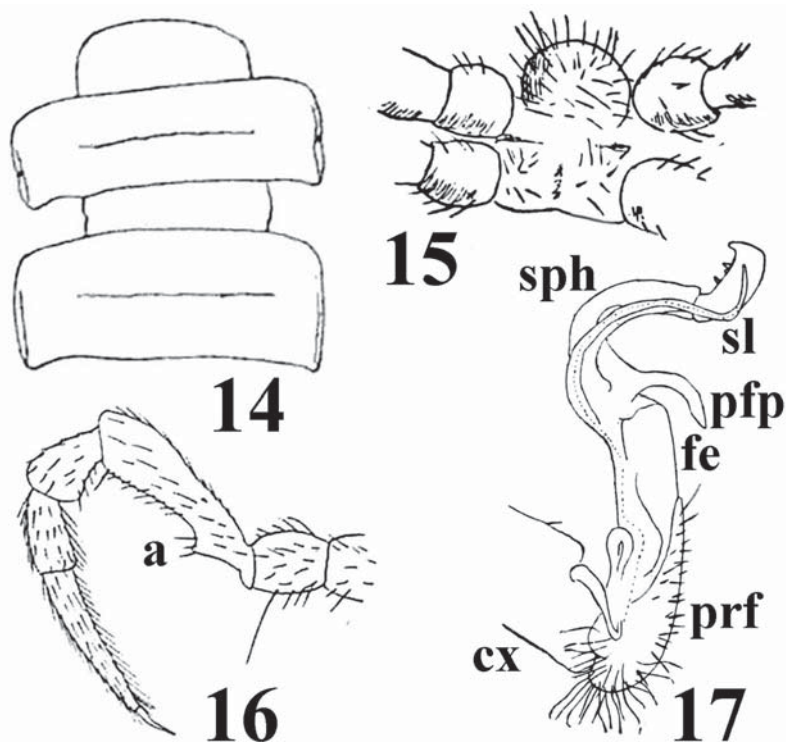


Figs 10–13. Midbody rings, dorsal view. 10 — *Chondromorpha kaimura* Turk, 1947, ♂ syntype (original, courtesy H. Read and J. Beccaloni, taken not to scale); 11 — *C. kelaarti* (Humbert, 1865), ♂ from Kerala state, India (after Sankaran, Sebastian [2017], scale bar: 2.0 mm); 12 — *C. mammifera* Attems, 1936, ♂ from Kerala state, India (after Sankaran, Sebastian [2017], scale bar: 1.0 mm); 13 — *C. xanthotricha* (Attems, 1898), ♂ from Chiang Mai, Thailand (after Likhitrakarn *et al.* [2017], scale bar: 0.5 mm).

Рис. 10–13. Среднетуловищные сегменты, сверху. 10 — *Chondromorpha kaimura* Turk, 1947, синтип ♂ (оригинал, любезно снято H. Read и J. Beccaloni, без масштаба); 11 — *C. kelaarti* (Humbert, 1865), ♂ из штата Керала (Индия) (по: Sankaran, Sebastian [2017], масштаб 2,0 мм); 12 — *C. mammifera* Attems, 1936, ♂ из штата Керала (Индия) (по: Sankaran, Sebastian [2017], масштаб 1,0 мм); 13 — *C. xanthotricha* (Attems, 1898), ♂ из Chiang Mai, Thailand (по: Likhitrakarn *et al.* [2017], масштаб 0,5 мм).

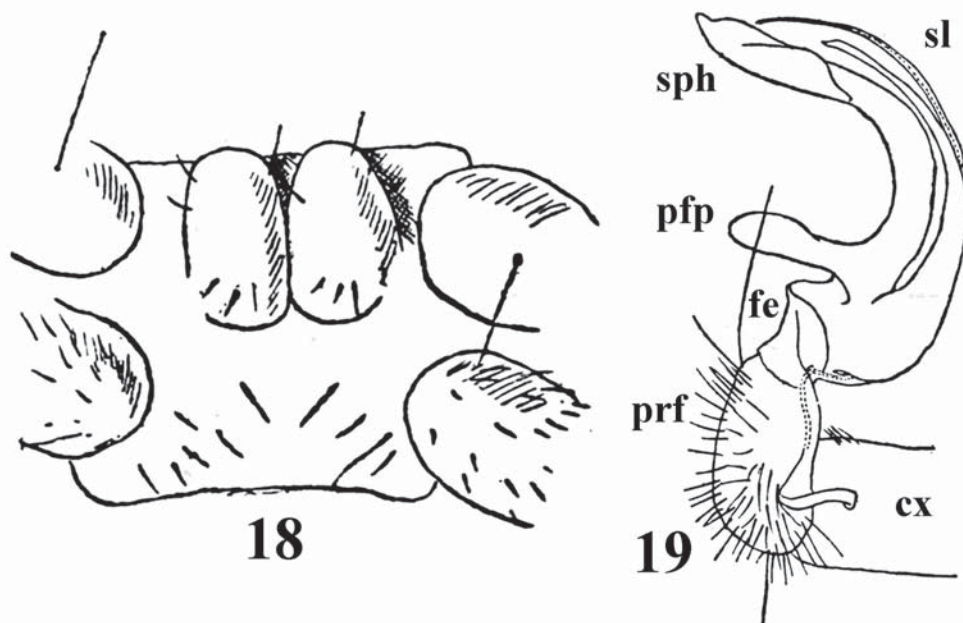
Body with 20 rings. Entire head very densely setose and microgranulate, vertigial epicranial suture very distinct (Fig. 2). Antennae long, slender and only slightly clavate (Figs 1–3), extending back until metatergum 4 when stretched dorsally (♂). In length, antennomere 2=3=4=6>5>1=7. Inter-antennal isthmus only slightly wider than diameter of antennal socket (Fig. 2). Tegument dull, metaterga very densely granulate and setose dorsally, roughly granulate on sides below paraterga, smooth at bottom of strictures between pro- and metazonae, faintly beaded at bottom of transverse metatergal sulci (Figs 1–3). In width, head < collum < ring 2 = 3 < 4 < 5–16; thereafter body gradually tapering on rings

