

Diagnosis of *Noterus ponticus* SHARP, 1882 (Coleoptera: Noteridae)

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Abstract

Noterus ponticus SHARP, 1882 (Coleoptera: Noteridae) is redescribed on the base of the male lectotype (herein designated) and the female paralectotype. The species is very close to *N. clavicornis* (DE GEER, 1774), from which it is easily recognisable by the very fine and poorly impressed punctuation on the elytra and a number of other characters. *Noterus ponticus* is confirmed from western Iran (Khuzestan), while other records for this country must be referred to *N. clavicornis*. A key, figures of diagnostic characters and a check list are given for the known taxa of *Noterus* CLAIRVILLE, 1806.

Key words: Coleoptera, Noteridae, *Noterus*, taxonomy, lectotype designation, Iran.

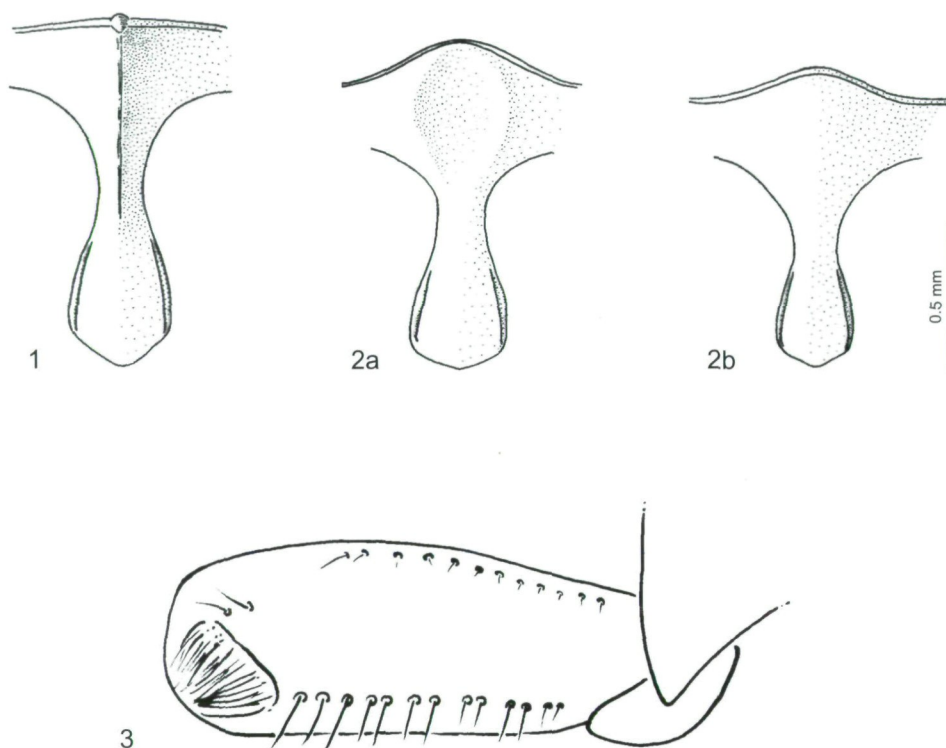
Introduction

The mainly Palearctic genus *Noterus* CLAIRVILLE, 1806 is composed of a few species of medium-sized beetles, quite uniform in body shape and colouration. Peculiar to this genus is the dilatation of the male antennae, the shape of which is often a good diagnostic character, more useful than the male genitalia, which are somewhat uniform. Members of this genus live in fresh and, sometimes, brackish waters, stagnant or slow-flowing, rich in debris and vegetation. Of the 18 nominal species known at present seven are formally considered valid and the remaining ones are regarded as junior synonyms of *N. clavicornis* and *N. crassicornis*. The status of five of these seven species is clear, and their identification does not provide particular problems (e.g. ZAITZEV 1953, FRANCISCOLO 1979, HOLMEN 1987); however, the remaining two taxa are actually very poorly known. One of them, *N. granulatus* is represented only from the single female holotype, collected in China in the 19th century and it is impossible at present to determine its systematic status (see ZAITZEV 1953: 96; TOLEDO 2003: 74). The second one, *N. ponticus* is known from a male and female deposited in the Natural History Museum, London. Thanks to the kindness of Mr. Stuart Hine (NHML) and Prof. Shidokht O. Hosseinie (CBSU), I had the opportunity to examine the types of this latter taxon and to see a number of specimens, recently collected in south-western Iran. *Noterus ponticus* is here redescribed and, for the first time, illustrated.

