

The Andean millipede genus *Peruprion* Verhoeff, 1941 (Diplopoda: Polydesmida: Chelodesmidae), with the description of a new species from Peru

Диплоподы андского рода *Peruprion* Verhoeff, 1941 (Diplopoda: Polydesmida: Chelodesmidae), с описанием нового вида из Перу

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КЛЮЧЕВЫЕ СЛОВА: таксономия, распространение, иконография, ключ.

ABSTRACT. *Peruprion* presently contains five species, including *P. crassifemuratum* sp.n. from Junin Province, central Peru. It differs from the morphologically especially similar *P. affine* Kraus, 1956, also from Junin Province, primarily by a much lighter, mainly light brown to pallid colouration and the slightly, but clearly incrassate ♂ femora 5–7.

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РЕЗЮМЕ. Род *Peruprion* ныне включает пять видов, в т.ч. *Peruprion crassifemuratum* sp.n. из провинции Хуни (центральная часть Перу). Он отличающийся от самого похожего вида *P. affine* Kraus, 1956, тоже из провинции Хуни, прежде всего намного более светлой, светлокоричневой до белесой окраской и немного, но заметно утолщенными бедрами 5–7 самца.

Introduction

Among the ca 140 genera of Neotropical Chelodesmidae known to date, only less than half (90+, altogether containing 420+ species) have been assigned to one of the 21 presently recognized tribes of the family [Means *et al.*, 2023]. Amongst the still unassigned members is the small Andean genus *Peruprion* Verhoeff, 1941, which presently encompasses some four species, all endemic to Peru. These are as follows:

P. serratum Verhoeff, 1941, the type species from Sivia, Ayacucho Department, Huanta Province [Verhoeff, 1941];

P. affine Kraus, 1956, from Chanchamayo Department and Valley, between San Ramon and Mina Pichita Caluga, Junin Province [Kraus, 1956];

P. azucarense Kraus, 1959, from both Pan de Azucar, Rio Tarma, and Chanchamayo Department and Valley, between San Ramon and Mina Pichita Caluga, Junin Province [Kraus, 1959]; and

P. quechuanum (Chamberlin, 1955), from Rio Huallaga, Ucayali Basin, Amazonia, central Peru [Chamberlin, 1955].

The present note is devoted to a brief review of *Peruprion* in connection with the description of a new species from Peru.

