FRAGMENTA FAUNISTICA 47 (1): 39–45, 2004
PL ISSN 0015-9301 © MUSEUM AND INSTITUTE OF ZOOLOGY PAS

Redescription of the East Carpathian millipede *Ochogona (Beskidia) jankowskii* (Jawłowski, 1938) (Diplopoda, Chordeumatida, Craspedosomatidae)

Jolanta WYTWER* and Sergei I. GOLOVATCH**

*Museum and Institute of Zoology, Polish Academy of Sciences, Wilcza 64, 00-679 Warszawa, Poland; e-mail: jolawyt@robal.miiz.waw.pl
** Institute for Problems of Ecology and Evolution, Russian Academy of Sciences, Leninsky pr. 33, Moscow 119071 Russia; e-mail: sgol@orc.ru

Abstract: The East Carpathian millipede *Ochogona jankowskii* (Jawłowski, 1938), more frequently referred to as *Beskidia jankowskii* (Jawłowski, 1938), is properly redescribed based on material from the Bieszczady Mountains of Poland. *Beskidia* Jawłowski, 1938 is confirmed as probably representing a "good" subgenus of the prolific Western and Central European genus *Ochogona* Cook, 1895.

Key words: Diplopoda, Craspedosomatidae, Atractosomatini, *Beskidia*, taxonomy, Carpathians

INTRODUCTION

Ochogona jankowskii (Jawłowski, 1938) is perhaps the most enigmatic element in the millipede fauna of Poland. Jawłowski (1938) first described this species as *Ceratosoma (Beskidia) jankowskii* based on a male and a female taken from near Skole, Stryi District, Lvov Region (now in the Ukrainian part of Bieszczady Mountains), Beskid Mountain Range, Eastern Carpathians. The voluminous and medially fused syncoxite of the anterior gonopods, the unusually caudal position of the cheirites which are about as high as the syncoxite, and the especially strongly reduced, spiniform posterior gonopods of this species seemed so striking and disjunct that Jawłowski established a new subgenus, *Beskidia* Jawłowski, 1938, which he himself suggested as possibly warranting the rank of full genus. Indeed, *Beskidia* has since become more frequently considered as a monotypic genus (Jawłowski 1939, Stojałowska 1961, Stojałowska & Staręga 1974, Jaśkiewicz 1978, Jędryczkowski 1979), while *B. jankowskii* has since been recorded from one locality in the Beskid Niski Mountains (Jaśkiewicz 1978) and from three localities in the Bieszczady of Poland (Jędryczkowski 1979).

Only rather recently has *Beskidia* been treated, together with further seven genus-group names, as a subgenus or strict synonym of *Ochogona* Cook, 1895, the latter taxon known as a senior subjective synonym of *Ceratosoma* Verhoeff, 1897 (cf. Hoffman 1980). In general, *Ochogona* is a relatively large and widespread genus or supergenus encompassing about 20 species, most of which are endemic to the Alps and/or adjacent parts ("Fauna Europaea" website, in preparation). Among the congeners, *O. jankowskii* is the easternmost representative confined to the eastern Carpathians of Poland and Ukraine (Fig. 1). Such a distribution largely repeats that of the entire family Craspedosomatidae (about 25 genera) ranging from France and Great Britain in the west to the Carpathians, Belarus and Baltic states in the east, and from Scandinavia in the north to the Balkans in the south. Following Spelda (2001), *Ochogona* belongs in the tribe Atractosomatini which contains over a half of the family's generic diversity.

