FISHERIES AND MARINE SERVICE

Translation Series No. 3893

Oligochaeta of the Gusino-Ubukun group of lakes

by V. P. Semernoi

Original title: Maloshchetinkovyye chervi (Oligochaeta) Gusino-Ubukunskoi ozernoi gruppy

From: Biol. Vnutr. Vod Inf. Byull. (13): 17-23, 1972

Translated by the Translation Bureau (NDe)
Multilingual Services Division
Department of the Secretary of State of Canada

Department of the Environment
Fisheries and Marine Service
Pacific Region
Institute of Ocean Sciences
Victoria, B.C.
1976

8 pages typescript

F/m#3073

DEPARTMENT OF THE SECRETARY OF STATE
TRANSLATION BUREAU

MULTILINGUAL SERVICES DIVISION

CANADA

SECRÉTARIAT D'ÉTAT
BUREAU DES TRADUCTIONS

DIVISION DES SERVICES MULTILINGUES

TRANSLATED FROM – TRADUCTION DE	INTO – EN
Russian	English

AUTHOR – AUTEUR

V.P. Semernoi

TITLE IN ENGLISH – TITRE ANGLAIS

Oligochaeta of the Gusino-Ubukun group of lakes

TITLE IN FOREIGN LANGUAGE (TRANSLITERATE FOREIGN CHARACTERS)
TITRE EN LANGUE ÉTRANGÈRE (TRANSCRIRE EN CARACTÈRES ROMAINS)

Maloshchetinkovyye chervi (Oligochaeta) Gusino-Ubukunskoi ozernoi gruppy

REFERENCE IN FOREIGN LANGUAGE (NAME OF BOOK OR PUBLICATION) IN FULL. TRANSLITERATE FOREIGN CHARACTERS.
RÉFÉRENCE EN LANGUE ÉTRANGÈRE (NOM DU LIVRE OU PUBLICATION), AU COMPLET, TRANSCRIRE EN CARACTÈRES ROMAINS.

Biologiya vnutrennikh vod, Informatsionnyy byulleten'

REFERENCE IN ENGLISH – RÉFÉRENCE EN ANGLAIS

Biology of Inland Waters, Information bulletin

PUBLISHER – ÉDITEUR	DATE OF PUBLICATION / DATE DE PUBLICATION			PAGE NUMBERS IN ORIGINAL / NUMÉROS DES PAGES DANS L'ORIGINAL
Nauka	YEAR / ANNÉE	VOLUME	ISSUE NO. / NUMÉRO	17-23
PLACE OF PUBLICATION / LIEU DE PUBLICATION				NUMBER OF TYPED PAGES / NOMBRE DE PAGES DACTYLOGRAPHIÉES
Leningrad, USSR	1972	-	13	8

REQUESTING DEPARTMENT / MINISTÈRE-CLIENT: Environment

TRANSLATION BUREAU NO. / NOTRE DOSSIER N°: 1101548

BRANCH OR DIVISION / DIRECTION OU DIVISION: Fisheries

TRANSLATOR (INITIALS) / TRADUCTEUR (INITIALES): N. De.

PERSON REQUESTING / DEMANDÉ PAR: Ms. S. Thomson

YOUR NUMBER / VOTRE DOSSIER N°: --

DATE OF REQUEST / DATE DE LA DEMANDE: November 24, 1976

UNEDITED TRANSLATION
For information only
TRADUCTION NON RÉVISÉE
Information seulement

SOS-200-10-6 (REV. 2/68)
7830-21-029-8333

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CLIENT'S NO. / N° DU CLIENT	DEPARTMENT / MINISTÈRE	DIVISION/BRANCH / DIVISION/DIRECTION	CITY / VILLE
	Environment	Fisheries	Victoria, B.C.
BUREAU NO. / N° DU BUREAU	**LANGUAGE / LANGUE**	**TRANSLATOR (INITIALS) / TRADUCTEUR (INITIALES)**	
1101548	Russian	N. De.	December 13, 1976

Biologiya vnutrennikh vod, Informatsionnyy byulleten', 1972, No. 13, pp. 17-23

Oligochaeta of the Gusino-Ubukun group of lakes (17)*

(Buryat ASSR, Zabaikalia)

The Gusino-Ubukun group of lakes (lakes Gusinoye, Severnyy, Yuzhnyy and Sredniy Tsaidam, Tsagan-por, Shchuchye, Okunyovoye, Kamyshovoye, Krugloye) is located in the Gusino-Uda depression in the Selenga River basin. These lakes are the remnants of a vast water body which existed in this area back in the Jurassic or even Upper Jurassic period (Dumitrashko, 1952). The most complete characterization of the lakes has been presented by M.M. Kozhov (1950).

