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Notes on Aloninae Dybowski & Grochowski, 1894 *emend.* Frey, 1967 (Cladocera: Anomopoda: Chydoridae): 1. Translocation of *Alona incredibilis* Smirnov, 1984 to the genus *Nicsmirnovius* Chiambeng & Dumont, 1999

Заметки о подсемействе Aloninae Dybowski & Grochowski, 1894 *emend.* Frey, 1967 (Cladocera: Anomopoda: Chydoridae). 1. Перенос *Alona incredibilis* Smirnov, 1984 в род *Nicsmirnovius* Chiambeng & Dumont, 1999

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КЛЮЧЕВЫЕ СЛОВА: Cladocera, Anomopoda, Chydoridae, Aloninae, морфология, систематика, неотропическая зона, Южная Америка.

ABSTRACT: The examination of the type series of *Alona incredibilis* Smirnov, 1984 revealed that this species belongs to the genus *Nicsmirnovius* Chiambeng & Dumont, 1999.

РЕЗЮМЕ: Исследование типовой серии *Alona incredibilis* Smirnov, 1984 выявило, что этот вид принадлежит к роду *Nicsmirnovius* Chiambeng & Dumont, 1999.

Introduction

The Subfamily Aloninae Dybowski & Grochowski, 1894 *emend*. Frey, 1967 (Cladocera: Anomopoda) is a group of cladocerans now under intensive study. Although much work remains for systematists in large genera within this subfamily, some smaller genera are already re-evaluated according to a new standard of morphological investigation [Smirnov, 1998; Dumont & Silva-Briano, 2000; Kotov, 2000a, b]. Representatives of the newly separated genus *Nicsmirnovius* Chiambeng & Dumont, 1999 were reported in a series of publications [Chiambeng & Dumont, 1999; Van Damme et al., 2003; Kotov & Sanoamuang, 2004]. My examination of type material of *Alona incredibilis* Smirnov, 1984 revealed that this species also belongs to the genus *Nicsmirnovius*.

Material and methods

The only type series of this species, four females on a slide, were studied. Drawings were prepared using a *camera lucida* attached to the optical microscope, optical images obtained using a JVC KY-F55BE digital camera attached to a LEICA DMR microscope.

Results

Nicsmirnovius incredibilis (Smirnov, 1984)
Figs. 1–16.

Alona incredibilis Smirnov, 1984: 155–156, figs. 1–6.

Type locality: "The Rio Negro right of Ilha Tamaquaré", Brazil.

Holotype: adult parthenogenetic female, 475 μm, on slide MGU 3181 in the collection of slides of Prof. N. N. Smirnov, deposited at the Invertebrate collection of Zoological Museum of Moscow State University. Label of the slide: "*Alona incredibilis* HOLOTYPE, ♀, 1959.9.24, Rio Negro, Ilha Tamaquaré, 3181". There are 4 females on this slide, the holotype marked by number 2.

Paratypes: three parthrenogenetic females on the same slide MGU 3181, marked by numbers 1, 3, 4.

PARTIAL REDESCRIPTION OF PARTHENOGENETIC FEMALE: This redescription is based exclusively on specimens from the type slide. It was not possible to dissect animals for accurate study of their appendages.

Body high (body height/length = 0.68–0.73), with dorsal margin regularly arched from rostrum to postero-dorsal region, postero-dorsal angle completely smooth, postero-ventral region as a widely rounded right angle, ventral margin regularly convex (Figs. 1, 11). No reticulation on head and valves. Head with blunt rostrum (Fig. 12), eye small, ocellus smaller than eye; three interconnected major head pores, lateral head "pores" located anteriorly to anteriormost major pore, apparently 8-shaped. In reality, these are simple pores,

