

First record of *Mesocyclops ogunnus* Onabamiro, 1957 from Kazakhstan (Crustacea: Cyclopidae)

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Mesocyclops ogunnus Onabamiro, 1957 with tropical distribution is recorded from Kazakhstan for the first time; that represents the northernmost record of the species from the Asian part of its range.

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Introduction

Mesocyclops ogunnus Onabamiro, 1957 is distributed from West Africa as far as Japan. The species was first described from waterbodies of Africa and later found in Israel (Van de Velde, 1984), southeastern Asia, and Uzbekistan (Mirabdullaev, 1996); populations recently discovered in the Cayman Islands and Brazil are considered to be introduced (Suñrez-Morales et al., 1999; Hoiynska et al., 2002). The northernmost record of *M. ogunnus* from Africa is in Algeria, and from Asia, in Uzbekistan. The finding of the species in Kazakhstan represents the northernmost record of *M. ogunnus* from the Asian part of its range and defines more precisely its distribution. A brief description of the female and male of the species is given.

Material and methods

The material was collected in the Kapshagay Reservoir and the Ily River, southeastern Kazakhstan, in August of 1998. Zooplankton samples were obtained with 80 µm mesh conical nets (Judy net) and preserved in 3-4% formaldehyde.

The terminology and abbreviations follow those of Ueda & Reid (2002): body length – total length excluding caudal setae; pediger 5 (urosomite 1) – fifth pedigerous somite; P1-P4 – thoracopods (legs 1-4); Lart:Wart – ratio of length to width of P4enp3; Spm:SpL – ratio of lengths of apical medial and lateral spines of P4enp3; S1-S4 – caudal setae of the caudal ramus; the caudal setae are numbered from the medialmost terminal caudal seta.

Description

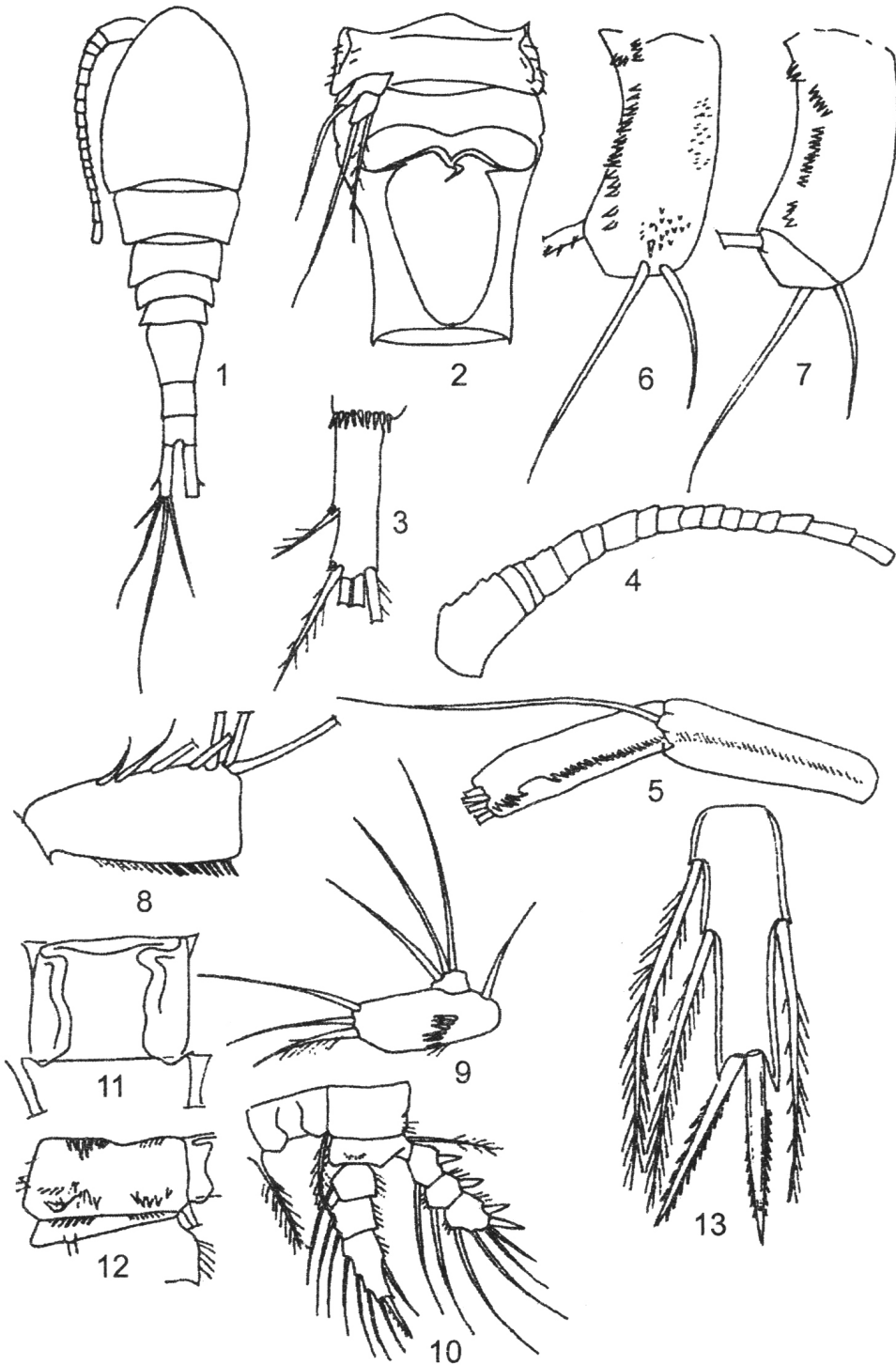
Female (Figs 1-13). Body length 1.05-1.15 mm, mean 1.08 mm. Cephalothorax length/width: 1.09-1.1; cephalothorax width/genital double-somite width: 2.67. Pediger 5 laterally and dorsally with setules; genital double-somite 1.33 times as long as wide. Lateral arms of seminal receptacle wide and short. Transverse ducts directed toward each other at acute (V-shaped) angle. Copulatory duct strongly curved. Posterior margin of anal somite with spinules. Caudal ramus without setules on inner side, 2.71 times as long as wide; implantations of lateralmost terminal caudal seta and lateral caudal seta provided with spinules. Relative lengths of terminal caudal setae from medialmost to lateralmost: 3.1, 6.5, 4.5, 1.0.