Acknowledgements and acronyms

I wish to thank Prof. Shidokht O. Hosseinie (Shiraz), Dr. Paolo Mazzoldi (Brescia), Dr. Stuart Hine and Ms. Christine Taylor (London) for their help given during the preparation of this publication. I am obliged to Dr. David Bilton (Plymouth) for the language revision of the text.

CBSU	Collection of the Department of Biology, Shiraz University, Shiraz, Iran
MNHNP	Muséum National d'Histoire Naturelle, Paris, France
MTB	Mario Toledo collection, Brescia, Italy
NHML	The Natural History Museum, London [formerly: British Museum (Natural History)], U.K.
NMW	Naturhistorisches Museum Wien, Vienna, Austria
NRMS	Naturhistoriska Riksmuseet, Stockholm, Sweden
PMB	Paolo Mazzoldi collection, Brescia, Italy
ZISP	Zoological Institute, St. Petersburg, Russia
ZSM	Zoologische Staatssammlung, München, Germany



Figs. 1 - 2: Prosternum and prosternal process of 1) *Noterus clavicornis*; 2) *N. crassicornis* a) male, b) female.

Fig. 3: Ventral face of metafemur of *Noterus laevis*.

Noterus ponticus SHARP

Noterus ponticus SHARP, 1882: 266 (orig. descr.).

Noterus ponticus SHARP, 1882 - MARSEUL 1882: 37; BRANDEN 1885: 15; ZIMMERMANN 1920: 9; 1930: 8; ZAITZEV 1953: 99.

Noterus ponticus SHARP, 1882; HOSSEINIE 1978: 167 (misident.).

TYPE LOCALITY: Mesopotamia.

TYPE MATERIAL: **Lectotype**: ♂ (NHML), here designated to ensure taxonomic stability. This specimen, which is in perfect condition, was later dissected, maybe by J. Balfour-Browne (Ms. Christine Taylor, personal communication). The abdomen is detached and glued on the same card, together with lectotype and genitals; this card seems to be quite modern, with a lateral window cut out to make part of the lectotype's underside visible. Just below there is an empty - older - pointed card and a series of labels as follows: "♂ [printed on old, rectangular, white label] / Type [red bordered, NHML circular label, added subsequently] / Sharp Coll. 1905-313 / Mesopotamia / Mesopotamia [Sharp's handwriting] / Type 615 *Noterus ponticus* n.sp. Mesopotamia [Sharp's handwriting]" plus my label of lectotype designation and blue bordered, NHML circular label "Lectotype". **Paralectotype**: ♀ (NHML), glued on old, original card and labelled as follows: "Syntype [light-blue bordered, NHML circular label, added subsequently] / Type [red bordered, NHML circular label, probably added subsequently] / Mesopotamia / Mesopotamia [Sharp's handwriting] / Sharp Coll. 1905-313" plus my label of paralectotype designation.

ADDITIONAL MATERIAL EXAMINED:

IRAN: KHUZESTAN: rd. Andimeshk to Dehloran, 16 km W Andimeshk, pond 100 m a.s.l., 30.III.1995, (#1495), leg. Elmi, 19 exs. (CBSU); rd. Andimeshk to Dehloran, 10 km W Andimeshk, pond 100 m a.s.l., 30.III.1995, (#1494), leg. Elmi, 3 exs. (CBSU); rd. Ahwaz to Susangerd, 26 km NW Ahwaz, pond 60 m a.s.l., 1.IV.1995, (#1504), leg. Elmi, 6 exs. (CBSU); rd. Ramshir to Bandar -e Mahshahr, 3 km S Ramshir, pond 40 m a.s.l., 30.III.1995, (#1523), leg. Elmi, 7 exs. (CBSU); rd. Dogonbadan to Behbahan, 35 km NW Dogonbadan, marshland 500 m a.s.l., 26.III.1995, (#1472), leg. Elmi, 7 exs. (CBSU).