17–20 (Figs 1–3). Metaterga slightly and regularly convex, paraterga broad, thin, mostly set at about upper 1/3 body, always lying below dorsum and faintly sloping laterad, narrowly bordered, nearly straight both anteriorly and laterally (Figs 1, 2); poreless paraterga only slightly thinner than pore-bearing ones; calluses smooth, thin, slightly sinuate dorsally only before ozopores, delimited by indistinct sulci both dorsally and ventrally; caudal corners of collum acute (Fig. 3), on postcollum paraterga pointed and, starting with ring 5, increasingly produced past rear tergal margin; anterolateral corner of paraterga with a distinct tooth (Figs 1, 2). Ozopores fully lateral, invisible from above, lying at bottom



Figs 14–17. *Chondromorpha severini* Silvestri, 1897, ♂♂ from India. 14 — midbody rings, dorsal view (granulations and setae on metaterga omitted); 15 — sterna between coxae 4 and 5, ventral view; 16 — leg 9, lateral view; 17 — left gonopod, mesal view. Reproduced after Attems [1936, 1937], drawn not to scale. Designations: a — adenostyle; cx — coxite; fe — femorite; pf — postfemorite; pfp — postfemoral process; prf — prefemorite; sl — solenomere; sph — solenophore.

Рис. 14–17. *Chondromorpha severini* Silvestri, 1897, ♂♂ из Индии. 14 — среднетуловищные сегменты, сверху (грануляция и щетинки на метатергитах опущены); 15 — стерниты между тазиками 4 и 5, снизу; 16 — нога 9, сбоку; 17 — левый гонопод, изнутри. Воспроизведено по: Attems [1936, 1937], нарисовано без масштаба. Обозначения: а — аденостиль; cx — коксит; fe — феморит; pf — постфеморит; pfp — постфеморальный отросток; prf — префеморит; sl — соленомер; sph — соленофор.



Figs 18, 19. *Chondromorpha mammifera* Attems, 1936, ♂ from India. 18 — sterna between coxae 4 and 5, ventral view; 19 — right gonopod, mesal view. Reproduced after Attems [1936], drawn not to scale. Designations: cx — coxite; fe — femorite; pfp — postfemoral process; prf — prefemorite; sl — solenomere; sph — solenophore.

Рис. 18, 19. *Chondromorpha mammifera* Attems, 1936, ♂ из Индии. 18 — стерниты между тазиками 4 и 5, снизу; 19 — правый гонопод, изнутри. Воспроизведено по: Attems [1936], нарисовано без масштаба. Обозначения: cx — коксит; fe — феморит; pfp — постфеморальный отросток; prf — префеморит; sl — соленомер; sph — соленофор.



Figs 20, 21. Habitus of *Delarthrum telnovi* sp.n., ♂ holotype, dorsal and ventral views, respectively. Designations: a — adenostyle on femur 1; v — ventral sternal lobe between coxae 4. Photographs by K.V. Makarov, taken not to scale.

Рис. 20, 21. Общий вид *Delarthrum telnovi* sp.n., голотип ♂, соответственно сверху и снизу. Обозначения: а — аденостиль на бедре 1; v — нижняя стерральная пластинка между тазиками 4. Фотографии К.В. Макарова, снято без масштаба.

of narrow oblong grooves. Tergal setae short, bacilliform, each borne on a grain, especially well preserved in a row before caudal margin of metaterga. Limbus entire. Transverse metatergal sulci thin, faintly arcuate forward in the middle, almost reaching the bases of paraterga, present on rings 5–18, absent from 19th. Axial line absent. Pleurosternal

carinae low, arcuate and granulate ridges, gradually reduced, but visible on rings 2–7 (♂). Epiproct (Figs 1, 2) flattened dorsoventrally, long, tip slightly concave, apical and lateral pre-apical papillae very small. Hypoproct (Fig. 2) roundly tapeziform, caudal margin with 1+1 setae borne on distinct and round knobs.