Antennule: hyaline membrane of segment 17 with one deep notch and many small irregular notches.

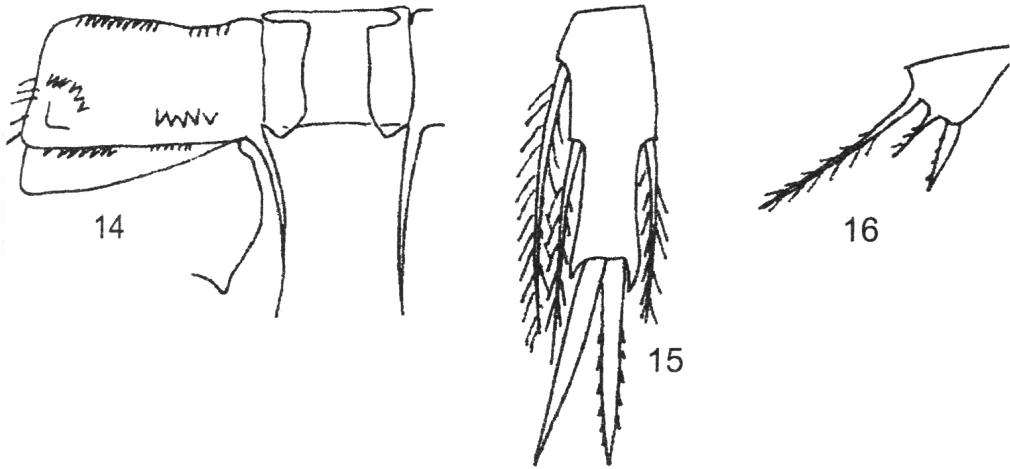
Antenna. On caudal surface of basipodite, pattern of spinules, including a group of one large spinule and many small spinules next to implantation of medial setae; a group of 16-17 spinules in longitudinal row, and medially to longitudinal row a group of fine diffuse spinules. On the frontal surface of basipodite, 17-19 spinules. Enp 2 armed with 7 setae.

Maxillulary palp with group of large spinules.

P1 basipodite lacking medial spine. Frontal surface of P1 basipodite with spinules in semi-circular arch; distal margin of P4 coupler bearing 2 small obtuse prominences. Spinule ornamentation on caudal surface of P4 including 12 spinules in intermittent row along distal rim, the



Figs 1-13. *Mesocyclops ogunnus* Onabamiro, female. 1, habitus; 2, pediger 5 and genital double-somite; 3, caudal ramus, ventral; 4, antennule; 5, last two segments of antennule; 6, antennary basipodite, caudal; 7, antennary basipodite, frontal; 8, enp2 of antenna; 9, maxillary palp; 10, P1 with coupler; 11, P4 coupler; 12, coxopodite of P4, caudal; 13, P4Enp3. Scales: 0.2 mm (1), 0.05 mm (2-3), 0.1 mm (4, 10), 0.025 mm (5-9, 11-13).



Figs 14-16. *Mesocyclops ogunnus* Onabamiro, male. 14, coxopodite of P4 with coupler; 15, P4enp3; 16, P6. Scales: 0.025 mm.

Table. Morphometry of *Mesocyclops ogunnus* Onabamiro from different parts of its range.