DESCRIPTION: Habitus (Fig. 4). Lectotype: 4.4 mm long, 2.5 mm wide. Paralectotype: 4.5 mm long, 2.5 mm wide. broadly oval, convex, glossy; evenly reddish-brown.

Head dorsally covered by a fine but visible reticulation of almost circular meshes. Punctuation practically absent, only few, very small and fine dots scattered on the disc. Mouthparts and antennae reddish.

Pronotum with lateral sides broadly bordered. Surface covered by a fine reticulation as on the head, but meshes arranged in short and fine wrinkles; no dots visible, not even along the sides.

Elytra reticulated as on pronotum and with small and fine dots arranged in two somewhat regular series along each elytron, becoming slightly larger in distal half.

Underside reddish in both sexes (but see male). Prosternum keeled, prosternal process depressed in its proximal half. Surface, except for prosternum, prosternal process, median part of metasternum and metacoxal process, covered by a strong reticulation of quite large and impressed meshes.

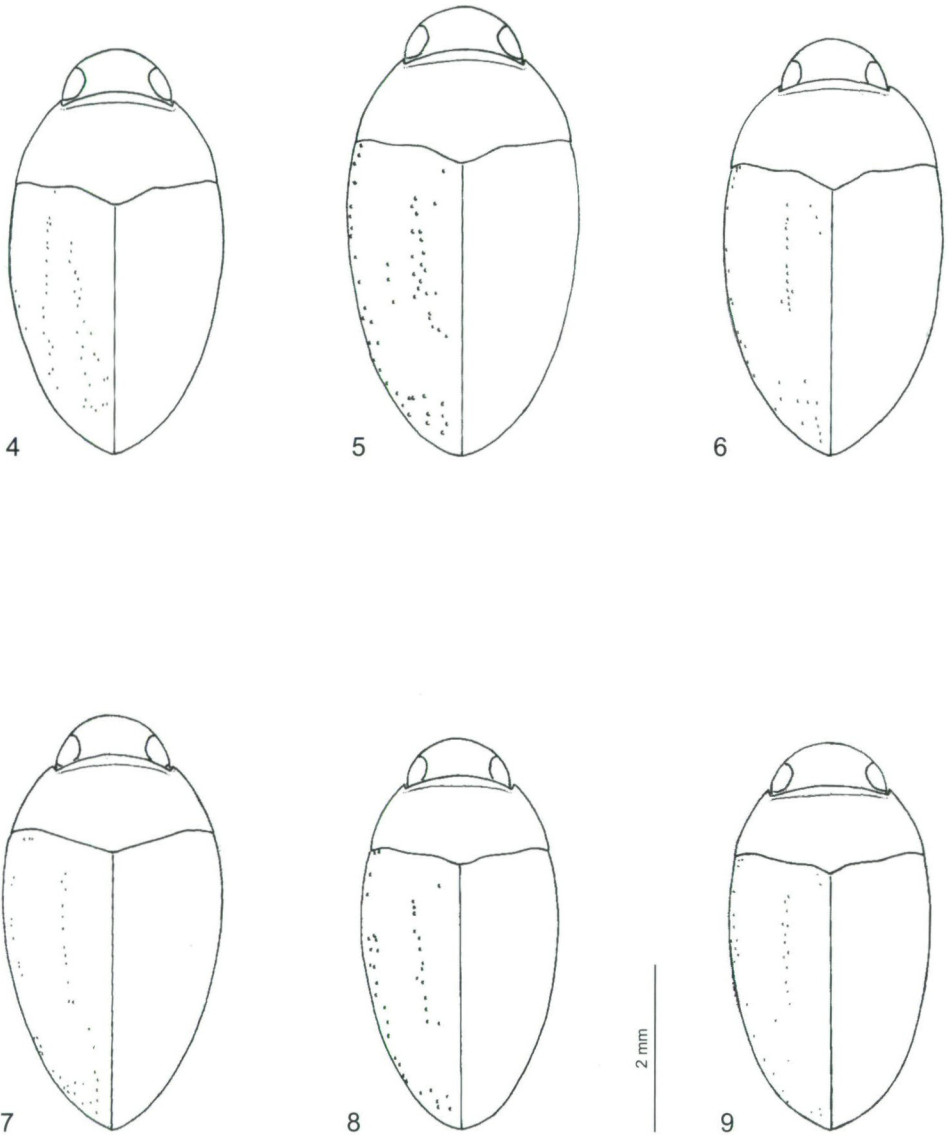
Legs reddish; mesofemora with two series of dots: one central, the other along the hind side; metafemora with only one series along the hind side.