Material and methods

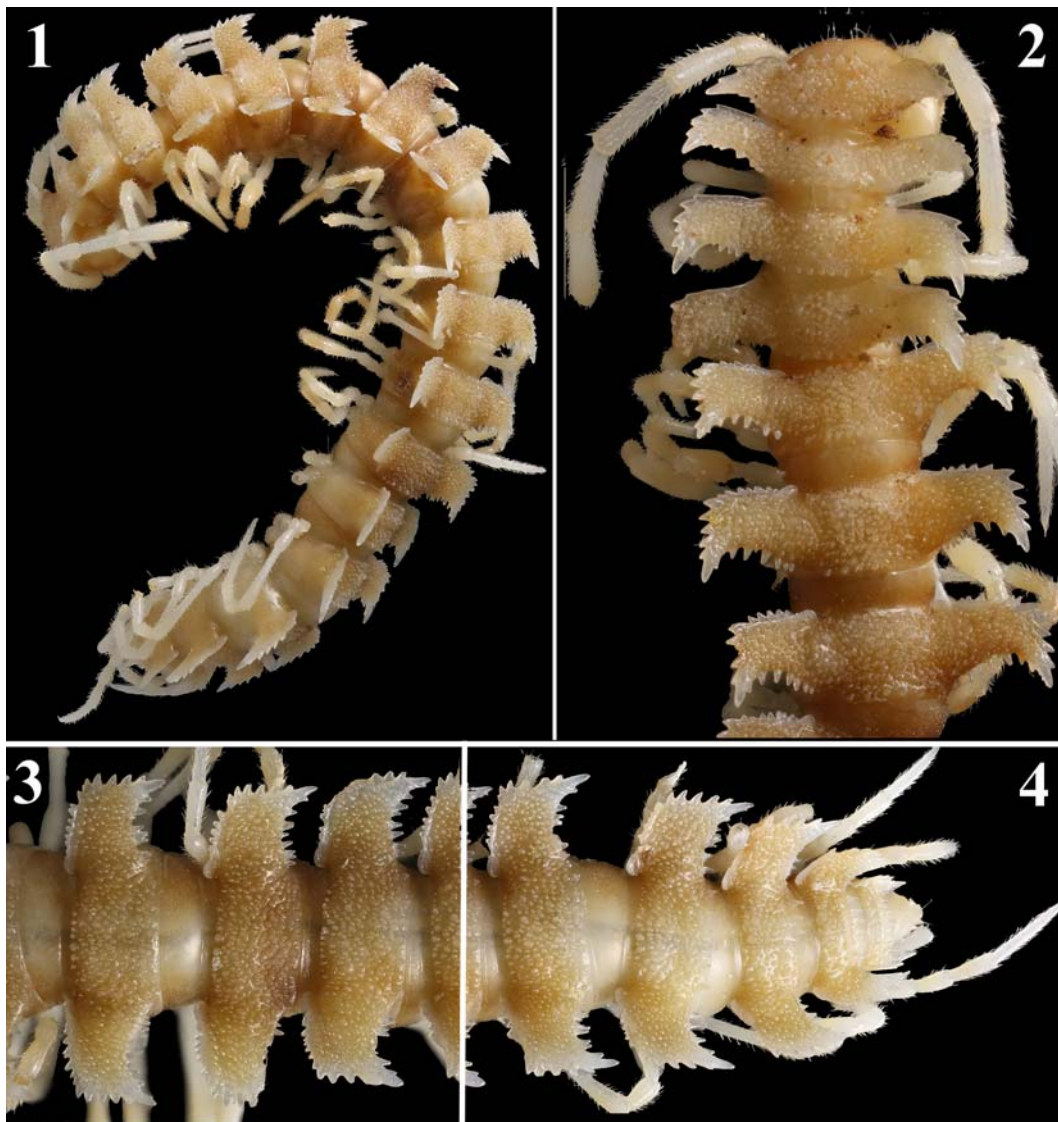
The sample underlying this contribution is fully housed in the Zoological Museum of the State University of Moscow (ZMUM), Russia. The pictures were taken with a Canon EOS 5D digital camera and stacked using Zerene Stacker software. Final image processing was performed with Adobe Photoshop CC.

Taxonomic part

Genus *Peruprion* Verhoeff, 1941

Syn.: *Watoporus* Chamberlin, 1955, synonymized by Kraus [1956].

DIAGNOSIS. A genus of Chelodesmidae with 20 body rings, prominent and upturned paraterga showing conspicuously indented margins, strongly microgranulate metaterga and paraterga, and usual, vague or invisible ozopores,



Figs 1–4. *Peruprion crassifemorum* sp.n., ♂ paratype. 1 — habitus, sublateral view; 2–4 — anterior, middle and posterior parts of body, respectively, dorsal view. Photographs by K. Makarov, not taken to scale.

Рис. 1–4. *Peruprion crassifemorum* sp.n., паратип ♂. 1 — общий вид, почти сбоку; 2–4 — соответственно передняя, средняя и задняя части тела, сверху. Фотографии К. Макарова, сняты без масштаба.

coupled with a simple ovoid gonopod aperture and relatively simple gonopodal conformation: coxites subcylindrical, loosely connected medially along midline by only a poorly developed and fully membranous sternite, the latter devoid of chitinized sternal remnants; telopodite typical of most Chelodesminae, bipartite, prefemorate about $\frac{1}{4}$ as long as acropodite, both solenomere and postfemoral process subequal, suberect and slender, tightly appressed to each other, solenomere clearly constricted at midway; seminal groove mostly mesal, only distally moving laterad to terminate apically on a very short solenomere.

Peruprion crassifemorum sp.n.
Figs 1–19.

HOLOTYPE ♂ (ZMUM), Peru, Junin Prov., Rio Perene, 15 km NE of Puerto Oçopa, 1100 m a.s.l., 19.I.2007, A. Petrov leg.