Figs 22–27. Right gonopod of *Delarthrum telnovi* sp.n., ♂ holotype, dorsomesal, mesal, ventromesal, subdorsal, dorsolateral and lateral views, respectively. Designations: b — long and straight femoral process; lo — laterobasal lobe of solenophore; o — small lateral lobule marking an apicofemoral cingulum; sl — solenomere; sph — solenophore. Photographs by K.V. Makarov, taken not to scale.

Рис. 22–27. Правый гонопод *Delarthrum telnovi* sp.n., голотип ♂, соответственно одновременно сверху и изнутри, изнутри, одновременно снизу и изнутри, почти сверху, одновременно сверху и сбоку, а также сбоку. Обозначения: b — длинный и прямой отросток бедра; lo — боковая пластина у основания соленофора; o — маленькая боковая пластинка, отмечающая кольцо на вершине бедра; sl — соленомер; sph — соленофор. Фотографии К.В. Макарова, снято без масштаба.

Sterna very densely hirsute, cross-impressions weak, axial ones being particularly weak; sternum between legs 4 with a paramedian pair of small, low, rounded and densely setose globules (♂) (Fig. 2). Legs long, 1.6–1.7x as long as body height (♂), very densely setose, devoid of tarsal and adenostyles (Fig. 4), likely only femora 6 or 7 (all detached, hence unclear which exactly) each with a faint, midway (not parabasal!), very faint, setose, ventral knob (♂). In length, femur = tarsus >> coxa = prefemur = postfemur = tibia (Fig. 4).

Gonopods (Figs 5–9) in situ lying subparallel to each other. Coxite subcylindrical, sparsely setose on dorsal side; cannula as usual, a short and strongly curved hollow tube. Prefemoral (= densely setose) part (**prf**) clearly longer than both coxite (**cx**) and femorite (**fe**), the latter set off by distinct sulci from both **prf** and a very short postfemoral part (**pf**); a strong, curved, subunciform, mesal postfemoral process (**pfp**) typical of the genus. Seminal groove running entirely on mesal side of **fe** and **pf**, and only distomesally on **pf** moving onto a long, free, flagelliform solenomere (**sl**),

the latter being protected, partly sheathed and supported by a coiled, membranous, similarly long, acuminate and rather simple solenophore (**sph**).

REMARK. The new species is a typical member of *Chondromorpha*, yet differing clearly from congeners by several characters, both peripheral and gonopodal (Table and Figs 10–19). This is the first formal record of *Chondromorpha* from Nepal, although it is rather to be regarded as a tropical Indian faunal element, not a Himalayan one.

Delarthrum telnovi sp.n.

Figs 20–57, 59, 60.

MATERIAL. HOLOTYPE ♂ (ZMUM), Western Nepal, Karnali Prov., Humla Distr., ca 12–13 km SE of Simikot, N 29°54'23"–29°54'00", E 81°55'7"–81°55'11", 2990–3310 m a.s.l., disturbed mixed forest, 17–18.VI.2022, D. Telnov leg.

PARATYPES (often fragmented): 3 ♂♂ (ZMUM), same place, together with holotype; 2 ♂♂, 4 ♀♀ (ZMUM), same province and district, 12–13.5 km SE of Simikot, Ghatte, Yanchu Khola to Simikot, N 29°54'23"–29°53'37", E 81°55'7"–81°55'36", 2920–3490 m a.s.l., pasture and disturbed mixed forest, 18.VI.2022; 2 ♂♂, 1 ♀ (LNDM), 1 ♀ (ZMUM), same province and district, 13.5–13.9 km SE of Simikot (Fig. 59), N 29°53'37"–29°53'16", E 81°55'36"–81°55'31", 3445–3880 m a.s.l., primary montane forest, 19.VI.2022; 1 ♀ (ZMUM), same province and district, 34.5 km SE – 41 km E of Simikot (Fig. 60), N 29°45'10"–29°41'47", E 82°4'26"–82°6'4", 1655–3525 m a.s.l., disturbed montane forest, 23.VI. 2022 all D. Telnov leg.; 2 ♂♂ (ZMUM), same province, Mugu Distr., Rara National Park, 30–31 km NNW of Jumla, N 29°32'43"–29°32'16", E 82°7'32"–82°4'34", 3290–2940 m a.s.l., old-growth montane forest, 28.VI.2022, D. Telnov & K. Greke leg.; 1 ♂, 1 ♀ (ZMUM), same province, Jumla Distr., 14 km NE–9 km NNW of Jumla, N 29°23'43"–29°21'26", E 82°8'55"–82°9'31", 2770–3550 m a.s.l., disturbed montane *Quercus* forest, 1.VII.2022, D. Telnov leg.