Male: Antennae with segments 5 - 10 enlarged, all with an external lobe: the 5th and 6th are almost the same size, the others a little smaller (Fig. 10). Ventral side of head, around the eyes, and lateral sides of prosternum dark. Protibiae and first segment of pro- and mesotarsi thickened; five adhesive discs on first three segments of pro- and mesotarsi. Median lobe of aedeagus and parameres as in Figs. 16, 22.

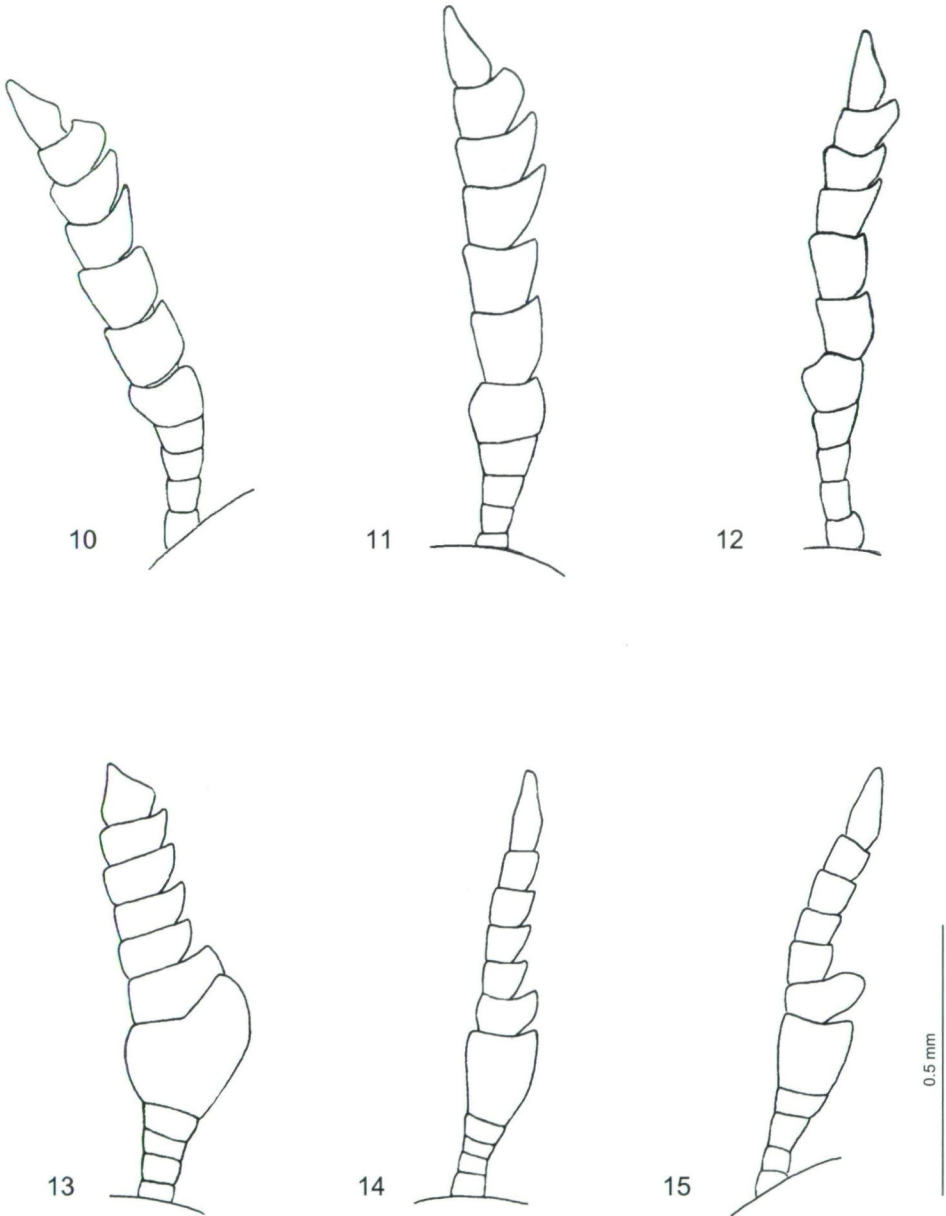
Female: Similar to male, except for the sexual characters; head and pronotum ventrally pale.