	Nigeria*	Africa**	Uzbekistan***	Kazakhstan (new data)
Cephalothorax: L:W	1.00	1.02	–	1.09-1.10
Genital somite: L:W	1.10	1.57	–	1.30-1.70
Furcal rami: L:W	3.10-3.30	2.70	2.70-3.10	2.71-2.78
Body length, mm	1.00-1.30	0.99	1.00-1.15	1.05-1.10
Enp3P4: Lart:Wart	2.50-3.00	2.46	2.60-3.20	2.89-2.93
Enp3p4: Spm:Spl	1.00 or >1.00	1.04	0.90-1.20	0.95-0.96
Caudal setae: S1:S4	2.86-2.89	2.56	–	2.50-3.13
S2:S4	5.80-6.01	5.91	–	5.00-6.50
S3:S4	3.93-4.01	3.91	–	3.50-4.50

* Onabamiro, 1957 (after Van de Velde, 1984); ** after Van de Velde, 1984; *** after Mirabdullaev, 1996.

group of 8 long spinules on laterodistal angle, 11 large and then 5 small spinules along proximal rim. The length of coxopodite seta 1.69 times the height of medial expansion of P4 basipodite. Enp3 of P4 2.83-2.88 times as long as wide; medial apical spine of P4enp3 0.95-0.96 times as long as lateral spine. Apical seta of P5 1.19 times, lateral seta 0.96 times as long as spiniform medial seta.

Male (Figs 14-16). Total body length 0.68 mm. Armature of caudal ramus as in female. Caudal ramus 2.71-2.78 times as long as wide. Pattern of spinules on caudal surface of antennal basipodite, maxillulary palp, P4 coxopodite and structure of P1-P4 as in female. In contrast to female, pediger 5 bare, prominences on distal

margin of P4 coupler more acute, and inner apical spine of P4enp3 without armature. Medial apical spine of P4enp3 0.96 times as long as lateral spine. P6 armed with 1 spine and 2 setae.

Discussion

Mesocyclops ogunnus is a rare cyclopid in Kazakhstan, at present known only from Kapshagay Reservoir and the Ily River, where it penetrates accidentally. In Uzbekistan, *M. ogunnus* is the most common representative of the genus *Mesocyclops*, and has been found in fishponds, ricefields, lakes and reservoirs (Mirabdullaev, 1996).

Biometrical data (Table) and the morphology of specimens from Kazakhstan correspond to the

description given by other authors (Hołynska et al., 2002; Mirabdullaev, 1996; Van de Velde, 1984). However, females from Kazakhstan have 7 setae on antennary enp2, the group of one large spinule and many small spinules next to the implantation of the medial setae of the antennary basipodite caudal surface, and obtuse prominences on the distal margin of the P4 coupler, whereas the Uzbekistani and African specimens have 8-9 setae on antennary enp2, the group of large spinules next to the implantation of the medial setae, and acute prominences on the distal margin of the P4 coupler. The described pattern of the antennary basipodite spinules is similar to that of *M. papuensis* (Van de Velde, 1987). However, these species can be distinguished by the shape of the P4 coupler prominences, presence of large spinules on the maxillulary palp, hairs on pediger 5 in *M. ogunnus*, and some other features.

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References

- Holynska, M., Reid, J.W. & Ueda, H.** 2002. Genus *Mesocyclops* Sars, 1914. In: Ueda, H. & Reid, J.W. (Eds). *Guides to the Identification of the Microinvertebrates of the Continental Waters of the World. Copepoda: Cyclopoida. Genera Mesocyclops and Thermocyclops*: 12-213. Leiden: Backhuys Publishers.
- Mirabdullaev, I.M.** 1996. The genus *Mesocyclops* (Crustacea: Copepoda) in Uzbekistan (Central Asia). *Int. Revue ges. Hydrobiol.*, **81**(1): 93-100.
- Suárez-Morales, E., McLelland, J. & Reid, J.** 1999. The planktonic copepods of coastal saline ponds of the Cayman Islands with special reference to the occurrence of *Mesocyclops ogunnus* Onabamiro, an apparently introduced Afro-Asian cyclopid. *Gulf Res. Rep.*, **11**: 51-55.
- Ueda, H. & Reid, J.W.** (Eds). 2002. *Guides to the Identification of the Microinvertebrates of the Continental Waters of the World. Copepoda: Cyclopoida. Genera Mesocyclops and Thermocyclops*. Leiden: Backhuys Publishers. 316 p.
- Van de Velde, I.** 1984. Revision of the African species of the genus *Mesocyclops* Sars, 1914 (Copepoda: Cyclopidae). *Hydrobiologia*, 109: 3-66.
- Van de Velde, I.** 1987. New *Mesocyclops* species (Copepoda, Cyclopidae) from Papua New Guinea. *Bull. Inst. roy. Sci. natur. Belg., Biol.*, **57**: 149-162.

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