DIAGNOSIS. Differs from all congeners by the solenophore (**sph**) being unusually hypertrophied, long and slender, directed and almost fully to fully coiled mesad, bearing a large to very large lateral membranous lobe (**lo**) near base. It is *D. furcatum* (Golovatch, 1996), from the Kathmandu Valley, that seems to be particularly similar to *D. telnovi* sp.n., as it shows basically the same gonopodal conformation [Golovatch, 1996, 2014], including a long distofemoral spine and a curved solenophore. Yet *D. furcatum* differs readily by the more strongly developed paraterga, the prominent process **o** on the gonofemorate and, above all, the much shorter solenophore. See also Remarks below.

NAME. Honours Dmitry Telnov, the main collector.

DESCRIPTION. Holotype ca 22 mm in length (♂), midbody pro- and metazonae 1.7 and 2.0 mm in width, respectively (♂). Paratypes 18–23 mm long (♂, ♀), 1.7–2.2 and 2.0–2.5 mm (♂) or 1.8–2.7 and 2.0–2.9 mm (♀) wide on midbody pro- and metazonae, respectively.

Coloration in alcohol usually uniformly dark chocolate brown to brown, only venter and legs lighter brown (sometimes almost contrasting paler), tip of antenna pallid, gonopods yellowish (Figs 20, 21, 28–31, 37–39, 45–47, 51–54).

Body with 20 rings, ♂ submoniliform. Clypeolabral region of head densely setose, vertigial region with a few setae only; epicranial suture fine, but distinct (Figs 29, 45, 52). Antennae long, slender and only slightly clavate (Figs 20, 21, 28, 29, 37, 45, 51, 52), extending until metatergum 3 (♂) or slightly past metatergum 2 (♀) when stretched dorsally. In length, antennomere 3>2=4=5=6>>1=7. Interantennal isthmus ca 1.5x as wide as diameter of antennal socket (Figs 45, 52). Tegument shining, mostly smooth, in places faintly rugulose dorsally (especially so on rear halves of metaterga),

roughly ribbed at bottom of strictures between pro- and metazonae, less strongly beaded at bottom of transverse metatergal sulci, roughly granulate on sides below paraterga (Figs 28, 37, 51). In width, head > collum > rings 6–15 > 2 = 5 > 3=4; body gradually tapering on rings 16–20 (Fig. 20). Paraterga small, especially poorly developed in ♀ compared to ♂, mostly lying at about upper 1/3 body, narrowly bordered, slightly and regularly rounded laterally, especially so on collum (Figs 20, 21, 28–31, 37–39, 45–47, 51–54), poreless paraterga slightly thinner than pore-bearing ones, calluses smooth, slightly sinuate dorsally only before ozopores, delimited by distinct sulci both dorsally and ventrally; caudal corners of postcollum paraterga narrowly rounded to nearly pointed, at most barely to slightly produced past rear tergal margin (Figs 20, 21, 28–31, 37–39, 45–47, 51–54). Paraterga 2 especially low, acutangular and slightly drawn only anteriad, but obtuse, rounded and not produced caudad. Ozopores fully lateral, invisible from above, lying at bottom of narrow oblong grooves. Tergal setae fully abraded, setation pattern vague, but partly traceable as insertion points. Limbus entire. Transverse metatergal sulci clear-cut on rings 5–17, less distinct on ring 18, missing on 19th. Axial line absent, but occasionally poorly traceable on rear halves of metaterga. Pleurosternal carinae low, largely bimodal and roughly granulated ridges visible on rings 2–7, thereafter retained as barely discernible and increasingly reduced swellings (♂, ♀). Epiproct (Figs 20, 21, 31, 39, 47, 54) long, tip barely concave, lateral pre-apical papillae very small. Hypoproct (Fig. 21) roundly tapeziform, caudal margin with 1+1 setae borne on very distinct and round knobs.

Sterna very densely hirsute, cross-impressions weak, devoid of modifications other than sternal lobe between legs 4 being high, spatuliform, roundly subtriangular to subtrapeziform, densely setose on both sides (Figs 21, v; 37). Legs long, 1.5–1.7x (♂) or 1.2–1.3x (♀) as long as body height (♂), very densely setose, especially so ventrally, true tibial and tarsal brushes present on all ♂ legs but two last leg-pairs (Figs 21, 29, 37); adenostyles round, setose, parabasol tubercles present ventrally on ♂ femora 1 (Fig. 21, a). In length, femur > tarsus > coxa = prefemur = postfemur = tibia (Fig. 37).