TAXONOMIC REMARKS: *N. ponticus* belongs to the group of species in which the prosternum is sharply carinate in both sexes, ending anteriorly with a tooth-like process (Fig. 1). It is undoubtedly very close to *Noterus clavicornis* with which it shares similar male antennae (Fig. 11), though these are shorter and with more regularly broadened segments. Nevertheless *N. ponticus* can be distinguished from *N. clavicornis* by its slightly smaller size and the somewhat broader body shape, the almost completely reddish coloration of the male underside - which is dark on most of the surface in *N. clavicornis* - and, above all, by the very fine dots on the elytra, being deep and coarse in *N. clavicornis*. *Noterus japonicus* belongs to the same group and has the antennae somewhat similar to the above species, but more slender and with the 5th segment abruptly protruding on the inner side (Fig. 12). The punctuation of the elytra in this species is fine, more or less as in *N. ponticus*. *Noterus clavicornis* comes in contact with this latter species in the outskirts of its range, and indeed in a few cases I have seen specimens of *N. clavicornis* collected together with *N. ponticus*. Nevertheless in these cases the differences between the two species were always well defined, supporting the fact that they are two separate species.

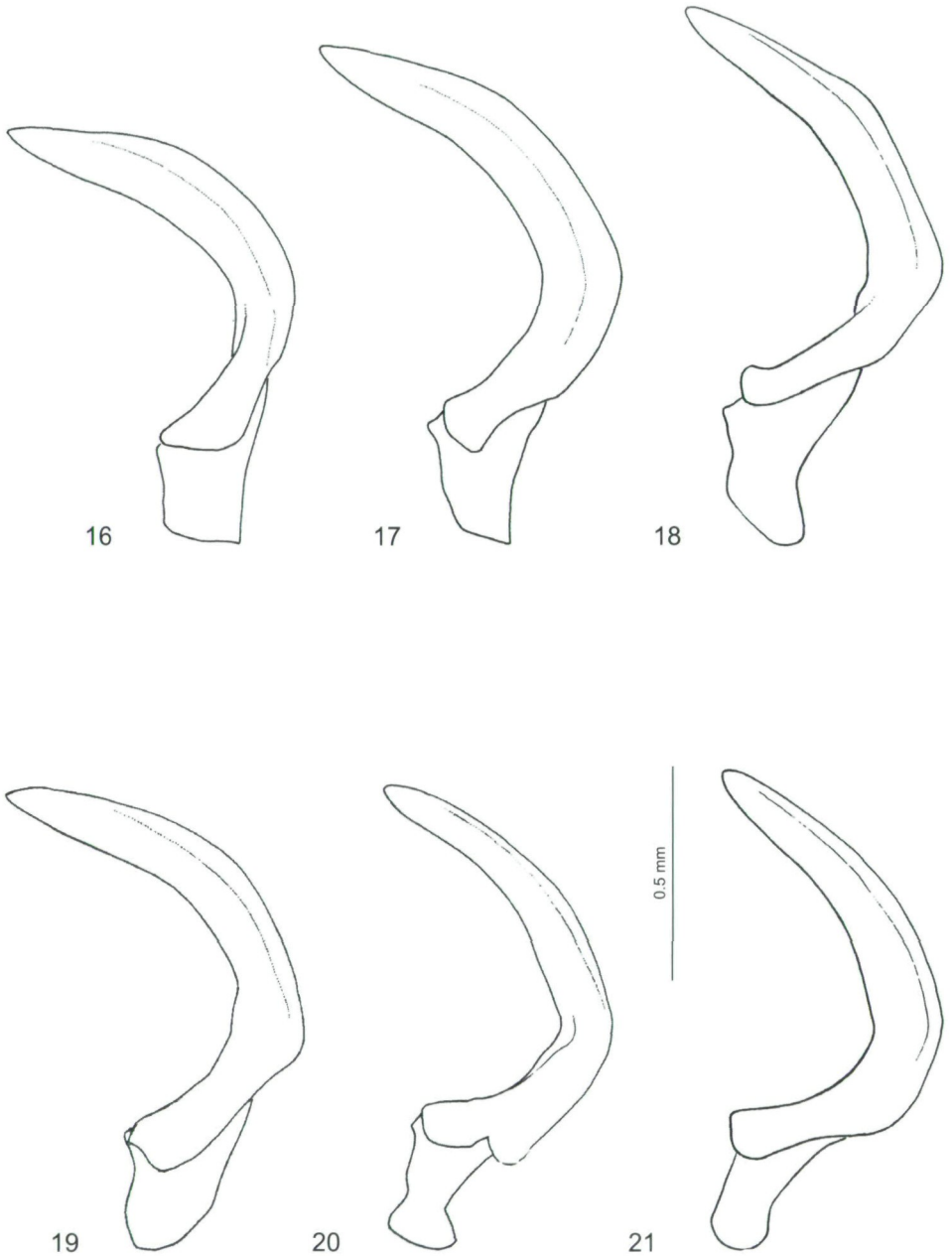
DISTRIBUTION: Western Iran, province of Khuzestan. Specimens examined from other parts of Iran (Azerbaijan, Fars, Gilan) are *N. clavicornis* and data given in HOSEINIE (1978) for Fars should be referred to this latter species. The distribution of *N. ponticus* seems to be restricted to the Tigris basin, most probably it occurs also in northern Iraq; a somewhat unusual range, compared to the wider distribution of *Noterus clavicornis*.