PARATYPES: 2 ♂♂, 4 ♀♀ (ZMUM), same place, together with holotype.

NAME. To emphasize the slightly, but clearly enlarged ♂ femora 5–7.

DIAGNOSIS. Based on the available descriptions and illustrations [Verhoeff, 1941; Chamberlin, 1955; Kraus, 1956, 1959], *Peruprion crassifemorum* sp.n. differs readily from all congeners by the generally light colouration. Yet it seems to be particularly similar to *P. affine*, because both species compared share the presence of paramedian sternal cones only between ♂ coxae 3, coupled with the absence of ozopores even from ring 5 and virtually the same gonopodal structure [Kraus, 1956]. Both differ, however, not only in the generally light colouration in *P. crassifemorum* sp.n., but also in the slightly, but clearly enlarged ♂ femora 5–7 (Figs 5–12).

DESCRIPTION. Length of holotype ca 28 mm, width of midbody pro- and metazonae 2.0 and 4.0 mm, respectively



Figs 5–8. *Peruprion crassifemorum* sp.n., ♂ paratype, anterior part of body, dorsal, left lateral, right lateral and ventral views, respectively. Photographs by K. Makarov, not taken to scale.

Рис. 5–8. *Peruprion crassifemorum* sp.n., паратип ♂, передняя часть тела, соответственно сверху, слева сбоку, справа сбоку и снизу. Фотографии К. Макарова, сняты без масштаба.

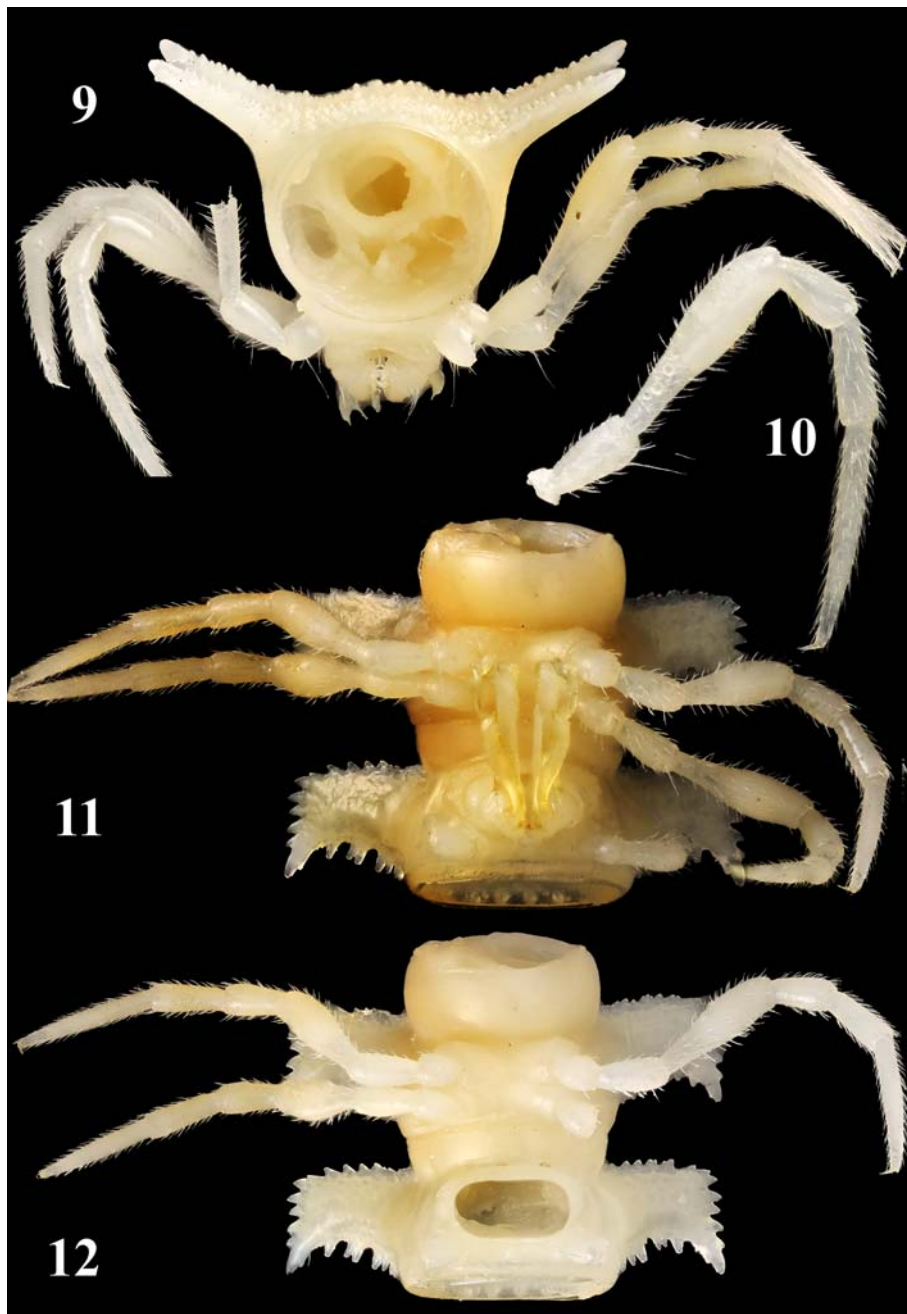
(♂). Paratypes ca 27–29 mm long (♂, ♀), width of midbody pro- and metazonae 1.9 and 3.8 mm (♂) or 3.2–3.5 and 4.7–5.0 mm (♀), respectively.