The present report is based on the materials relating to 212 samples of oligochaetes obtained from A.A. Tomilov [Biological-Geographic Scientific Research Institute of the Irkutsk State University (BGNII)] in 1956-1957 (120 samples) and from I.M. Shapovalova [Limnological Institute (LIN SO AN SSSR)] in 1967 (92 samples). I would like to take this (20) opportunity to thank them for their assistance.

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*The numbers in the right-hand margin are the pages of the Russian text - translator.

The results of the processed material have been presented in the table below. Nineteen known species are listed, one described as new to science, and two forms identified up to the genus.

Composition and distribution of oligochaetes in the Gusino-Ubukun group of lakes

Species	Lakes									Biotopes			
	Gusinoye	Shchuchye	Severnyy Tsaidam	Yuzhnyy Tsaidam	Sredniy Tsaidam	Tsagan-por	Okunyovoye	Kamyshovoye	Krugloye	sand	muddy sand	mud	overgrowths
Family Naididae													
Stylaria lacustris (L.)	+	+									+		+
S. fossularis Leidy		+								+			+
Ophidonais serpentina (Müller)	++	+++			++				++	+	++	+++	+++
Nais communis Piguet		+							+	+			+
N. elinguis (Müller)	+												+
N. paradalis Piguet		++	++	++	++				++				++
N. pseudobtusa Piguet			+								+		+
N. barbata Müller									+				+
N. variabilis Piguet				+						+			
Uncinais uncinata (Oersted)	+	+								+	+		+
Pristina amphibiotica Lastockin		+								+			
Family Tubificidae													
Rhyacodrilus coccineus (Vejdovsky)		+		+							+		
Rh. sokolskajae Semernoj*		+									+	+	
Tubifex tubifex (Müller)	+	++	+++	++	+++	++	+++	++	+		+++	+++	+++
T. solitarius Semernoj sp. n.		+++									++	+++	
Euilyodrilus sp.		+	+	++	++						++	++	
Limnodrilus hoffmeisteri Clap.		+++	+	+	++	+++		+		+	+++	++	++

(Table continued)

Species	Lakes									Biotopes			
	Gusinoye	Shchuchye	Severnyy Tsaidam	Yuzhnyy Tsaidam	Srednly Tsaidam	Tsagan-por	Okunyovoye	Kamyshovoye	Krugloye	sand	muddy sand	mud	overgrowths
L. helveticus Piguet						+++			+		++	+++	
L. udekemianus Clap.			+					+			+		
Peloscolex ferox (Eisen)				+							+		
Family Enchytraeidae													
Enchytraeidae gen. sp. (Enchytraeus sp.)		+		+					+		+	+	
Family Lumbriculidae													
Lumbriculus variegatus (Müller)		+									+		+

Note: +++ prolific species, ++ frequently encountered species, + encountered singly; * species initially described by us (Semernoi, 1971) (Amur Basin)

Tubifex solitarius Semernoj, sp. n.

Description. Length of worms up to 25 mm (fixed), cross-section in region of 5th-10th segments 0.5-0.7 mm. Number of segments up to 120. Prostomium small, tapered. Ventral bundles of anterior segments contain 7-11 setae 145-152 μ in length with teeth of equal thickness, but distal one longer than proximal one, with distal nodulus (fig. A). Ventral bundles in middle and posterior parts of body each contain 2-3 setae with (21) distal tooth thinner and longer than proximal one, with distal nodulus. Dorsal bundles of anterior segments contain 7-9 flabellate setae 111 μ long

with broadly expanding teeth with serrate membrane between them; distal nodulus (fig. B) and 4-7 capillary setae up to 570 μ in length. Dorsal bundles behind clitellum contain 3 flabellate setae and one short capillary seta. Pharynx in 2nd-3rd segments, oesophagus in 3rd-5th segments, chloragogen tissue begins at 6th segment.