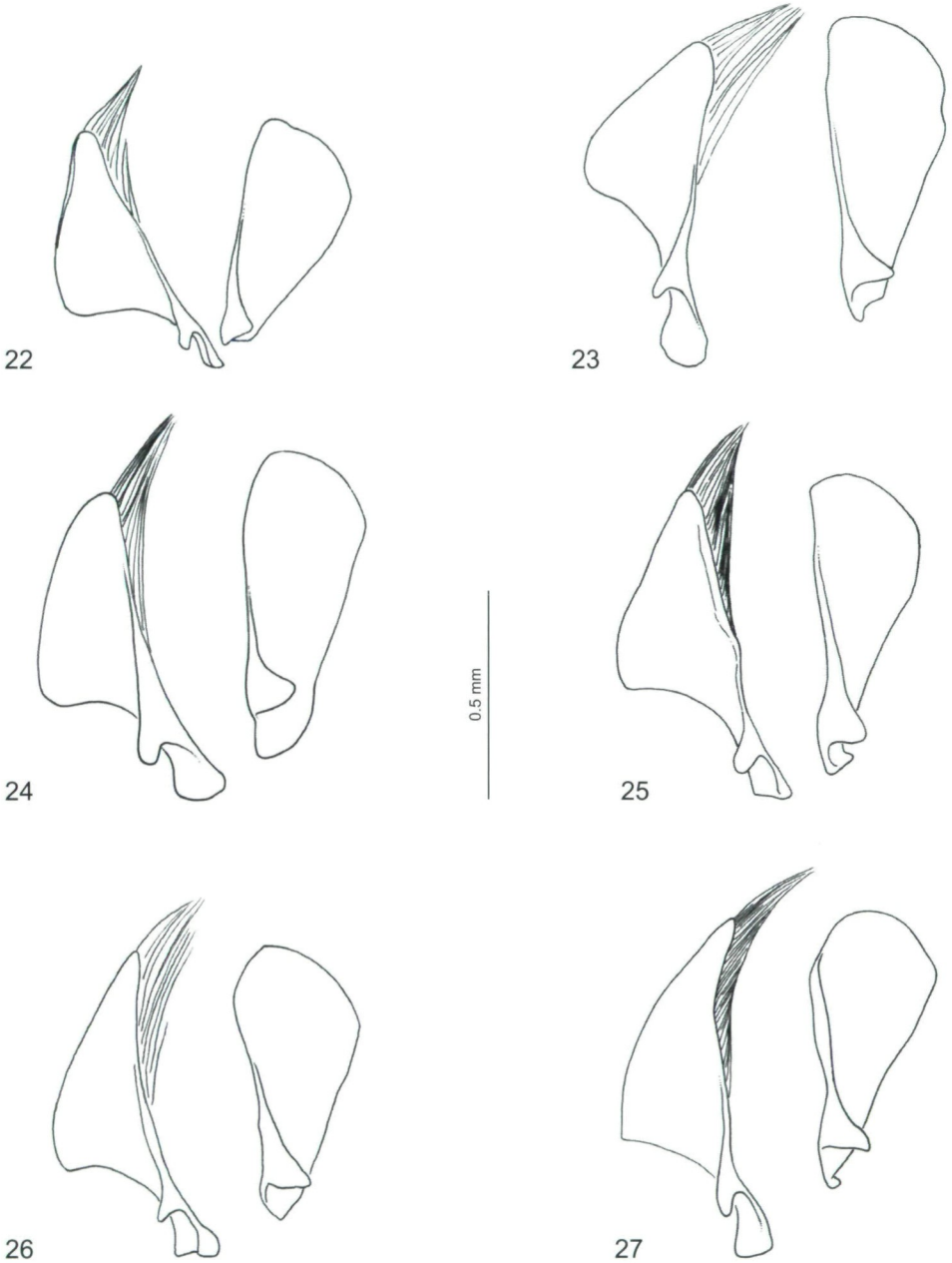
Figs. 4 - 9: Body outline and elytral punctures (punctures depicted on left elytron only) of 4) *Noterus ponticus* (lectotype); 5) *N. clavicornis*; 6) *N. japonicus*; 7) *N. laevis*; 8) *N. crassicornis*; 9) *N. angustulus*.



