

Short communication

First records of *Potamothrix bedoti* (Piguet) and *Haber speciosus* (Hrabé) (Oligochaeta: Tubificidae) from Norway

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The first record of *Potamothrix bedoti* (Piguet, 1913) in Norway is from the eutrophic lake Årungen 34 m a.s.l. (59°45'N, 10°41'E) in the county of Akershus, where 31 mature specimens were collected in the littoral zone from 1.0 to 3.0 m depth in silt and clay sediments. In Scandinavia, the species is also known from Sweden. Six mature specimens of *Haber speciosus* (Hrabé, 1931) were found in the northern part of the oligotrophic lake Maridalsvannet 149 m a.s.l. (59°59'N, 10°47'E) in the county of Oslo. The worms were found in the littoral zone on sandy bottom with scattered *Isoëtes* sp. vegetation at approximately 1.5 m depth. The species has earlier not been recorded from Scandinavia.

Potamothrix bedoti (Piguet, 1913)

Site description

Potamothrix bedoti (Piguet, 1913) were found in lake Årungen (59°45'N, 10°41'E) in Ås, Akershus county approximately 25 km south of the city of Oslo. The lake is situated 34 m a.s.l., the surface area is 1.2 km² and maximum depth is 13.2 m. Lake Årungen is eutrophic (pH: 7-10, conductivity: 10-15 mS/m, total phosphorous: 25-75 µg/l (Løvstad pers. comm.)) and during summer heavy blooms of blue-green algae often develop (Eie & Borgstrøm 1981). The worms were collect-

ed in the littoral zone at depths varying from 1.0 to 3.0 m, most abundant in the north-western part of the lake. The bottom sediments were rich in silt and clay and with macrophyte vegetation to approximately 1.5 m depth.

Species description

In tubificids, the genital organs are usually located in segment X to XII, where the clitellum also develops. In *P. bedoti* the genitalia are located more anteriorly and the modified spermathecal setae usually occur on segment VIII. According to Spencer (1978), they may be found on segments varying from VI to XII (US specimens), from VI to X (Milbrink 1980 and unpubl.), while Timm (1970) and Finogenova & Poddubnaja (1990) restricts their position to segments VII to IX. The genital setae are blade or scalpel shaped. The position of the paired spermathecae and male genital system varies accordingly. A full description of the species is given in the above citations.

A total of 31 mature *P. bedoti* were found in lake Årungen. Mature specimens were found most abundantly in July, but some also in June and August 1992. The majority of the mature specimen had modified genital setae on segment VIII. Some specimens had in addition or only modified genital setae on segment IX and one specimen only on segment VII. One modified genital setae in each bundle was most common but two in one or both bundles also occurred and in some specimens they were lacking in one of the bundles. Some specimens had intermediate setae as described by Timm (1970). In Sweden no such intermediate setae have been found. There are even examples of genital setae simultaneously occurring in each ventral bundle of segments VI, IX and X (Milbrink unpubl.).

There has been some doubt if *P. bedoti* is a separate species or if it is only a variant form

of *P. bavaricus* (Brinkhurst & Jamieson 1971). However, the redescription by Timm (1970) and Spencer (1978) states that *P. bedoti* is a separate species and this is also supported by Finogenova & Poddubnaja (1990).

The genus *Potamothrix* is apparently of Ponto-Caspian origin. Several species live only here but several others are presently broadening their distribution from this area (Milbrink 1980, Timm 1980). However, the widely distributed *P. hammoniensis* and some other species may have established their broad distribution range earlier, in Holocene or even partially in some interglacial period (Timm pers. comm.). *P. bedoti* differs from its congeners as it reproduces usually by architomy (fragmentation). For this reason the species can be especially peregrine. It is really a common species but it is often confused with young *P. hammoniensis* when immature. *P. bedoti* matures very rarely, more in cold springs than in lakes and rivers, since the low temperature under +10 °C suppresses the architomy. Only mature specimens may be identified with confidence (Timm pers. comm.). The generally colder climate in Norway could be the reason why mature worms were quite common in lake Årungen. In Bremnes & Sloreid (1994) the *Potamothrix* species from lake Årungen is thought to be a form of *P. hammoniensis* with a forward shift of the genital setae (Brinkhurst & Jamieson 1971). Since the confirmation that the species is *P. bedoti*, *P. hammoniensis* has not with certainty been found in Norway.