Gonopods (Figs 22–27, 32–36, 40–44, 48–50, 55–57) complex, in situ both crossing each other only distomesally. Coxite short, subcylindrical, sparsely setose on ventral side; cannula as usual, a short and strongly curved hollow tube. Prefemoral (= densely setose) part about one-third as long as femorite, usually with a small, but evident lateral parabasol bulge (Fig. 32, p), set off from a very long, slender, erect, sagittally flattened and basically untwisted femorite by a distinct cingulum basally and a similarly distinct, but oblique cingulum apically, a small to only slightly larger, lateral, rounded lobule (**o**) marking both the apical cingulum and a very long, mesal, slender, straight distofemoral, spiniform process (**b**); seminal groove running entirely on mesal side of femorite to move onto a long, free, subflagelliform sole-nomere (**sl**) near base of **b**; postfemoral part (= solenophore, **sph**) strongly elongate, but only a little longer than femorite, more or less clearly curved to coiled, directed mesad, divided at base into a strong, prominent, membranous, lateral, shorter subtriangular and apically pointed to longer subpyriform and rounded lobe (**lo**) and a slender, ribbon-shaped, main **sph** branch supporting and concealing **sl** inside a groove, the latter showing a delicately membranous end.

REMARKS. *Delarthrum* Attems, 1936, as well as the entire tribe Polydrepanini Jeekel, 1968 this genus belongs



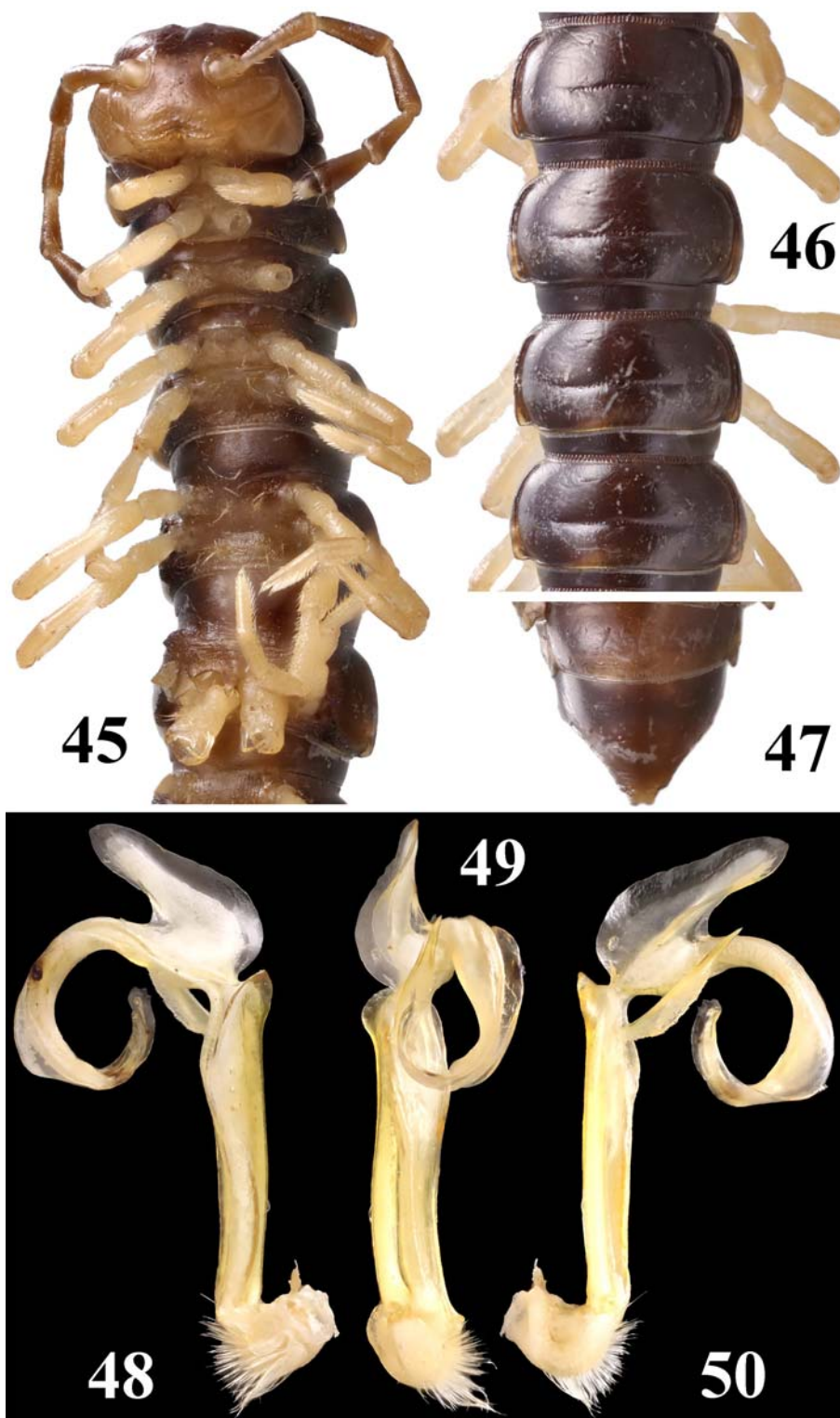
Figs 28–36. *Delarthrum telnovi* sp.n., ♂ paratype from 12–13 km SE of Simikot. 28 — habitus, lateral view; 29 — anterior part of body, ventral view; 30, 31 — midbody rings and posterior part of body, respectively, dorsal view; 32–36 — left gonopod, lateral, dorsolateral, dorsomesal, mesal and subventral views, respectively. Designation: p — lateral parabasal bulge on prefemorite. Photographs by K.V. Makarov, taken not to scale.