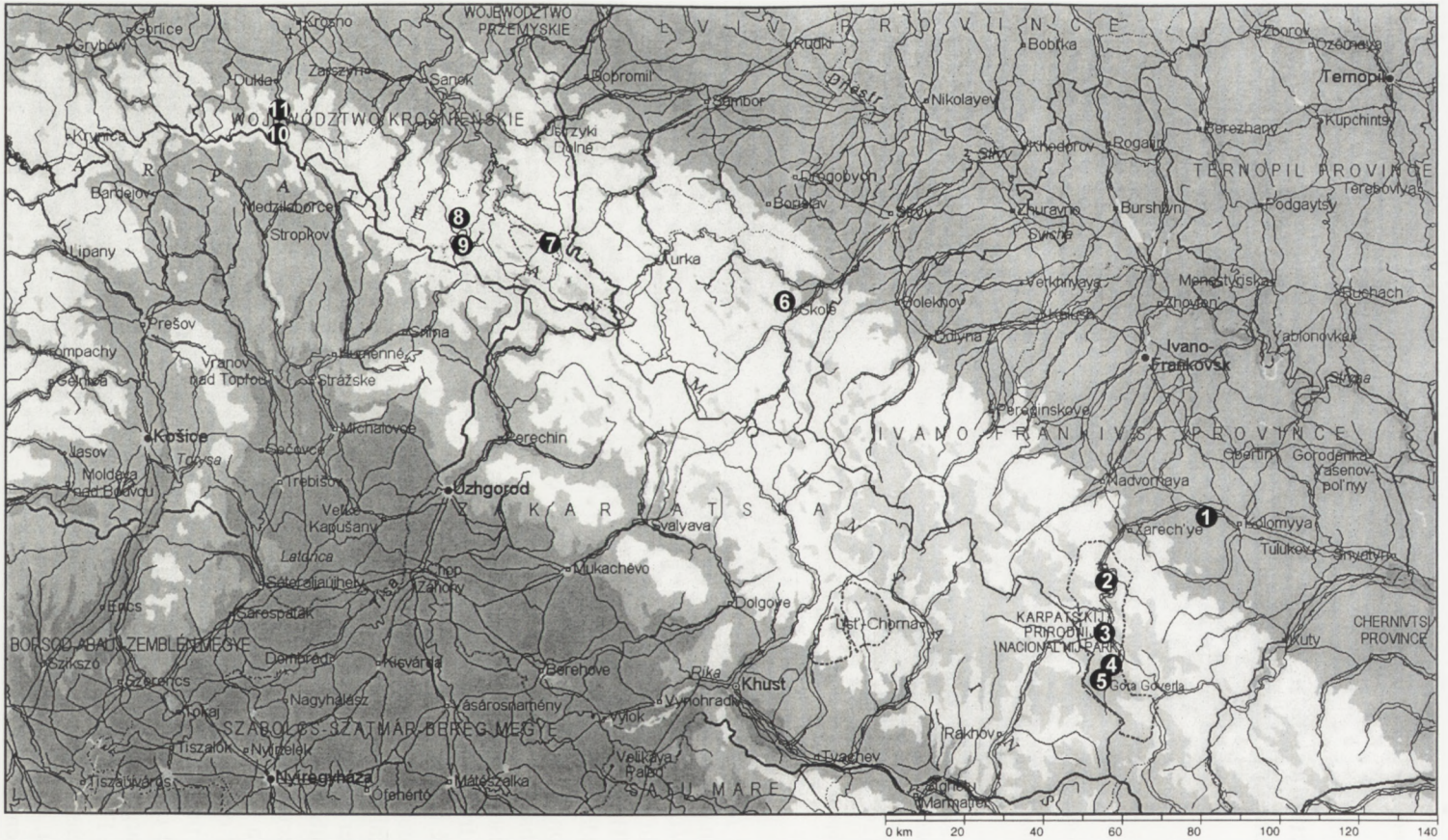


Fig. 1. Distribution map of *Ochogona jankowskii* (Jawłowski, 1938); 1–6 – localities given by Jawłowski (1936): 1 – Kniaz'dvor (11.5 km west of Kolomyja), 2 – Mykulyčyn (forest on the southern side near Prut River), 3 – Vorochta (valley of Prut River), 4 – Foreščenka (at foot of Mt.: Hoverla, near and above Prut River), 5 – Mt. Hoverla (at the border between spruce and dwarf mountain pine belts as well as within the dwarf mountain pine belt), 6 – Skole, vicinity of Stryj (Jawłowski 1938), 7–9 – localities given by Jędryczkowski (1979): 7 – Dwernik (Mt. Średni Wierch), 8 – Cisna (Mt. Jasiennik), 9 – Cisna (Mt. Rożki); 10–11 – localities given by Jaśkewicz (1978): 10 – Barwinek, 11 – Tylawa (valley of Jasiołka River).

