

**NEW SPECIES OF *CERACLEA*
(TRICHOPTERA: LEPTOCERIDAE: ATHRIPSODINI) AND
A FIRST RECORD OF *ADICELLA*
(TRICHOPTERA: LEPTOCERIDAE: TRIAENODINI)
FROM FAR EASTERN RUSSIA**

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Abstract.—Three new species of the genus *Ceraclea*, belonging to the subgenus *Athripsodina*: *C. (A.) affinis*, *C. (A.) bilobulata* and *C. (A.) breviramosa* from the southern Far East of Russia are described and illustrated. The genus *Adicella*, represented by a new species, is newly recorded for the Russian fauna.

Key Words.—Trichoptera, Leptoceridae, *Ceraclea*, *Adicella*, new species, new record, Far Eastern Russia.

Until now, 9 genera and 59 species of the family Leptoceridae are known from the Russian Far East (Arefina 1997; Vshivkova et al. 1997; J. C. Morse, L. Yang, and I. M. Levanidova, unpublished data). During a survey of the caddisflies (Trichoptera) of the Ussuri River Basin, three *Ceraclea* species were collected that are new to science. Furthermore, a representative of the genus *Adicella*, which has not been previously known in Russia, was found.

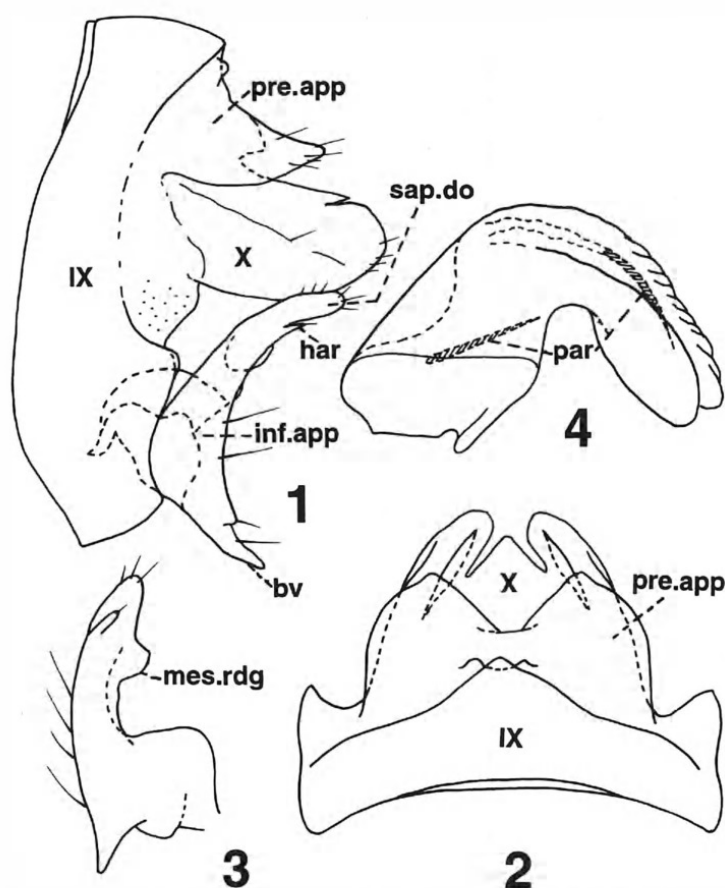
The types of the new species are preserved in alcohol and held in the collections of the Institute of Biology and Soil Sciences, Russian Academy of Sciences, Vladivostok. In the present work, the terminology generally follows that in the revision by Yang & Morse (1988).

CERACLEA (ATHRIPSODINA) DILUTA Group
Ceraclea (Athripsodina) affinis, NEW SPECIES
(Figs. 1–7)

Types.—Holotype male: KHABAROVSK TERRITORY (RUSSIA), Birushka River, Ussuri River Basin, 23 Jul 1996, T. Arefina. Paratype: 1 female, same data as holotype.

Description.—Length of forewing: male—7.9 mm, female—8.1 mm. Head and body with white and brown hairs mixed. Vertex of head, thorax and coxae brown, abdomen and legs lighter. Wings yellowish brown with setae darker.