Рис. 28–36. *Delarthrum telnovi* sp.n., паратип ♂ из 12–13 км ЮВ Simikot. 28 — общий вид, сбоку; 29 — передняя часть тела, снизу; 30, 31 — соответственно среднетеловишние сегменты и задняя часть тела, сверху; 32–36 — левый гонопод, соответственно сбоку, одновременно сверху и сбоку, одновременно сверху и изнутри, изнутри и почти снизу. Обозначение: p — боковое близкое к основанию предбедра вздутие. Фотографии К.В. Макарова, снято без масштаба.



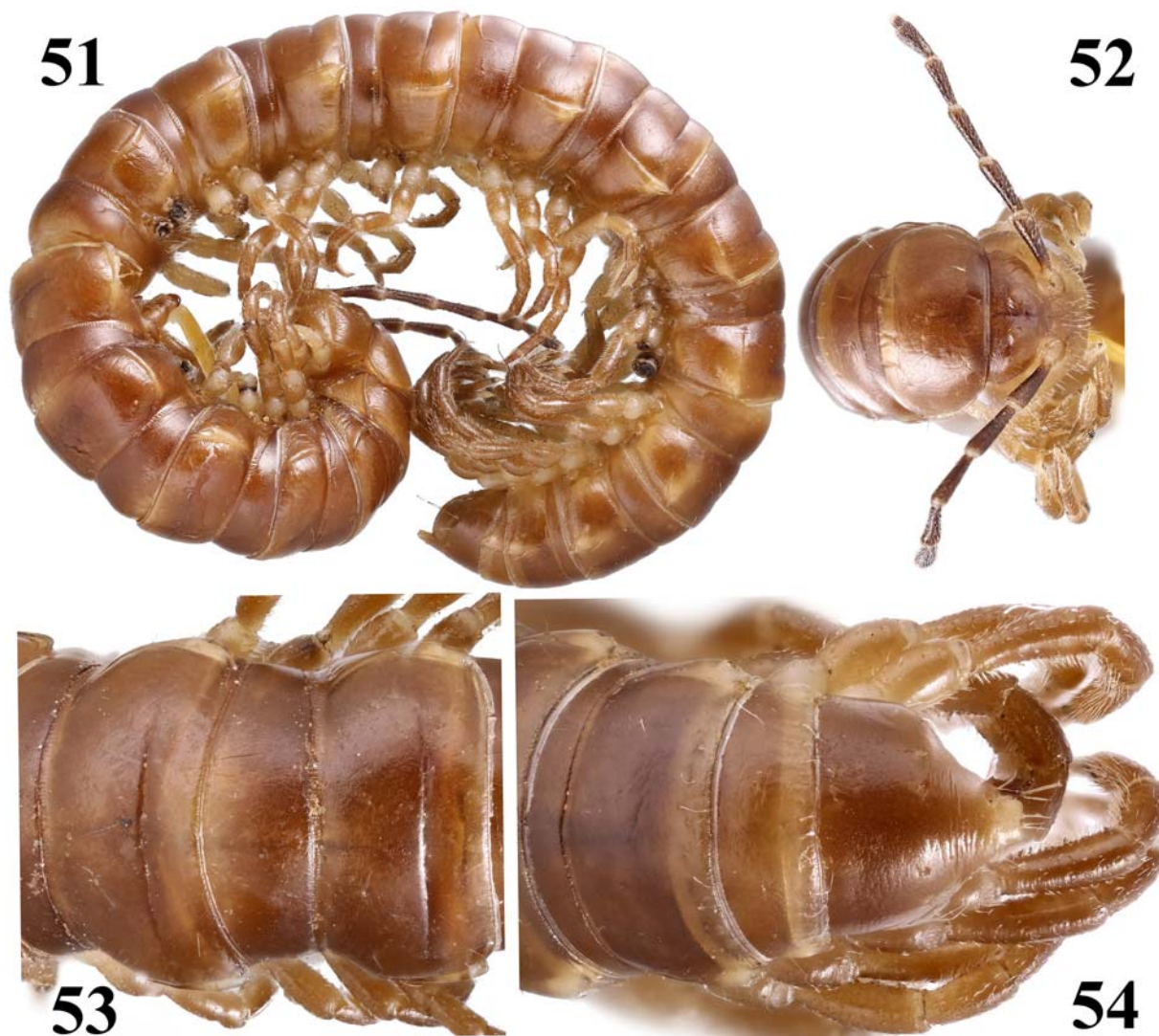
Figs 37–44. *Delarthrum telnovi* sp.n., ♂ paratype from 12–13 km SE of Simikot. 37 — habitus, lateral view; 38, 39 — midbody rings and posterior part of body, respectively, dorsal view; 40–44 — right gonopod, lateral, sublateral, dorsolateral, subventral and mesal views, respectively. Designation: p — lateral parabasal bulge on prefemorate. Photographs by K.V. Makarov, taken not to scale.