As the original description of *O. jankowskii* remains quite deficient, below we redescribe this poorly-known species based on the very same material referred to, without full information though, by Stojałowska & Staręga (1974) and Jędryczkowski (1979). This material must have been dried and later relaxed; it is currently kept in the collection of the Museum and Institute of Zoology of the Polish Academy of Sciences, Warsaw. Our description follows the pattern advanced recently by Spelda (2001) and slightly improved by Golovatch & Wytwer (2003).

Redescription

Ochogona jankowskii Jawłowski, 1938

(Figs 2-18)

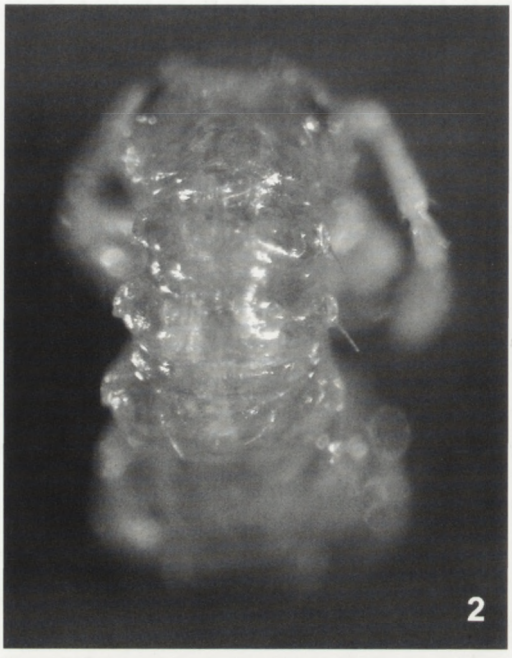
Material: 2 ♂♂, 1 ♀, Poland, Bieszczady Mts, Ustrzyki Dolne Distr., Dwernik, Mt. Średni Wierch, SE slope, ca. 600 m a.s.l., stream valley, *Picea, Abies, Alnus* mixed forest, 03.11.1962, leg. C. Dziadosz & W. Staręga; 1 ♂, Bieszczady Mts, Lesko Distr., Cisna, Mt. Jasiennik, W slope, ca. 700–750 m a.s.l., stream valley, *Picea, Abies, Fagus* mixed forest, 01.11.1963, leg. W. Staręga; 1 ♂, Bieszczady Mts, Lesko Distr., Cisna, Mt. Rożki, N slope, ca. 600–700 m a.s.l., *Picea, Abies, Fagus* and *Acer* mixed forest, 02.11.1963, leg. W. Staręga, all det. C. Dziadosz.

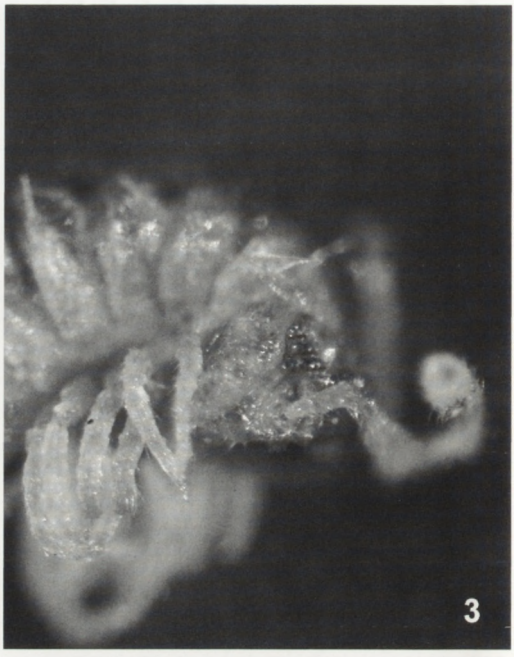
Description: Length 12-13 mm (against 6 mm given in the original description but later Jawłowski (1939) corrected it in a footnote as reaching at least 11 mm), width of midbody segments 0.8–0.9 and 1.0-1.1 mm on pro- and metazona, respectively (♂, ♀). Colour uniform pallid, only eye patches dark brown (not mentioned in the original description).