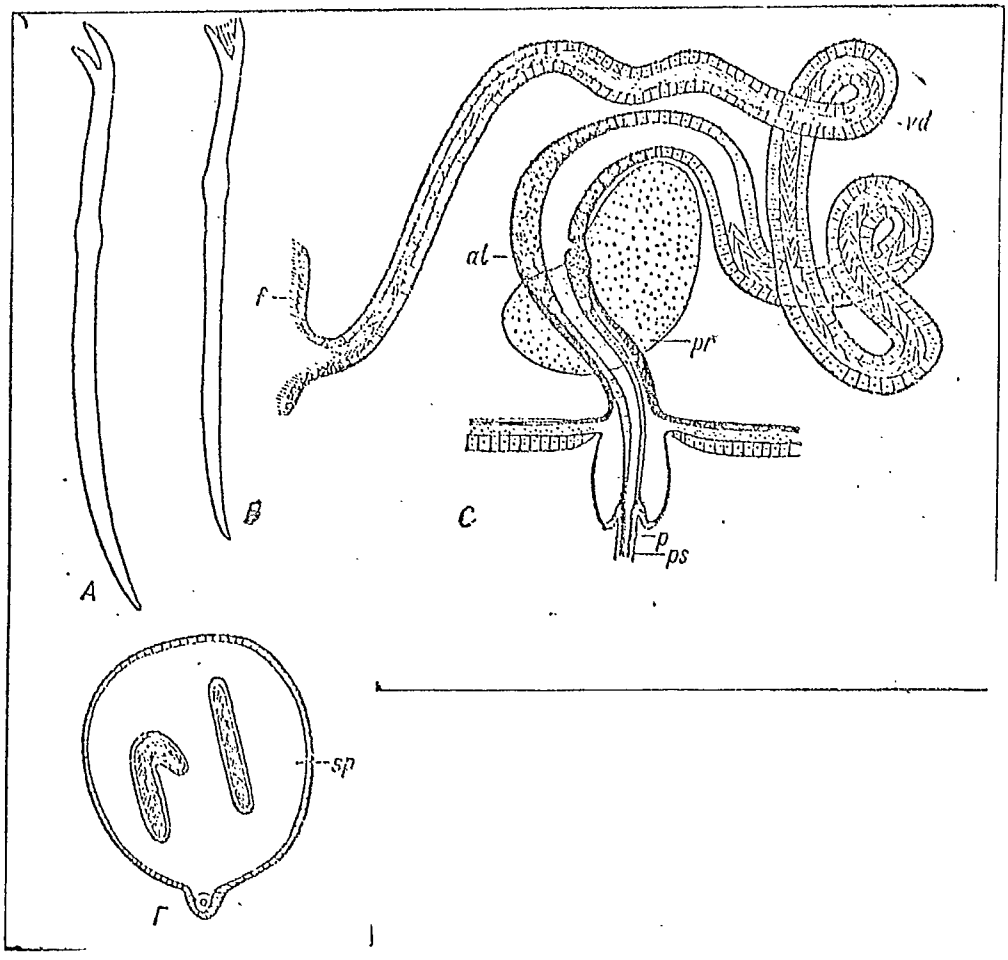

Fig. Tubifex solitarius sp. n.

A - setae of ventral bundles on anterior end; B - flabellate seta of dorsal bundles; C - diagram of male gonoduct; D - spermatheca (sp) with spermatozeug (mas), at - atrium, f - funnel, p - penis, pr - prostate gland, ps - penial sheath, vd - gonoduct.

"Hearts" in 8th segment. Clitellum on 11th and part of 12th segment. Male gonopores on 11th segment on side of ventral setae. Spermathecal openings on 10th segment, on lateral line. Specialized genital setae lacking. Seminal funnels on 10/11th intersegmental septum, unfolded, 112 μ in diameter. Gonoduct stems from seminal funnel, gradually expanding in first third. Proximal part of gonoduct more thickly ciliated, middle portion to a lesser degree, distal end before atrium lacking cilia. Gonoduct almost 5 times longer than atrium and penis combined, in 11th segment, sometimes extends into 12th segment, gradually passes into proximal end of atrium. Atrium resembles narrow sleeve, glandular from the middle, outlet for duct of compact prostate gland. Distal end of male gonoduct represented by penis in thin-walled chitinous sheath with "collar" which encloses circular fold around penis. Length of penis 115 μ.

Distal end of male gonoduct can be extended beyond body wall, and together with everted penial sheath copulative organ then resembles a bulb formed by walls of penial sheath and circular fold, with penis in chitinous sheath (fig. C). Spermathecae consist of spherical ampulla 307 μ in diameter and short, muscular efferent part 70 μ in length. Spermatozeugmas large, vermiform (nematoid) (fig. D). Anterior unpaired seminal vesicle in 9th-10th segments, posterior one in several segments beyond 11th one. Unpaired ovisac in 12th-14th segments.

Mature individuals encountered in June-July. Period of copulation apparently in second half of June (spermathecae become filled with spermatozeugmas).

Species diagnosis. Prostomium small, tapered. Ventral bundles of anterior segments each contain 7-11 setae with distal tooth longer than proximal one. Dorsal bundles on entire body contain flabellate and capillary

setae; bundles on anterior segments each contain 7-9 flabellate and 4-7 capillary setae. Pharynx in 2nd-3rd segments, oesophagus in 3rd-5th segments, chloragogen tissue begins in 6th segment. "Hearts" in 8th segment. Clitellum on 11th and part of 12th segment. Spermathecal openings on lateral line of 10th segment, male gonopores on 11th segment on side of ventral setae. Seminal funnels small, unfolded. Gonoducts confined to 11th, sometimes 12th segment, gradually expanding in first third. Proximal part more thickly ciliated. Gonoduct almost 5 times longer than atrium and penis combined. Gonoduct falls into apical end of atrium. Isolated, small prostate gland laterally connected by duct to atrium at beginning of glandular part. Atrium resembles narrow sleeve, glandular from the middle. Penis in chitinous sheath. Distal end of male gonoduct can be extended beyond body wall of worm, forming penial bulb with penis at the end. Spermathecae in 10th segment. Ampulla spherical, efferent part short, muscular, opening in lateral line of 10th segment. Spermatozeugmas large, vermiform. (22)

Length of body up to 25 mm, cross-section 0.5-0.7 mm. Number of segments up to 120.