Рис. 37–44. *Delarthrum telnovi* sp.n., паратип ♂ из 12–13 км ЮВ Сими́кот. 37 — общий вид, сбоку; 38, 39 — соответственно среднетуловищные сегменты и задняя часть тела, сверху; 40–44 — правый гонопод, соответственно сбоку, почти сбоку, одновременно сверху и сбоку, почти снизу и изнутри. Обозначение: p — боковое близкое к основанию предбедра вздутие. Фотографии К.В. Макарова, снято без масштаба.



Figs 45–50. *Delarthrum telnovi* sp.n., ♂ paratype from 34.5 km SE — 41 km E of Simikot. 45 — anterior part of body, ventral view; 46, 47 — midbody rings and posterior part of body, respectively, dorsal view; 48–50 — right gonopod, mesal, ventral and lateral views, respectively. Photographs by K.V. Makarov, taken not to scale.

Рис. 45–50. *Delarthrum telnovi* sp.n., паратип ♂ из 34,5 км ЮВ — 41 км В Simikot. 45 — передняя часть тела, снизу; 46, 47 — соответственно среднетуловищные сегменты и задняя часть тела, сверху; 48–50 — правый гонопод, соответственно изнутри, снизу и сбоку. Фотографии К.В. Макарова, снято без масштаба.



Figs 51–54. *Delarthrum telnovi* sp.n., ♂ paratype from Rara National Park. 51 — habitus, lateral view; 52 — anterior part of body, anterior view; 53, 54 — midbody rings and posterior part of body, respectively, dorsal view. Photographs by K.V. Makarov, taken not to scale.

Рис. 51–54. *Delarthrum telnovi* sp.n., паратип ♂ из национального парка Рара. 51 — общий вид, сбоку; 52 — передняя часть тела, спереди; 53, 54 — соответственно среднетелувищные сегменты и задняя часть тела, сверху. Фотографии К.В. Макарова, снято без масштаба.

to, have recently been reviewed [Golovatch *et al.*, 2021]. The tribe has been shown to comprise seven genera, mostly small and confined to southern India, among which *Delarthrum* appears to be especially diverse (55 species, largely Himalayan) and widespread (ranging from the Western Ghats in the south to the Himalayas of Pakistan, Nepal, China/Tibet, and India in the north).

Based on the slender, long and untwisted gonopodal femorite, the flagelliform to somewhat ribbon-shaped solenomere basally devoid both of a loop/curve and a protecting lobe, as well as a complex, varied and large solenophore often obliquely truncate ventrad or dorsad, all this being characteristic of *Delarthrum* [Golovatch *et al.*, 2021], *D. telnovi* sp.n. definitely belongs to the very large group of Himalayan species that formerly composed the genus *Orophosoma*