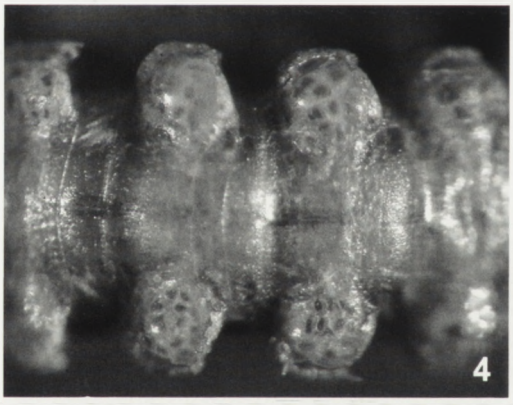
Body with 30 segments including telson (29 pleurotergites, or rings, following Enghoff *et al.* 1993) in both sexes. In width, head = body segment 3 > 2 >> collum ≤ 4 < 5 < 6–10 =24 (Fig. 2), caudal body portion very gently and gradually tapering toward telson. Clypeolabral region distinctly flattened and slightly concave (♂) (Fig. 3) or slightly convex (♀). Eye patches triangular, each composed of ca. 28 convex ocelli. Antennae medium-sized (Figs 2 & 6), relatively slender, in situ reaching the end (♂) or midway (♀) of body segment 4 dorsally; antennomere 7 with three small but evident distodorsal sensilla (Fig. 9). Gnathochilarium (Fig. 10) with a promentum, each lamella lingualis with a more or less longitudinal row of 6–7 setae; all palps crowned with similar, rather uniform sensory cones. Collum usual, obcordate in shape (Figs 2 & 6). Teguments smooth but dull. Metatergal setation 3+3, typical, macrochaetae medium-sized, setiform, normally pointed, positioned on minute knobs in a transverse triangle on each side, subequal in length all over, their arrangement on segments (6)7–22(23) remaining the same; stricture between pro- and metazona rather shallow, inconspicuous (Figs 2–8).

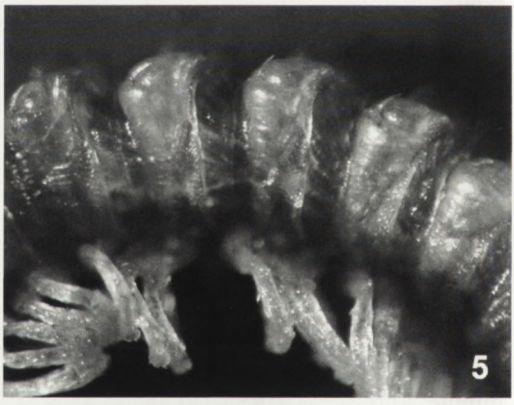
Paraterga prominent, placed subhorizontally about as high as dorsum (Figs 2–8), set off dorsally by a peritreme, never produced caudally beyond rear tergal contour. Transverse sulcus separating caudal 1/3 of metatergum evident.

Macrochaetal index CIX (15), i.e. (distance between exterior and median macrochaetae) / (distance between interior and median macrochaetae) = 0.77. Median index MIX (15), i.e. (distance between interior macrochaeta and axial suture) / (distance between interior and median macrochaetae) = 0.68. The macrochaetal angle between the arm created by the median and exterior macrochaetae and the arm formed by the median and interior macrochaetae, MA (15) = 78°. Paratergal index PIX (15), i.e. (width of metazonite with paraterga) – (width of prozonite) / 2 x (length of paratergum) = 0.38. Axial suture distinct, usual; ♂ segment 7 unmodified, as wide as adjacent segments, its pleurotergal lobes devoid of apophyses, normal like in other segments (Fig. 7). Rear tergal limbus indistinct (Fig. 12).