Colouration in alcohol uniformly light brown to nearly pallid; antennae, venter, sides of paraterga and legs usually even lighter, up to pallid (Figs 1–12). Body with 20 segments.

Tegument mostly dull, texture very delicately shagreened. Head pilose nearly throughout, with squarish genae and a distinct epicranial suture. Antennae very long and slender;

in length, antennomeres $2=3=4=5=6>>1=7$, with four apical cones on antennomere 8. Interantennal isthmus about as large as diameter of antennal socket (Figs 5, 8).

In width, head \ll collum $<$ ring $2 < 3 < 4 < 5=15$, thereafter body gradually tapering towards telson (Figs 1–4). Paraterga very strongly developed, set high (at about upper $\frac{1}{4}$ of midbody height), starting with collum, dorsum subhorizontal (♂) to faintly convex (♀); paraterga very broad and wing-shaped, but short, sigmoid and clearly upturned above dorsum (♂) or considerably broader and slightly de-



Figs 9–12. *Peruprion crassifemoratum* sp.n., ♂ paratype. 9 — body rings 7 and 8, posterior view; 10 — detached leg 7, lateral view; 11 — body rings 7 and 8 with intact gonopods *in situ*, ventral view; 12 — body rings 7 and 8 with removed gonopods, ventral view. Photographs by K. Makarov, not taken to scale.

Рис. 9–12. *Peruprion crassifemoratum* sp.n., паратип ♂. 9 — туловищные сегменты 7 и 8, сзади; 10 — изолированная нога 7, сбоку; 11 — туловищные сегменты 7 и 8 с интактными гоноподами на месте, снизу; 12 — туловищные сегменты 7 и 8 с вычлененными гоноподами, снизу. Фотографии К. Макарова, сняты без масштаба.

clivous, leaving the dorsum convex (♀). Anterior shoulders of paraterga bordered and mostly straight to only slightly rounded, caudolateral corner of paraterga spiniform and (nearly) pointed, postcollum ones extending increasingly past rear tergal margin, clearly narrowed, subacute and directed caudad (Figs 1–8). Collum generally crescent-shaped, regularly and clearly rounded anterolaterally, but straight, dentate and drawn back centrally (Figs 2, 5). Metaterga very

densely and rather regularly microtuberculate, paraterga even more distinctly and more roundly dentate at all margins (Figs 1–9, 11, 12). Ozopores totally wanting even on ring 5. Neither tergal setae nor axial line, nor pleurosternal carinae. Stricture between pro- and metazona wide, shallow and smooth. Limbus very thin and entire. Epiproct short and coniform, microtuberculate above and denticulate on sides (Fig. 4). Hypoproct low and subtrapeziform; caudal, para-