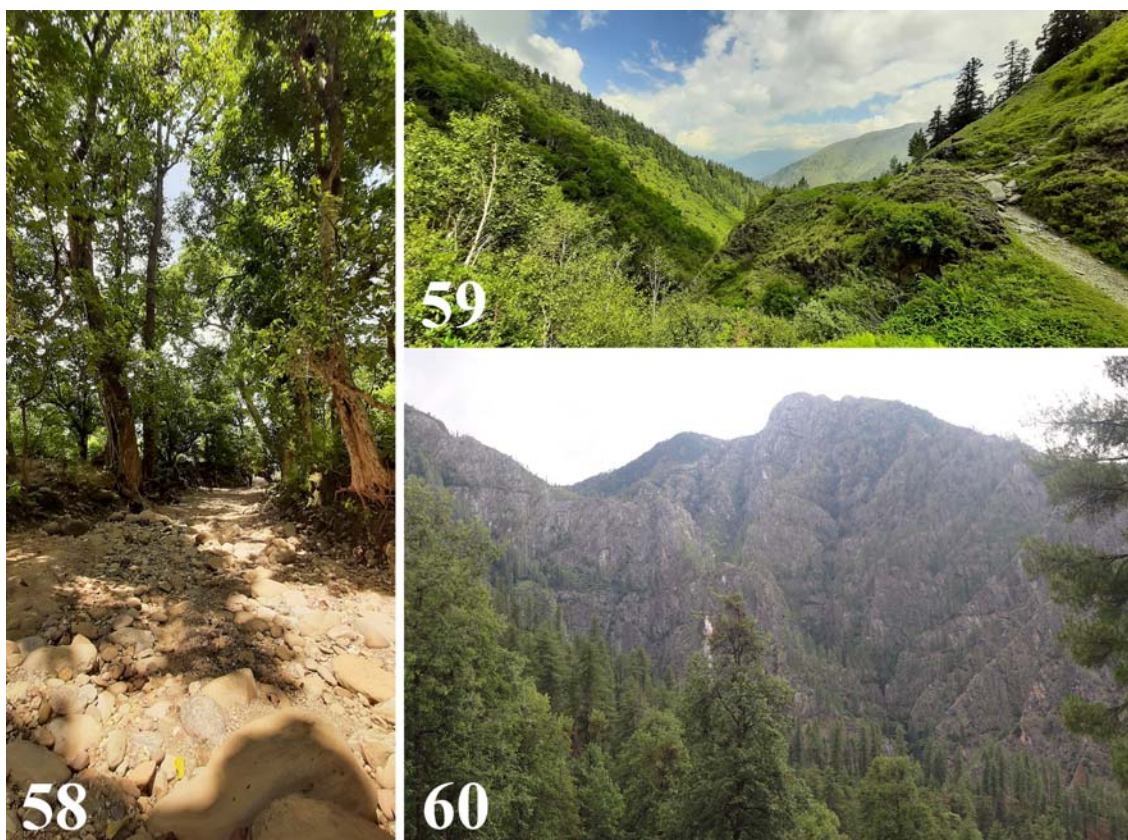
Jeekel, 1980 [Golovatch, 1996], but is presently distinguished as the *hingstoni*-group [Golovatch *et al.*, 2021]. The gonofemorite is long and slender, untwisted, truncate apicoventrad, bearing a long, spiniform, ventral, distofemoral process (**b**) at the base of a long and subflagelliform solenomere (**sl**), the latter starting opposite an evident, rounded, apicodorsal lobe (**o**) that marks a distinct postfemoral cingulum. However, the solenophore (**sph**) in *D. telnovi* sp.n. is hypertrophied, unusually long and slender, directed and fully to nearly fully coiled mesad, bearing a conspicuous, large, lateral, membranous lobe (**lo**) near the **sph** base.

As regards morphological structures, both peripheral and gonopodal, *Delarthrum telnovi* sp.n. shows unexpectedly considerable variations in body size and in certain minor details of gonopodal conformation. This is to be plotted



Figs 55–57. Right gonopod of *Delarthrum telnovi* sp.n., ♂ paratype from Rara National Park, mesal, subventral and sublateral views, respectively. Photographs by K.V. Makarov, taken not to scale.

Рис. 55–57. Правый гонопод *Delarthrum telnovi* sp.n., паратип ♂ из национального парка Рара, соответственно изнутри, почти снизу и почти сбоку. Фотографии К.В. Макарова, снято без масштаба.



Figs 58–60. Pictures of the type localities of *Chondromorpha greke* sp.n. (58) and *Delarthrum telnovi* sp.n. (59: 13.5–13.9 km SE of Simikot, and 60: 34.5 km SE — 41 km E of Simikot), all courtesy D. Telnov (Riga, Latvia).

Рис. 58–60. Фотографии типовых местностей *Chondromorpha greke* sp.n. (58) и *Delarthrum telnovi* sp.n. (59: 13,5–13,9 км ЮВ Simikot, и 60: 34,5 км ЮВ — 41 км В Simikot), все любезно предоставлены Д. Тельновым (Рига, Латвия).

against the background of a relatively vast geographic distribution that covers parts of as many as three administrative districts (Humla, Mugu and Jumla, all in Karnali Province) in western Nepal, coupled with an unusually wide range of elevations (1655–3880 m a.s.l.). Despite all this, based on the quite uniform and generally stable peripheral and gonopodal structures that seem to reflect individual or populational variations at most, I do not hesitate to formally consider *Delarthrum telnovi* sp.n. as a single, albeit rather polymorphous and widespread species. Figures 20–57 are meant to reinforce this conclusion, although it basically contradicts the general assumption that most of the Himalayan Diplopoda (>270 species) are very narrowly endemic and restricted to very small areas, including altitudinal belts [Golovatch, Martens, 2018]. This holds true for the numerous (53) Himalayan *Delarthrum* spp. as well, which appear to range from 600 to 4100 m in elevation, but are largely mid- to high-montane (1400–3000 m a.s.l.) [Golovatch, Martens, 2018].

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