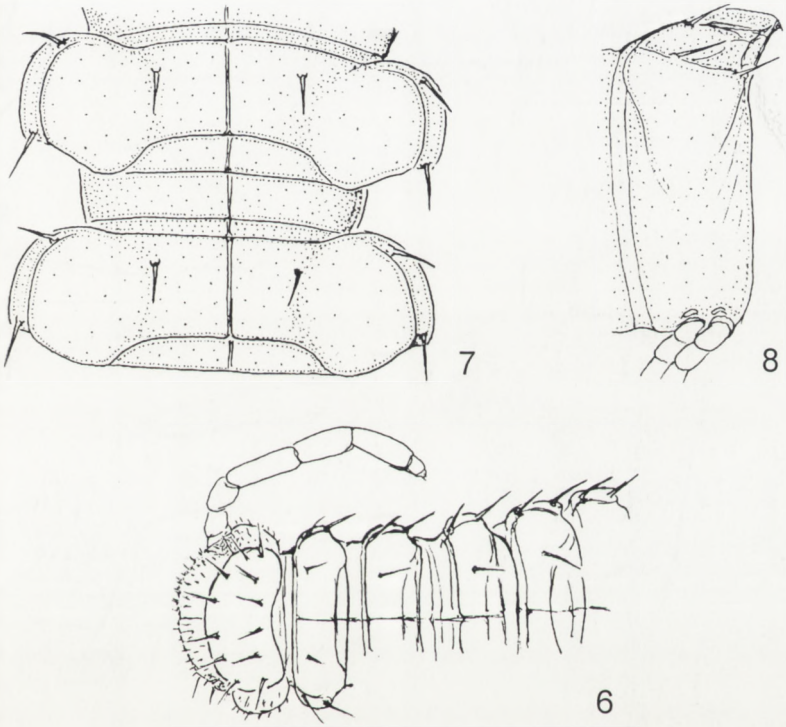
Figs 2–5. Photographs of a ♂ of *Ochogona jankowskii* (Jawłowski, 1938) from Dwernik: 2 & 3 – anterior body part, dorsal and lateral views, respectively; 4 & 5 – midbody segments, dorsal and lateral views, respectively. (Taken without scale).

Legs 1 & 2 slightly reduced as usual, tarsal brushes present, penes absent. Midbody legs longer than (♂) or subequal to body height (♀), gradually growing in length toward telson, sometimes very slightly incrassate in ♂; postgonopodial ♂ coxae as well as sometimes ♂ prefemora micropapillate ventrally (Figs 12 & 13); ♂ coxa 7 with a conspicuous distoventral protuberance drawn caudally (Fig. 11); tarsal papillae present from ♂ leg 3 on, gradually shifted toward claw to come to naught toward legs of posterior 1/4 body. In both sexes, sternite of each leg pair with a usual, lanceolate, median protuberance, main claw invariably with two minute accessory claws dorsally (Fig. 14); ♂ legs 10 (Fig. 12) and 11 with typical coxal glands and ventromedian protuberances.

Anterior gonopods (Figs 15 & 16) voluminous, coxites fused medially, curved distocaudally, on each side with a stout distolateral branch supporting rows of palisade-like

bars (= Grannenapparat), spines and setae both antero- and posterolaterally, each branch with three lappets/spikes ventrally at base; cheirites (Figs 15–17) as high as coxites, lying caudolaterally, subcontiguous at base, each somewhat ribbed laterally, with two parabasal protuberances of irregular shape and a prominent sharp tooth apically. Posterior gonopods extremely simple (Figs 12 & 18), slightly curved caudally, subspiniform, their base somewhat enlarged, with traces of neither telopodites nor median sternal structures.

Vulvae in situ rather prominent, setose, not examined because of imperfect condition of material.