Male Genitalia (Figs. 1–4).—Tergum IX (IX) with pair of small papillae near poster meson. Preanal appendages (pre. app) subtriangular, fused basally, each with acute apex. Tergum X (X) composed of triangular median lobe and pair of lateral lobes, each with blunt apex in dorsal and lateral views, lateral lobes extending slightly beyond median lobe. Main body of each inferior appendage (inf. app) straight in lateral view with subapicodorsal lobe (sap. do) bent caudad; basoventral lobe (bv) of each inferior appendage nearly half as long as main body, obtusely angled about 110° from main body, stout at basal half then abruptly tapering to digitate apex; harpago (har) tiny; mesal ridge of inferior appendage (mes.rdg) produced in small, nearly trapezoidal process located slightly lower than harpago. Phallus strongly curved ventrad and constricted ventrally two-thirds distance from base; both paramere spines (par) seta-like with right spine positioned near apex, left spine almost straight and situated in anterior half of phallus.

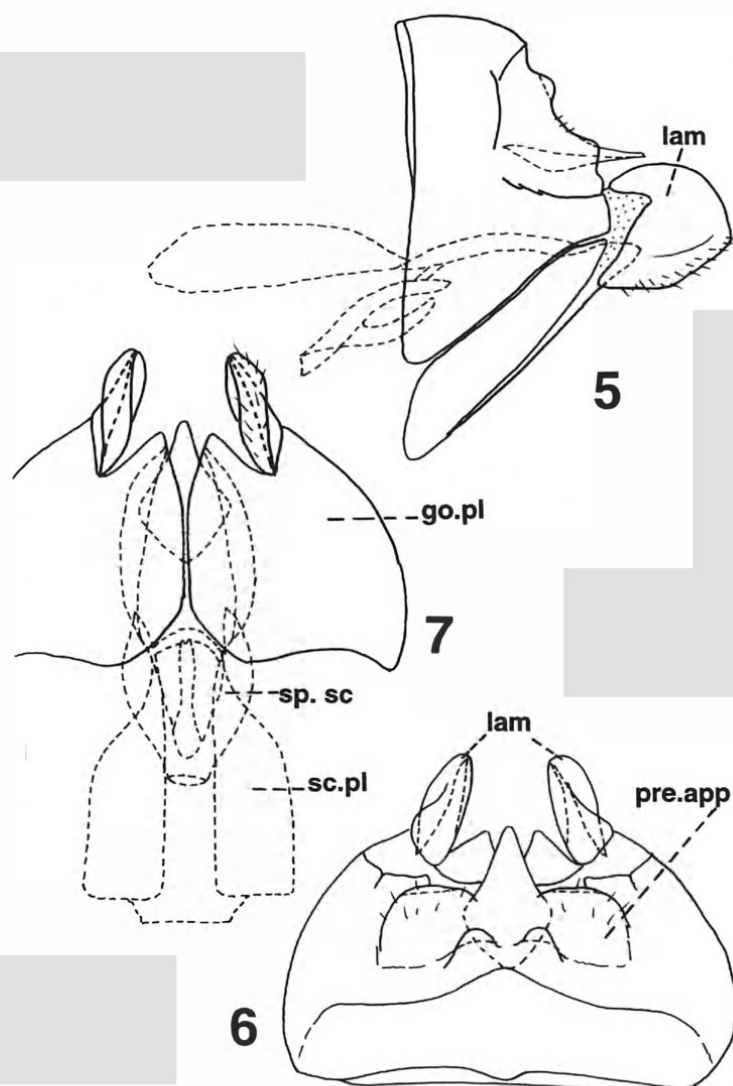


Figures 1–4. Male genitalia of *Ceraclea (A.) affinis* NEW SPECIES in lateral (1) and dorsal (2) views; left inferior appendage (3) in caudal view; phallus (4) in lateral view. Abbreviations: bv = basoventral lobe of an inferior appendage; har = harpago; inf.app = inferior appendage; mes.rdg = mesal ridge of an inferior appendage; par = paramere spines; pre.app = preanal appendage; sap.do = subapicodorsal lobe of an inferior appendage; IX, X = abdominal segments IX and X.