Figs 13–19. *Peruprion crassifemuratum* sp.n., ♂ paratype. 13–15 — both gonopods in block, dorsal, lateral and posterior views, respectively; 16–19 — left gonopod, lateral, dorsal, mesal and posterior views, respectively. Photographs by K. Makarov, not taken to scale. Abbreviations: **A** — acropodite; **b** — apicolateral spine; **PfP** — prefemoral process; **sl** — solenomere.

Рис. 13–19. *Peruprion crassifemuratum* sp.n., паратип ♂. 13–15 — оба гонопода в блоке, соответственно сверху, сбоку и сзади; 16–19 — левый гонопод, соответственно сбоку, сверху, изнутри и сзади. Обозначения: **A** — акроподит; **b** — вершинно-боковой шип; **PfP** — предбедренный отросток; **sl** — соленомер.

median, setigerous papillae very small and well separated. Sterna without modifications except for a pair of separate paramedian cones between ♂ coxae 3 (Fig. 8). Legs very long and slender, ca 1.9–2.0 (♂) or 1.2–1.3 times (♀) as long as midbody height, densely setose, claws simple, ♂ femora 5–7 slightly, but clearly enlarged (Figs 6–12). In length, tarsus = femur > tibia > prefemur = postfemur > coxa (Fig. 10).

Each ♂ gonopore equipped with a short, vermiform, sigmoid apophysis (Fig. 8). Gonopod aperture very simple and strictly ovoid (Fig. 12).

Gonopods (Figs 11, 13–19) with large, subcylindrical, distoventrally poorly setose coxites loosely fused medially at base through a membranous sternite, the latter devoid of

sclerotized remnants; a short, simple and unciform cannula, as usual. Telopodite elongate, simple and suberect, prefemorate (= densely setose part) about third as long as entire telopodite; the latter clearly bipartite, divided basally into similarly high, simple and erect branches, lateral one a more slender acropodite (**A**), clearly constricted at midway and apically supplied with a twisted, retrorse, squarish lobule with a very short and dentiform solenomere (**sl**), and a thicker, mesal, club-shaped, prefemoral process (**PfP**), rounded apically and carrying a small, sharp, subapical, lateral tooth (**b**).

REMARKS. The genus *Peruprion* presently encompasses five medium-sized species, all ranging from southern to central Peru, at least some of them, including *P. crassifemo-*

ratum sp.n., coming from the eastern macro slope of the Andes. Even though Means *et al.* [2023] have recently mapped only two species of *Peruprion* as populating the Tropical Andes Biodiversity Hotspot, actually all species of this genus can generally be characterized as tropical, restricted to lowland to mid-montane, apparently Amazonian rainforest habitats within the same hotspot.

Compliance with ethical standards

CONFLICTS OF INTEREST: The authors declare that they have no conflicts of interest.

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References

- Chamberlin R.V. 1955. New millipeds from Peru and adjacent parts // University of Utah Biological Series. Vol.11. No.5. P.1–47.
- Kraus O. 1956. Myriapoden aus Peru, IV // Senckenbergiana biologica. Bd.37. Nr.1/2. S.139–165.
- Kraus O. 1959. Myriapoden aus Peru, VII // Senckenbergiana biologica. Bd.40. Nr.3/4. S.191–208.
- Means J.C., Bouzan R.S., Iniesta L.F.M., Martínez-Torres D., Vasquez-Valverde L.F., Brescovit A.D., Ivanov K. 2023 (in press). A review of the monotypic tribe Dibolostethini (Chelodesmidae: Chelodesminae) with description of two new species and a summary of the Chelodesmidae of the Tropical Andes Biodiversity Hotspot // European Journal of Taxonomy.
- Verhoeff K.W. 1941. Chilopoden und Diplopoden // Titschack E. (Hrsg.). Beiträge zur Fauna Perus. Hamburg. Bd.1. H.2. S.5–80.

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