Timm (1970) found *P. bedoti* in springs and upper reaches of rivers in Estonia, while Spencer (1978) in Cayuga Lake (N.Y., USA) and Milbrink (1980) in Swedish lakes found the species most abundantly in the profundal, rarely in the littoral zone. In Scandinavia, *P. bedoti* has to my knowledge earlier only been found in Sweden. It is quite common in the eastern parts of Lake Mälaren and it has been

found in Lake Opplimen in the River Österdalälven close to the Norwegian border. It also occurs in slightly brackish water in littoral areas near Stockholm (Milbrink pers. comm.). Apart from Scandinavia, the species has a wide distribution in Europe (Timm pers. comm.) e.g., France, Switzerland and Germany (Juget 1958, Lang 1984 and Probst 1987, respectively); in Asia from Uzbekistan and the upper Jenisej River basin in Middle Siberia (incl. Lake Hubsugul in Mongolia) (Timm pers. comm.); in USA from St. Lawrence and the Great Lakes basin (Brinkhurst 1986).

***Haber speciosus* (Hrabé, 1931)**

Site description

A total of six mature specimens of *Haber speciosus* (Hrabé, 1931) were found (26/7 and 27/8 1993) in the northern part of lake Maridalsvannet 149 m a.s.l. (59° 59' N, 10° 47' E) in the county of Oslo. Lake Maridalsvannet is oligotrophic (pH: 6.3-6.6 conductivity: 3.2-3.7 mS/m, total phosphorous: 4-10 µg/l (OVA 1994)). The surface area is 3.9 km² and maximum depth is 45 m. Since 1922, the lake has been used as a reservoir for drinking water for Oslo. The worms were found in a protected bay in the littoral zone on sandy bottom with scattered *Isoëtes* sp. vegetation at approximately 1.5 m depth.

Species description

Haber speciosus was first described by Hrabé (1931) belonging to the genus *Tubifex*, while Brinkhurst (1962) assigned the species to the genus *Peloscolex*. Later, Holmquist (1978) established the genus *Haber* to include worms from the genera *Tubifex* and *Peloscolex* with similar penial and spermathecal setae and with a thickened basement membrane resembling a cuticular penis sheath. In the latest revision of the genus, Milligan (1986) included a total of eight species in the genus *Haber*.

The separation of the species is primarily done by differences within the male genitalia, but also by morphology of the setae and modifications of the body wall. However, many of the species are difficult to separate. On the basis of the setal morphology, Milligan (1986) distinguishes four forms of *H. speciosus*. Two of these forms have only been found in Europe, the *speciosus* form from the type locality Lake Ochrid in former Yugoslavia and the *zavreli* form from Poland and Slovakia. The form *simsi* has been found on both sides of the Atlantic, in England and in Florida, while the *fluminalis* form has only been found on the east coast of USA (Milligan 1986).

The anterior dorsal pectinate setae on the specimens from Lake Maridalsvannet had long lateral teeth and fine intermediate teeth, 1-2 setae in each bundle and 1 hair setae in some bundles, but they were usually lacking. Posteriorly the dorsal setae had shorter lateral teeth, but with one or more intermediate teeth, seldom only bifid and 1 hair setae in some bundles. In the (1) 2-4 ventral anterior setae the upper tooth was longer than the lower and somewhat thinner. Posteriorly there were 1-2 ventral setae per bundle with the upper tooth a bit longer than the lower.

On the basis of the dorsal setae, the specimens from lake Maridalsvannet best fit the description of the *simsi* form. However, the anterior ventrals have a longer upper tooth than described for *simsi*, and they are more like the described *zavreli* form. The form of *H. speciosus* from lake Maridalsvannet is therefore uncertain.

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SAMMENDRAG

Første funn av *Potamothrix bedoti* (Piguet) og *Haber speciosus* (Hrabé) (Oligochaeta: Tubificidae) fra Norge.

To nye arter av ferskvannsfåbørstemark (Oligochaeta: Tubificidae) beskrives for første gang fra Norge. *Potamothrix bedoti* (Piguet, 1913) ble funnet i den eutrofe innsjøen Årungen 34 m o. h. (59°45'N, 10°41'E) i Akershus. 31 kjønnsmodne individer ble funnet i litoralsonen fra 1 til 3 m dyp. Sedimentet bestod vesentlig av silt og leire. I Scandinavia er arten tidligere funnet i Sverige. Den andre arten, *Haber speciosus* (Hrabé, 1931) ble funnet i den nordligste delen av det oligotrofe Maridalsvannet 149 m o. h. (59°59'N, 10°47'E) i Oslo. Seks kjønnsmodne individer ble funnet på 1,5 m dyp med sandbunn og spredt forekomst av *Isoëtes* sp. *H. speciosus* har tidligere ikke blitt påvist i Scandinavia.

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