Female Genitalia (Figs. 5–7).—Tergum IX rounded apically, with pair of small subdorsal processes. Preanal appendages (pre.app) short, as long as broad, covered with short setae. Lamellae (lam) parallel-sided in dorsal and ventral views, semicircular in lateral view, setose ventrally. Each gonopod plate (go.pl; e.gon.IX of Nielsen 1980) with triangular caudal projection, plates approximate for most of their length, with triangular excisions between their caudal projections; gonopod plates slightly concave in middle with prominent mesal and lateral edges. Spermathecal sclerite (sp.sc) long, V-shaped, with lateral arms curved mesad near caudal end. Pair of broad sclerotized plates (sc.pl) suspended above spermathecal sclerite and extending cephalad nearly to two-thirds length of segment VIII.

Immature Stages.—Unknown.

Diagnosis.—*Ceraclea affinis* belongs to the *C. (A.) diluta* Group, which presently includes *C. diluta* (Hagen), *C. perplexa* (McLachlan) and *C. trilobulata* Morse, Yang, and Levanidova. Male genitalia of the new species most closely resemble those of *C. trilobulata* in the trilobate tergum X, in the shape of its inferior appendages, and in the presence of a ventral constriction of the phallus. It differs from *C. trilobulata* in the much longer base of the phallus, with the position of the ventral constriction nearly two-thirds of the distance from the based of the phallus; in the apparently longer middle lobe of tergum X; and in the thicker base of each inferior appendage. Because the females of *C. perplexa* and *C. trilobulata* are unknown, it is not possible to separate them from the female



Figures 5–7. Female genitalia of *Ceraclea* (A.) *affinis* NEW SPECIES (holotype) in lateral (5), dorsal (6) and ventral (7) views. Abbreviations: go.pl = gonopod plate of gonopod IX; lam = lamella; pre.app = preanal appendage; sc.pl = sclerotized plate of spermathecal sclerite; sp.sc = spermathecal sclerite.

of the new species; however, the apicolateral lamellae of *C. affinis* are shorter than those of *C. diluta*.

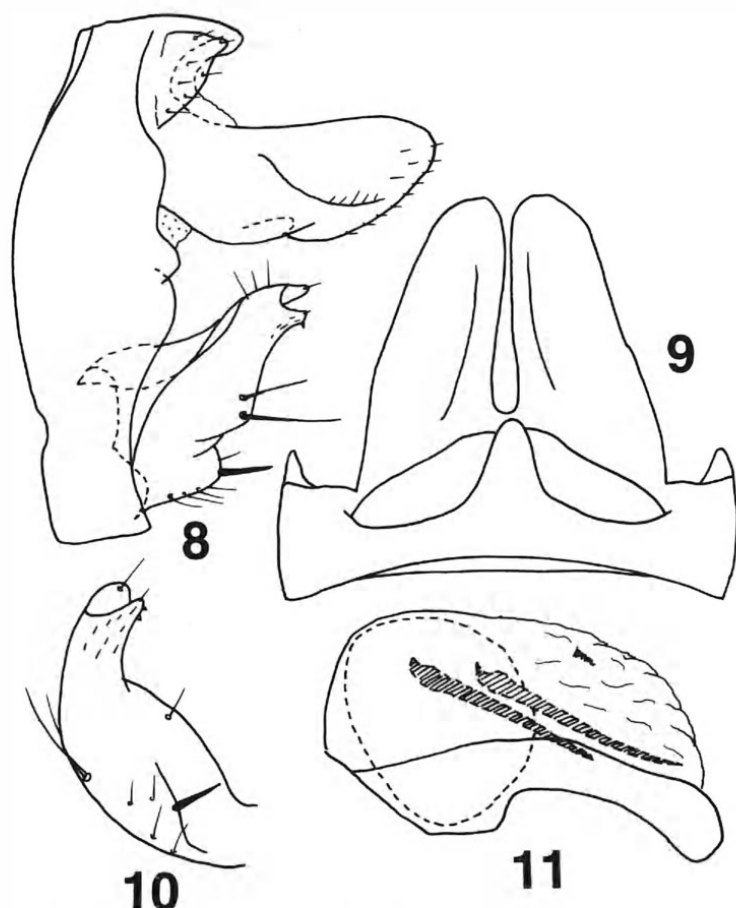
Distribution.—Known only from the type locality in Khabarovsk Territory (Russia).