Figs. 10 - 15: Male right antenna of 10) *Noterus ponticus*; 11) *N. clavicornis*; 12) *N. japonicus*; 13) *N. laevis*; 14) *N. crassicornis*; 15) *N. angustulus*.



Figs. 16 - 21: Median lobe of aedeagus of 16) *Noterus ponticus*; 17) *N. clavicornis*; 18) *N. japonicus*; 19) *N. laevis*; 20) *N. crassicornis*; 21) *N. angustulus*.



Figs. 22 - 27: Right and left parameres of 22) *Noterus ponticus*; 23) *N. clavicornis*; 24) *N. japonicus*; 25) *N. laevis*; 26) *N. crassicornis*; 27) *N. angustulus*.

Key to species of *Noterus*

Noterus granulatus is not included due to the reasons given in the introduction.

- 1 Prosternum in males medially depressed or almost concave, slightly elevated in females, but never carinate and without an anterior tooth-like process (Fig. 2); male antennae with 5th and 6th segment distinctly larger and broader than the following; average size smaller (length < 4.4 mm)..... 2
- Prosternum visibly carinate in both sexes (slightly less marked in *N. japonicus*), ending anteriorly with a tooth-like process projecting downward (Fig. 1); male antennae with 5th - 10th segments almost of the same size (exception made for *N. laevis*); average size larger (length > 4.4 m)..... 3
- 2 Longitudinal rows of dots on disc and apex of elytra very deeply impressed, large and scattered (Fig. 8); male antennae with segments 7 - 10 slightly widened, but with a distinct expansion on outer side (Fig. 14); median lobe of aedeagus and parameres as in Figs. 20, 26...
..... *crassicornis*
- Longitudinal rows of dots very fine and poorly impressed, small and arranged in almost regular series on disc, hardly visible on apex of elytra; male antennae with segments 7 - 10 almost unmodified, without lateral expansions and segment 6 more expanded than in *N. crassicornis* (Fig. 15); median lobe of aedeagus broader (Fig. 21), parameres as in Fig. 27.....
..... *angustulus*
- 3 Ventral side of metafemur with a centroapical tuft of hairs located in a dimple (Fig. 3); antennae in males very broad, the 5th segment remarkably broader than the others, more than twice the width of 4th segment and almost three times its length (Fig. 13); body shape almost cuneiform, tapering posteriorly (Fig. 7); elytra with small and finely impressed dots, arranged in somewhat regular rows for almost all the elytral length; male underside almost completely dark *laevis*
- Ventral side of metafemur without any tuft of hairs; antennae in males less broadly widened, the 5th segment is not more than 1.5 times wider than 4th and at most slightly wider than segments 7-9 (Figs. 10 - 12); body shape more regularly oval (Figs. 4 - 6)..... 4
- 4 Dots on elytra large and deeply impressed, scattered (Fig. 5); underside of male mostly darkened; male antenna as in Fig. 11; median lobe of aedeagus and parameres as in Figs. 17, 23 *clavicornis*
- Dots on elytra fine and small, poorly impressed and often hardly visible..... 5
- 5 Male antennae broader: width of 6th article about 1.2 - 1.3 times its length and 5th segment poorly protruding from inner side (Fig. 10); body shape shorter (Fig. 4); abdominal sternites in male reddish as most of the underside, except for dark head and lateral expansions of prosternum *ponticus*
- Male antennae slender: width of 6th article less than its length and 5th segment visibly protruding from inner side (Fig. 12); body shape slightly more elongate (Fig. 6); abdominal sternites in male darker than metasternum..... *japonicus*