Holotype: total specimen Ш-1, sample No. 53, June 28, 1956, Lake Shchuchye, depth 10 m. Dark grey mud. Bottom grab 1/40 m^2. Kept at the Inland Waters Biology Institute of the USSR Academy of Sciences.

Paratypes: total specimen on same sample as holotype; series of sections Ш-1, 1/1, 1/2, 2/1, 2/2, 3/1, 3/2, 3/3, 4/1, 4/2, 7/1, 7/2.

The reason for singling out a new species was the distinctive nature of the setal structure (the presence of flabellate setae on the entire body) combined with a long undivided gonoduct, the shape of the atrium and the chitinous penial sheath. The nature of the setal structure in T. solitarius and the structure of the spermatheca make this species

similar to Ilyodrilus orientalis Sokolskajae (Sokol'skaya, 1969). These species are distinguished mainly by the length ratio of the gonoduct to the atrium and penis combined. This peculiarity is at the same time the main difference between the genera Tubifex and Ilyodrilus (Brinkhurst, 1963, 1965; Hrabě, 1965). Therefore, T. solitarius is close to the genus Ilyodrilus Eisen on the one hand and to Tubifex Lamark on the other. This, we think, is due to the irregularity and artificiality of the taxonomy of these genera. As the corresponding data on the morphology and anatomy of Tubifex and Ilyodrilus are accumulated, it will apparently become necessary to give a more accurate definition of the hiatus between these genera and to establish the taxonomic position of certain species with greater precision.

T. solitarius sp. n. has been encountered only in Lake Shchuchye where it is a prolific species, inhabiting various types of bottoms up to a depth of 23 m. The same lake is also the home of the type T. tubifex (Müller); however, the habitats of these species are clearly differentiated. T. tubifex inhabits bottoms (muddy-sandy) up to depths of 2 m, while T. solitarius prefers deeper, muddy bottoms. It is found in greatest abundance at depths from 10 to 22.5 m (500 specimens/m^2 -- 1.7 g/m^2). Both species have never been observed in the same sample.

Euilyodrilus sp. (23)

Small worms, 5-7 mm. Ventral bundles contain bicuspid setae, dorsal bundles of anterior end flabellate and capillary ones. Distinguishing feature: irregular arrangement of genital segments. Genital setae in the form of elongated narrow spoon present in 7th and 8th, 8th and 9th, 9th and 10th, 10th and 11th segments. Atria very long, gonoducts short, with cilia, prostate gland absent. Probably a new species, the description

of which will be dealt with in a later work.

In the zoogeographical respect the oligochaete fauna of the Gusino-Ubukun group of lakes can be characterized as being common to all of Siberia. As for T. solitarius sp. n., which has been encountered in only one lake in Transbaikalia, it is still difficult to make any assumptions as to its endemism due to the insufficient data on the oligochaetes of Eastern Siberia.

References

1. Dumitrashko P.V. 1952. Geomorphology and paleogeography of the mountainous region of the Baikal area. Tr. Inst. geogr. AN SSSR, 55, 9.

2. Kozhov M.M. 1950. Fresh water bodies of Eastern Siberia. Irkutsk. obl. knizhn. izd., Irkutsk.

3. Semernoi V.P. 1971. A new species of the genus Rhyacodrilus (Tubificidae, Oligochaeta) from the Amur Basin. Inform. byull. Inst. biol. vnutr. vod AN SSSR, 10.

4. Sokol'skaya N.L. 1969. Materials on the oligochaete fauna of Kunashir Island. Byull. Moskovsk. obshch. ispyt. priorody. Otd. biol., LXXIV (1).

5. Brinkhurst R.O. 1963. Taxonomical studies on the Tubificidae (Annelidae, Oligochaeta). Internat. Rev. ges. Hydrobiol., Syst. Beih., 2.

6. Brinkhurst R.O. 1965. Studies on the North American aquatic Oligochaeta. II: Tubificidae. Proc. Nat. Sci. Philad., 117.

7. Hrabě S. 1965. New or insufficiently known species of the family Tubificidae. Publ. Fac. Sci. Univ. J.E. Purkyně, Brno, Czechoslovakia, 470.

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