Etymology.—Latin, “similar,” with reference to the resemblance of the new species with *C. trilobulata*.

CERACLEA (ATHRIPSODINA) ANNULICORNIS Group
Ceraclea (Athripsodina) *bilobulata*, NEW SPECIES
(Figs. 8–15)

Types.—Holotype male: KHABAROVSK TERRITORY (RUSSIA). Ussuri River near Zabaikalskoe Village, 23 Jul 1996, T. Arefina. Paratypes: 7 males, same data as holotype.

Description.—Length of forewing: male—5.5–6.2 mm, female—5.3–5.9 mm. Head with mostly



Figures 8–11. Male genitalia of *Ceraclea (A.) bilobulata* NEW SPECIES (paratype) in lateral (8) and dorsal (9) views; left inferior appendage (10) in caudal view; phallus (11) in lateral view.

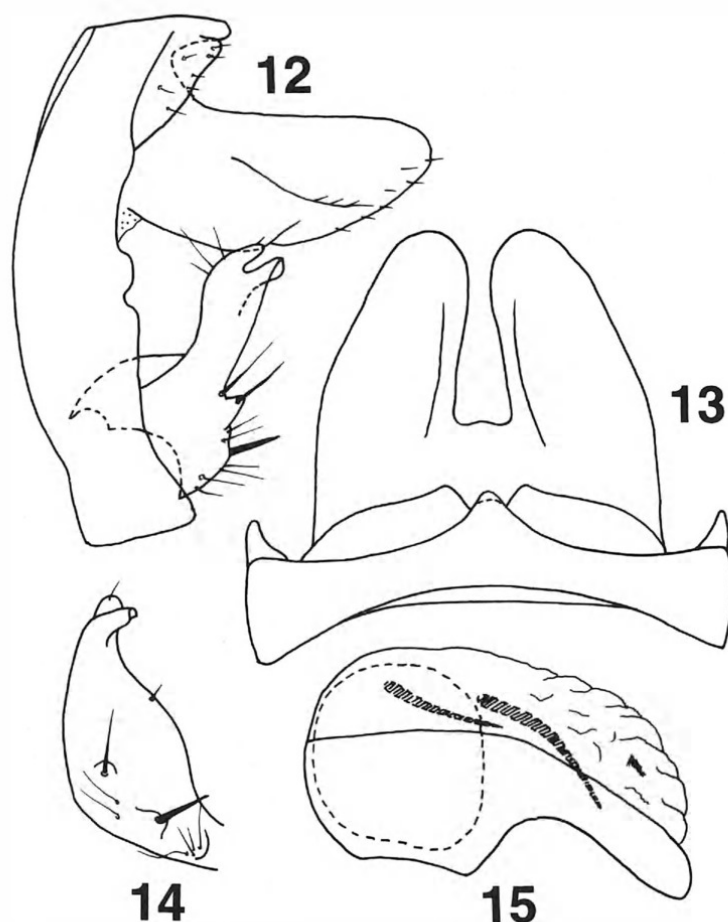
white hairs. Vertex of head and thorax yellow-brown, abdomen lighter, nearly white ventrally. Wings straw yellow with yellow-brown setae.