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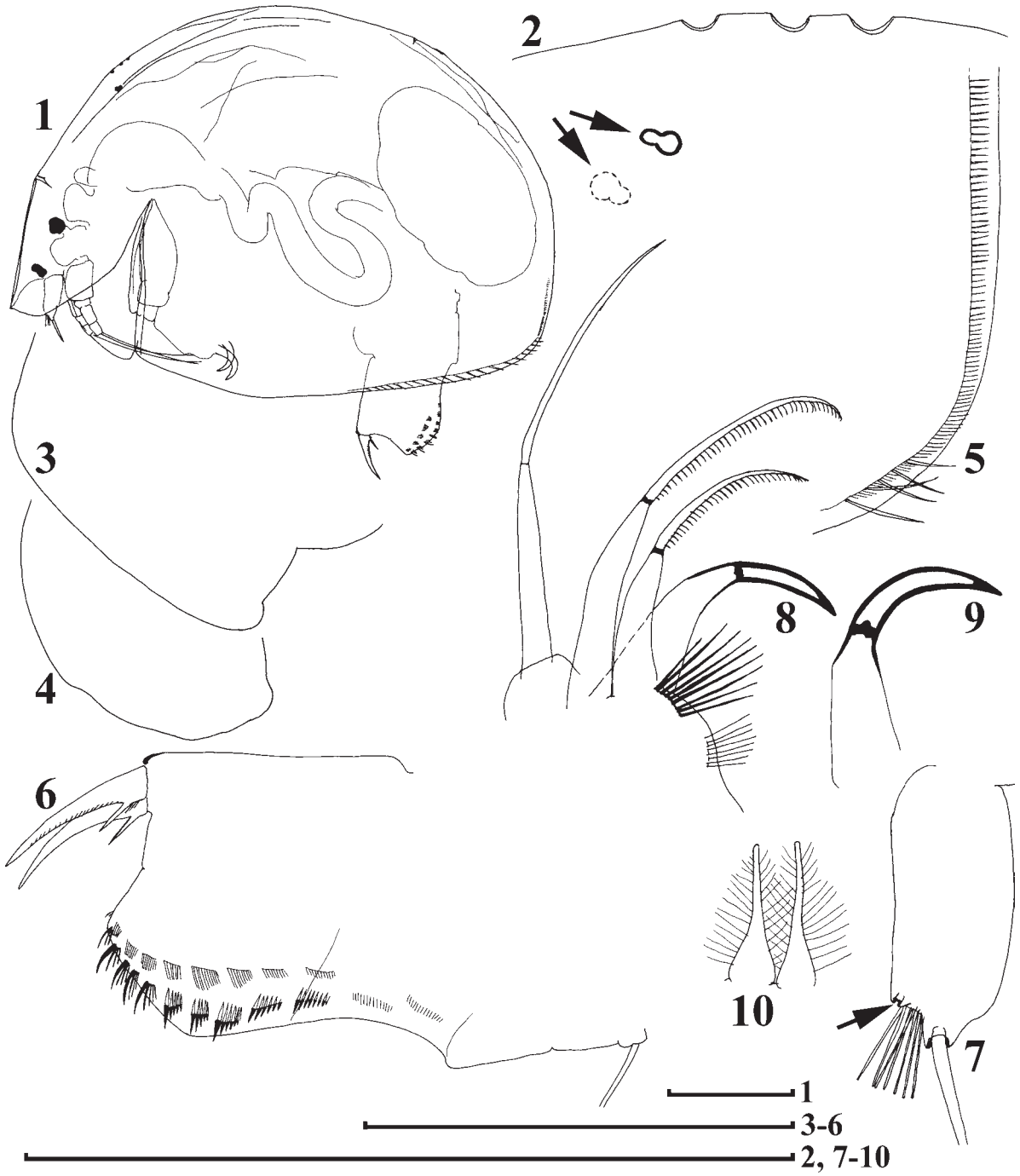
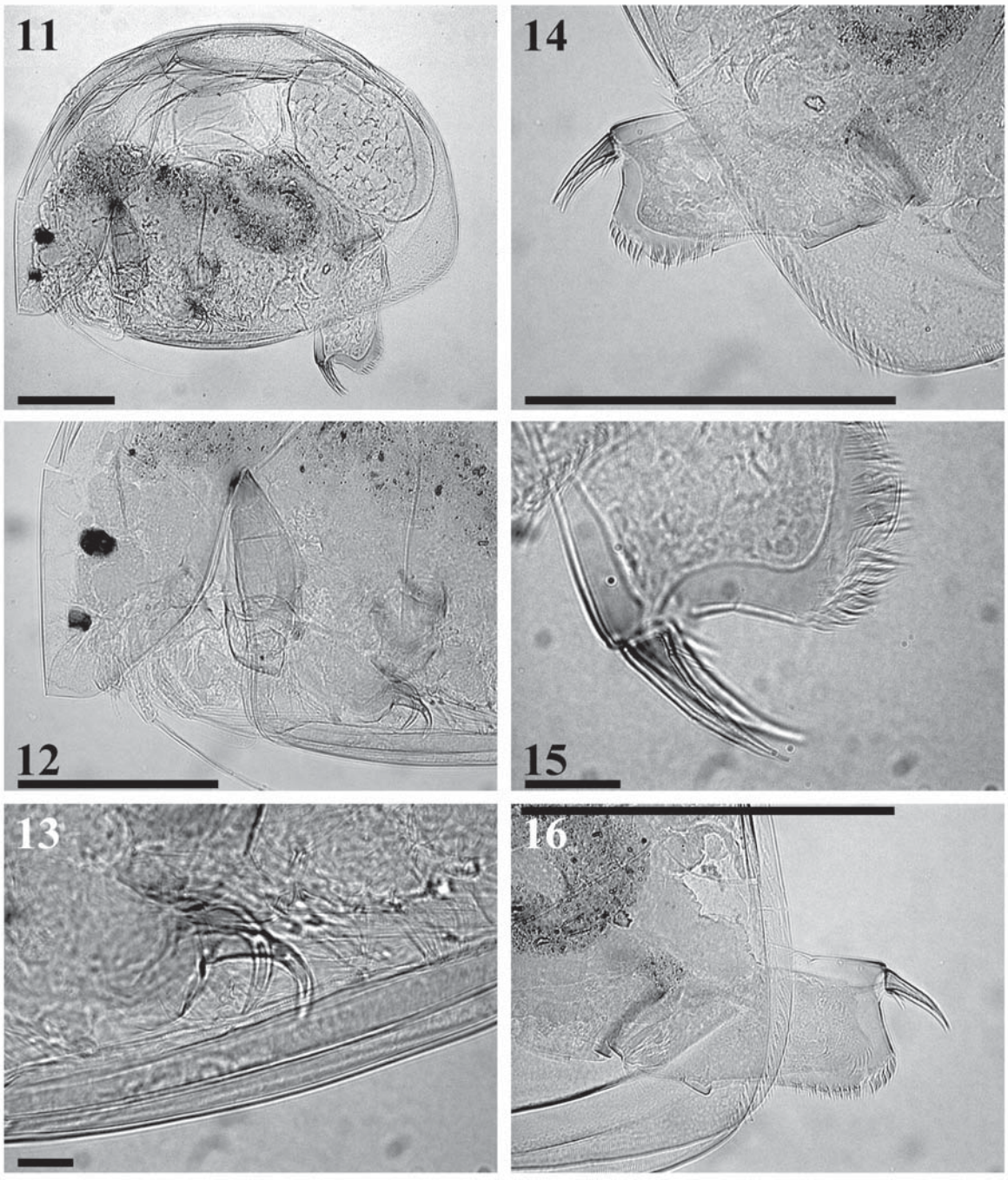