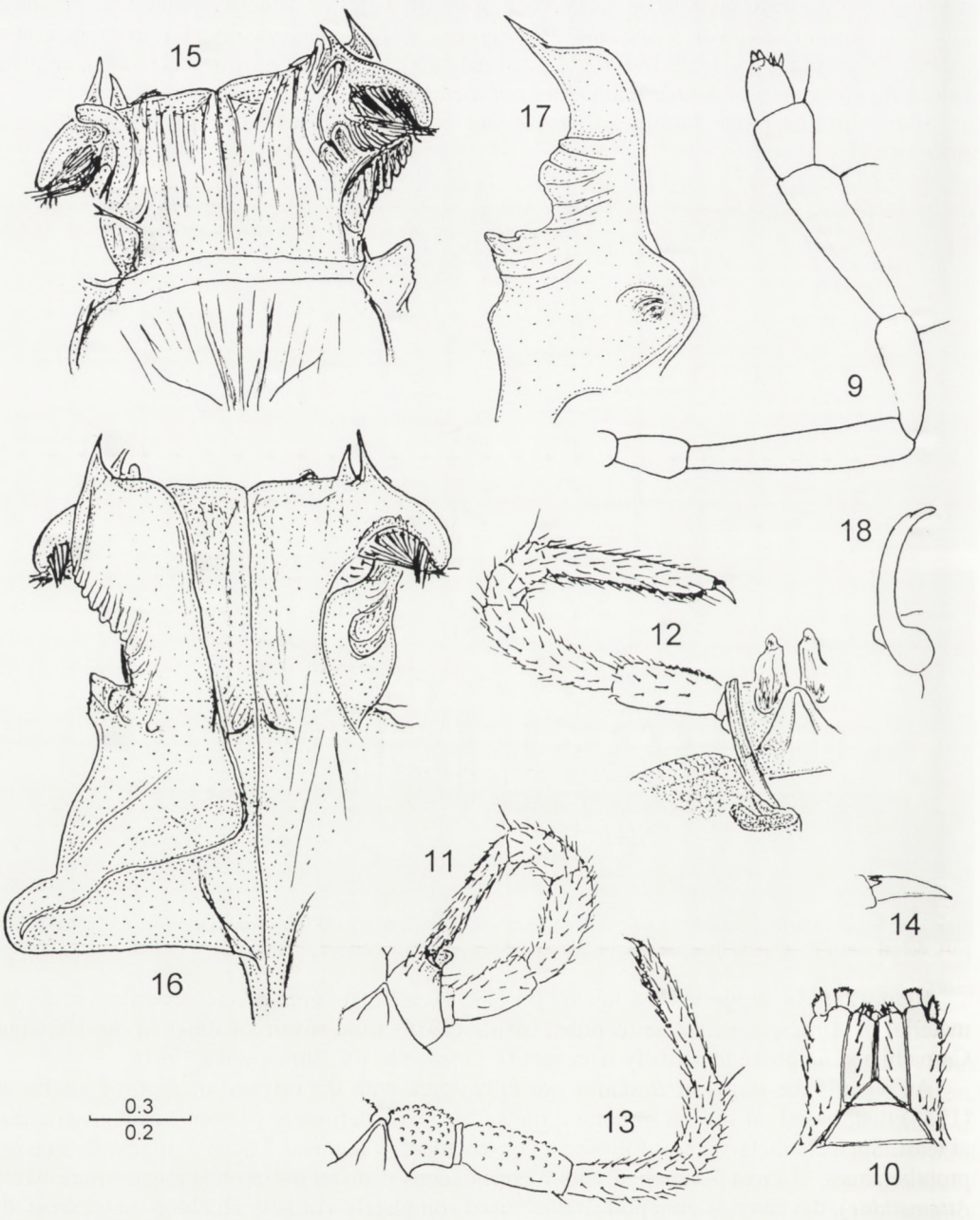


Figs 6–8. Some external characters of *Ochogona jankowskii* (Jawłowski, 1938), ♂ from Dwernik: 6 – anterior body part, dorsal view; 7 – two midbody segments, dorsal view; 8 – midbody segment, lateral view. (Taken without scale).

Remarks: As suggested by Jawłowski (1938), at least some of the juvenile and female material of *Atractosomatini* he recorded earlier (1936) from seven localities in the Ukrainian Carpathians can prove to actually represent *O. jankowskii* (cf. Stojałowska 1961).

As regards the status of *Beskidia,* we fully agree with the original opinion of Jawłowski (1938) that, based on several important traits, this taxon definitely warrants a subgeneric rank at least. Such characters are as follows: a non-enlarged ♂ segment 7 devoid of any pleurotergal protuberances, ♂ coxa 7 supplied with a conspicuous distoventral protuberance (more like in *Attemsiidae*), the anterior gonopod coxites fused completely virtually all along their extent, the cheirites lying rather caudally than laterally and remaining on the posterior face almost in touch parabasally (resembling the condition in *Chelogona* Cook, 1895, a monobasic contribal genus from Tatra Mountains in Slovakia and Poland), the posterior gonopods subspiniform, very strongly reduced and apparently devoid of any telopodite vestiges. Even the recognition of *Beskidia* as a "good" genus is acceptable, but this must await a complete revision of at least

some more Craspedosomatidae, more specifically the largely still obscure "subgenera" of *Ochogona* (cf. Hoffman 1980). A good start in this direction is Spelda's (2001) work.