Male Genitalia (Figs. 8–15).—Tergum IX protruding at apical center. Preanal appendages very short and broad in dorsal view, separated basally, slightly shorter than slightly longer. Tergum X extending far beyond preanal appendages, broad basally, divided into two lobes nearly to base, each lobe with rounded apex; dorsal edge of tergum straight in lateral view, ventral edge of tergum upturned from middle, apex rounded. Main body of each inferior appendage slender, both harpago and subapicodorsal lobe short; harpago nearly as long as semimembranous subapicodorsal lobe to slightly longer; basoventral lobe of each inferior appendage vestigial, very short, with single spine directed somewhat mesad; mesal ridge without project and bearing only one normal seta; main body with variable caudolateral lobe bearing two large setae. Phallus curved ventrad, with sclerotization extended full length ventrally; anterior portion shorter and broader than posterior portion; two paramere spines present, left paramere spine about same size as right, but retracted somewhat more cephalad.

Remarks.—Different individuals of the species vary in the shape of the preanal and inferior appendages and in size and location of the paramere spines of the phallus. In spite of the variability of these characters, the available specimens generally agree with the foregoing description.

Female and Immature Stages.—Unknown.

Diagnosis.—The male of this species resembles those of *C. sibirica* (Ulmer) and *C. hastata* (Botosaneanu) in the presence of a spine at the basoventral position of the inferior appendages; in the mesal ridge of each inferior appendage without



Figures 12–15. Male genitalia of *Ceraclea* (A.) *bilobulata* NEW SPECIES (paratype) in lateral (12) and dorsal (13) views; left inferior appendage (14) in caudal view; phallus (15) in lateral views.

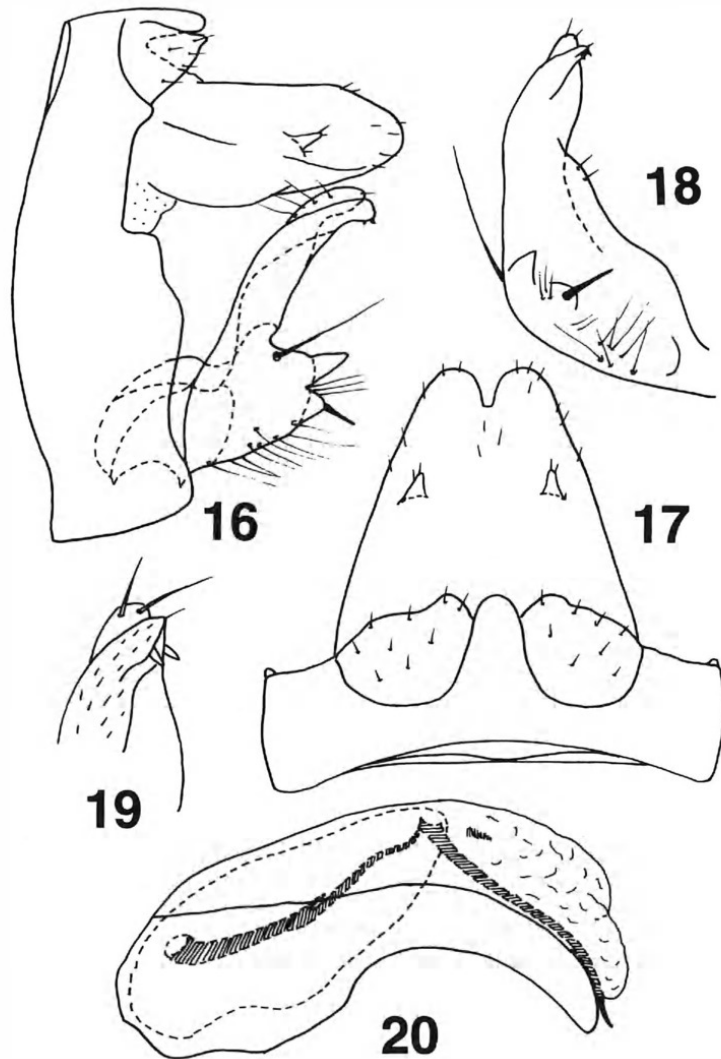
any projection; in tergum X lacking lateral processes; and in the sclerotization extending the full length of the phallus ventrally. However, tergum X is divided into two lobes in the new species whereas *C. sibirica* and *C. hastata* have no excision on tergum X. *Ceraclea bilobulata* differs from both *C. sibirica* and *C. hastata* and other known males of the *C. (A.) annulicornis* Group in the short and basally separated preanal appendages, in the very short basoventral lobe of each inferior appendage, in the mesal ridge of the inferior appendages having only one seta, and in possessing two phallic paramere spines nearly equal in length.