Figs. 1–10. *Nicsmimovius incredibilis*, parthenogenetic females, holotype (1–3, 5–7, 9) and paratype (4, 8, 10) from the Rio Negro right of Ilha Tamaquaré, Brazil: 1–2 — adult and system of its dorsal head pores in lateral view; 3–4 — labral keel; 5 — posterior valve margin; 6 — postabdomen; 7 — antenna I; 8–9 — distal portion of limb I and hook-like seta of IDL; 10 — distal setae of exopodite IV. Scales: 100 μm.

Рис. 1–10. *Nicsmimovius incredibilis*, партеногенетическая самка, голотип (1–3, 5–7, 9) и паратип (4, 8, 10) из Рио Негро правее острова Тамакуаре, Бразилия: 1–2 — взрослая самка и система ее головных пор; 3–4 — лабральный киль; 5 — задний край створки; 6 — постабдомен; 7 — антенна I; 8–9 — дистальная часть ноги I крючковидная щетинка ее внутренней дистальной доли; 10 — дистальные щетики экзоподита IV. Масштаб: 100 μm.

with underlying 8-shaped internal structures [Kotov & Sanoamuang, 2003]. The shape of these cavities varies significantly in *N. incredibilis*, for example, on the left side of the holotype body, the posterior compartment of the "8" was larger than the anterior compartment, conversely on the right side (Fig. 2, arrows). Labrum with wide, rounded keel (Figs. 3–4). Setae of valve indiscernible in anterior portion of ventral margin, in postero-ventral portion these setae are submarginal, short, with series of small setules between them. A row of setules on the inner face of valve at some distance from posterior margin.



Figs. 11–16. *Nicsmimovius incredibilis*, parthenogenetic females, holotype (11–15) and paratype (16) from the Rio Negro, Brazil: 11–13 — adult, its head and limb I; 14–16 — postabdomen. Scales: 100 μm.

Рис. 11–16. *Nicsmimovius incredibilis*, партеногенетическая самка, голотип (11–15) и паратип (16) из Рио Негро, Бразилия: 11–13 — взрослая самка, ее голова и нога I; 14–16 — постабдомен. Масштаб: 100 μm.