Figs 9–18. Some somatic and sexual characters of *Ochogona jankowskii* (Jawłowski, 1938), ♂ from Dwernik: 9 – antenna, lateral view; 10 – gnathochilarium, ventral view; 11 – leg 7; 12 – leg 10 together with pleurotergum 7 and attached left posterior gonopod; 13 – leg 12; 14 – claw; 15 & 16 – anterior gonopods, front and caudal views, respectively (left cheirite removed); 17 – left cheirite, subfront view; 18 – right posterior gonopod attached to pleurotergum 7, subventral view. Scale bar = 0.2 mm (Figs 9–13 & 18), 0.3 mm (Figs 15–17), drawn not to scale (Fig. 14).

ACKNOWLEDGEMENTS

We are most grateful for the support rendered to us through the Polish-Russian interacademician cooperation programme. Both Prof. Henrik Enghoff (Copenhagen, Denmark) and Dr Karel Tajovský (Ćeske Budejovice, Czech Republic) provided constructive criticism of an advanced draft.

REFERENCES

GOLOVATCH S.I. & WYTWER J. 2003. A new genus and species of the millipede family Altajellidae from eastern Kazakhstan, Central Asia (Diplopoda: Chordeumatida). Annales Zoologici 53 (3): 579–584.

ENGHOFF H., DOHLE W. & BLOWER J.G. 1993. Anamorphosis in millipedes (Diplopoda) – the present state of knowledge with some developmental and phylogenetic considerations. Zoological Journal of Linnean Society 109: 103–234.

HOFFMAN R.L. 1980 (for 1979). Classification of the Diplopoda. Muséum d'histoire naturelle, Genève, 237 p.

JAŚKIEWICZ W. 1978. Nowe stanowiska rzadko notowanych w Polsce gatunków Diplopoda. Folia Societatis Scientiarum Lublinensis (Biol.) 20 (2): 55–60.

JAWŁOWSKI H. 1936. Krocionogi poludniowo-wschodniej Polski. Fragmenta faunistica Musei Zoologici Polonici 2 (25): 253–298.

JAWŁOWSKI H. 1938. *Ceratosoma (Beskidia) jankowskii* n. subg., n. sp., nebst Bemerkungen über einige interessanten Diplopoden-Arten aus Polen. Annales Musei Zoologici Polonici 13 (11): 109–114.

JAWŁOWSKI H. 1939. Verzeichnis der bisher bekannten Diplopoden-Arten Polens. Fragmenta faunistica Musei Zoologici Polonici 4 (10): 211–219.

JĘDRYCZKOWSKI W. 1979. Krocionogi (Diplopoda) Bieszczadów. Fragmenta faunistica 25 (6): 77–94.

SPELDA J. 2001. Review of the millipede genus *Pterygophorosoma* Verhoeff, 1897 (Diplopoda, Chordeumatida, Craspedosomatidae). Andrias 15: 29–48.

STOJAŁOWSKA W. 1961. Krocionogi (Diplopoda) Polski. Warszawa, PWN, 216 p.

STOJAŁOWSKA W. & STARĘGA W. 1974. Krocionogi Diplopoda. Katalog fauny Polski 14, 2, 71 p.

STRESZCZENIE

[Redeskrypcja wschodnio-karpackiego krocionoga *Ochogona (Beskidia) jankowskii* (Jawłowski, 1938) (Diplopoda, Chordeumatida, Craspedosomatidae)]

Wschodnio-karpacki krocionóg *Ochogona jankowskii* (Jawłowski, 1938), częściej wymieniany jako *Beskidia jankowskii* (Jawłowski, 1938), został na nowo i wyczerpująco opisany na podstawie materiału z polskich Bieszczadów. Takson *Beskidia* Jawłowski, 1938 jest tu rozważany jako „dobry podrodzaj" dość zróżnicowanego rodzaju *Ochogona* Cook, 1895 rozprzestrzenionego w zachodniej i centralnej Europie. Możliwe jednak, że przyszłe rewizje w rodzinie Craspedosomatidae, zwłaszcza rodzaju *Ochogona*, doprowadzą do wydzielenia odrębnego rodzaju *Beskidia*.

Accepted: 12 February 2004