Distribution.—Known only from the type locality in Khabarovsk Territory (Russia).

Etymology.—Latin, “two-lobed,” with reference to the shape of tergum X in the male genitalia.

CERACLEA (ATHRIPSODINA) RIPARIA Group
Ceraclea (Athripsodina) *breviramosa*, NEW SPECIES
 (Figs. 16–23)

Types.—Holotype male: Khabarovsk Territory (Russia). Ussuri River near Zabaikalskoe Village, 23 Jul 1996, T. Arefina. Paratypes: 24 females, same data as holotype; Khabarovsk Territory (Russia), Kiya River, Ussuri River Basin, Ekaterinoslavka Village vicinity, 26 Jul 1996, T. Arefina, 4 females; Pri-

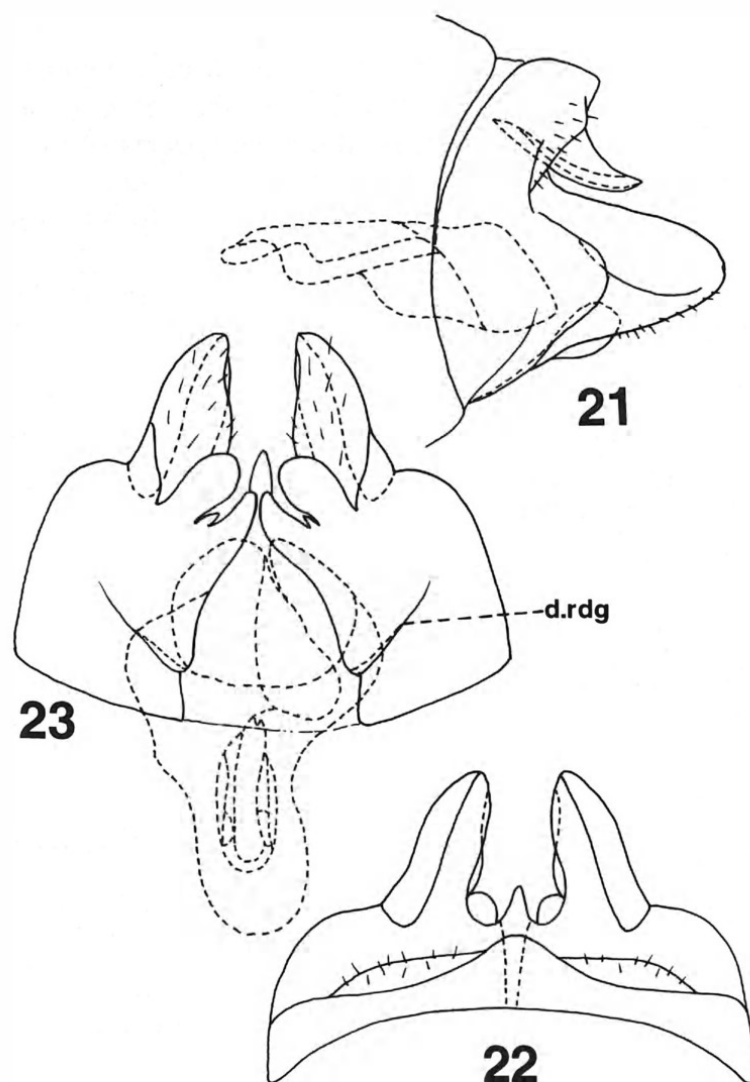


Figures 16–20. Male genitalia of *Ceraclea* (A.) *breviramosa* NEW SPECIES (holotype) in lateral (16) and dorsal (17) views; left inferior appendage (18) in caudal view; harpago and subapicodorsal lobe of left inferior appendage (19) in caudal view; phallus (20) in lateral view.

morye Region (Russia), Kabarga River, Ussuri River Basin, 28 Jul 1998, T. Tiunova, 2 females.