Postabdomen of characteristic shape: distally to anus, it firstly widens to middle of postanal margin, but then narrowing to dorso-distal angle, therefore, there are two distal angles: a true dorso-distal angle, and a breaking point of postanal margin (Figs. 6, 14–16). No projecting basis for claws distally. Marginal clusters of postanal denticles in basal half of postanal margin turned into clusters of rather long setules in its distal half, distalmost setule in each cluster particularly robust. On sides of postabdomen, lateral series of fine, numerous setules. Postabdominal claw massive, short (shorter than anal margin), with a short basal spine (about 1/3 of claw length), implanted at some distance from claw base, and 2–3 setules at it base. Antenna I robust (width/length = about 2.5), aesthetascs, unfortunately, poorly preserved, but one of them can be seen to be larger and located distally on an obvious projection. There was a second large aesthetasc, located basally to the rest (as in other species of the genus *Nicsmirnovius*), but only its joint point was preserved in all

specimens (Fig. 7, arrow). Antenna II small, poorly discernible, swimming setae 0-0-3/0-1-3, spines 1-0-1/0-0-1. Limb I bears ODL with a single, long, naked seta; IDL with basal cluster of fine setules, distal bunch of long, stout setules, two bisegmented setae of unequal size and setulated distally, and a smaller, hook-like seta (Figs. 8–9, 13); two soft setae on endite 2 are extremely long. Portion of gnathobase II bordering "endopodite" strongly prominent. Two distalmost setae of exopodite IV with blunt, spoon-like apices, but armature of their tips indiscernible. All limbs with long, finger-like projections on epipodites.

MALE, EPHIPPIAL FEMALE: unknown.

SIZE: parthenogenetic females, type series 293–475 µm (n = 4).

DIFFERENTIAL DIAGNOSIS: *N. incredibilis* is different from all other known species of this genus in the characteristic shape and armature of postabdomen distal portion, i.e. two distal angles, absence of basis for postabdominal claws, presence of clusters of rather long setules at postanal margin instead of marginal denticles. Also, this is a unique species having ODL seta longer that largest IDL seta.

DISTRIBUTION: Now it is clear that there are at least two species of this genus in South America: *N. fitzpatricki* Chien Shing-ming, 1970 and *N. incredibilis* (Smirnov, 1984). After descriptions from U.S.A. [Chien Shing-ming, 1970; Frey, 1974], Paggi [1979] found *N. fitzpatricki* (as *Alona eximia*) in Argentina; the latter apparently is a widely distributed transamerican species. Range of distribution of *N. incredibilis* is unknown at present. I can confirm presence of the latter only in the type locality. All other Neotropical records (i.e. listed by Frey [1982]) must be checked by a study of original samples from these localities.

Discussion

Smirnov [1984] said nothing of the relationship of this species to *A. eximia* and *A. fitzpatricki*, members of the future genus *Nicsmirnovius*, because these species were studied inadequately at that time.

Van Damme et al. [2003] listed in their differential diagnosis of the genus *Nicsmirnovius* the following characteristic traits (these are given below in my terminology instead of the original author's names for describing structures): (1) three interconnected major head pores, and two lateral pores within 8-shaped cavities; (2) labrum with relatively large labral keel and depression near apex (the latter seems to be somewhat dubious to be placed with characters of generic rank); (3) antenna I with a long aesthetasc on a special distal projection, and extra subapical aesthetasc implanted next to sensory seta; (4) antennal formula, setae 0-0-3/0-1-3; (5) IDL I with a chitinized hook-like seta; (6) portion of gnathobase II bordering "endopodite" strongly prominent; (7) two setae of exopodite IV with blunt spoon-like apex and apical aggregation of setules curved over them; (8) broad axe-like or "5"-shaped postabdomen with postabdominal claw bearing a long basal spine, implanted at some distance from the claw base. All these traits are characteristic of *Alona incredibilis* also, and are the basis for relocating this species to the genus *Nicsmirnovius*. No apical aggregations of setules on exopodite IV were found (not seen in the slide).

Van Damme et al. [2003] demonstrated that there are four species (one of them with two subspecies) of the genus *Nicsmirnovius* Chiambeng & Dumont, 1999 in the world, including transamerican *N. fitzpatricki* (Chien, 1970). *Nicsmirnovius incredibilis* (Smirnov, 1984) is a fifth member of the genus, and it is not a junior synonym of American *N. fitzpatricki*.

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