Description.—Length of forewing: male—5.8 mm, female—5.5–6.0 mm. Head with white hairs on middle of front and vertex, side hairs brownish. Head and thorax yellow-brown, abdomen whitish, abdominal dorsum pale brown. Wings straw yellow with yellow-brown setae.

Male Genitalia (Figs. 16–20).—Tergum IX protruding at apical center. Preanal appendages nearly as long as broad, separated basally, about as long as tergum IX, obliquely truncate apically. Tergum X about 2.5× as long as preanal appendages, broad at base, tapering to blunt apex, with V-shaped cleft apically one-eighth of its length; tergum X with pair of smaller papillae near middle of tergum. Basoventral lobe of each inferior appendage shorter than main body of appendage, directed somewhat mesad, bearing single spine subbasally; triangular projection above basoventral lobe, nearly as long as spine in lateral view. Main body of appendage slender; harpago slightly longer than subapicodorsal lobe, each harpago setose, with two small spines at apex; each subapicodorsal lobe with several long setae along dorsal surface and membranous apex bearing two setae. Mesal ridge of each inferior appendage with two normal setae. Phallus strongly curved ventrad about half distance from base, with sclerotization extended full length ventrally; anterior portion of phallobase slightly broader and longer than posterior portion in lateral view. Paramere spines aligned, with apex of left spine slightly inserted in elliptical opening of base of right spine, as typical for Group; left spine with short and straight



Figures 21–23. Female genitalia of *Ceraclea* (A.) *breviramosa* NEW SPECIES (paratype from Ussuri River near Zabaikalskoe Village) in lateral (21), dorsal (22) and ventral (23) views. Abbreviation: d.rdg = diagonal ridge of a gonopod plate.

dorsomedial projection; apical half of left spine sinuous, with upturned tip; right spine straight, curved ventrad at three-quarters distance from base, with tip turned slightly outwards, to right.

Female Genitalia (Figs. 21–23).—Preanal appendages broad but very short, as typical for Group. Lamellae setose ventrally, each with broadly rounded apex in lateral view. Gonopod plates widely separated anteriorly, not concave, each with well-sclerotized diagonal ridge (d. rdg); each plate with two caudal projections: mesal projection narrow and elongate, lateral projection rather large, oval in lateral and ventral views. Anterior part of the spermathecal sclerite narrow, broadens in middle, convex laterally in posterior part.

Immature Stages.—Unknown.

Diagnosis.—The male genitalia of this species resemble those of most species of the *C. (A.) riparia* Group in possessing two phallic paramere spines which are aligned, with the apex of the left spine inserted in an opening of the base of the right spine, but in this new species the left spine has a dorsomedial projection and an upturned tip. This is the only species with the *C. (A.) riparia* Group whose male: (1) lacks a pair slender lateral processes of tergum X; (2) has the inferior appendages each with such a short basoventral lobe; and (3) has the mesal ridge

of each inferior appendage bearing only two setae. The female of this species resembles those of *C. riparia* (Albarda), *C. yangi* (Mosely) and *C. nankingensis* (Hwang) in the shape of the caudal projections of the gonopod plates and of the spermathecal sclerite, but it differs from all known species of the *C. (A.) riparia* Group in possessing a diagonal ridge of each gonopod plate.

Distribution.—Known only from the type localities in Khabarovsk Territory and the Primorye Region (Russia).

Etymology.—Latin, “short-branched,” with reference to the short basoventral lobe of each inferior appendage in the male genitalia.

NEW RECORD

Adicella sp. n. (Yang and Morse, unpublished data)

Material Examined.—KHABAROVSK TERRITORY (RUSSIA). Kiya River, Ussuri River Basin, Yekaterinoslavka Village vicinity, 26 Jul 1996, T. Arefina, 2 males.

Distribution.—Khabarovsk Territory (Russia), China.

ACKNOWLEDGMENT

The work was supported by the Russian Fund of Fundamental Investigations, grant 96-04-50388.

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Received 3 Aug 1999; Accepted 6 Jul 2000.



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