Check list of *Noterus* species (see also NILSSON 2003)

angustulus ZAITZEV, 1953: 95 - Type locality: Russia, Primorye, Khanka lake [etc.]; syntypes in ZISP.

DISTRIBUTION: China (Beijing, Heilongjiang, Jilin, Nei Mongol), Japan (Hokkaido, Honshu), Korea, Russia (Far East).

MATERIAL EXAMINED:

CHINA: Nei Mongol (1 ex. in NMW) (see TOLEDO 2003: 75).

RUSSIA: Primorye, 5 km E Kraskino, 13.-16.VII.1992, D. Boukal leg. (2 exs. in MTB).

clavicornis (DE GEER, 1774: 402; *Dytiscus*) - Type locality: Sweden; syntypes in NRMS.

= *Noterus convexiusculus* REICHE & SAULCY, 1855: 640.

= *Noterus major* F. BALFOUR-BROWNE, 1965: 19 (as replacement name for *Dytiscus clavicornis* DE GEER).

= *Dytiscus semipunctatus* FABRICIUS, 1792: 199.

= *Dytiscus sparsus* MARSHAM, 1802: 430.

= *Noterus capricornis* (HERBST, 1784) (misident. in SHARP 1882: 265).

= *Noterus crassicornis* (FABRICIUS, 1781) (misident. in LACORDAIRE 1835: 322).

= *Noterus depressicornis* MOTSCHULSKY, 1853: 9 (nomen nudum).

DISTRIBUTION: Albania, Armenia, Austria, Azerbaijan, Belgium, Bosnia and Herzegovina, Bulgaria, Belarus, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Georgia, Great Britain, Greece, Hungary, Iran, Iraq, Ireland, Israel, Italy, Jordan, Kashmir, Kazakhstan, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Macedonia, Moldavia, Mongolia, Netherlands, Norway, Poland, Portugal, Russia (Central European Territory, East Siberia, South European Territory, West Siberia), Slovakia, Slovenia, Spain, Sweden, Switzerland, Syria, Turkey, Turkmenistan, Ukraine, Yugoslavia.

Previous records from China (Heilongjiang, Shaanxi, Xinjiang) have not been confirmed by TOLEDO (2003).

MATERIAL EXAMINED:

ITALY: various localities of northern Italy (Lombardy, Venetia, Emilia-Romagna), Tuscany, Abruzzo and Sardinia (more than 100 exs. in MTB).

IRAN: various localities of the Provinces of Azerbaidjjan, Fars, Gilan (more than 50 exs. in CBSU).

TURKMENISTAN: Svincoviy Rudnik, Kugitangtau ridge, 10.-13.IV.1992, S. Bečvář leg. (16 exs. in MTB).

crassicornis (O.F. MÜLLER, 1776: 72; *Dytiscus*) – Type localities: Denmark, Norway; syntypes not traced.

= *Dytiscus capricornis* HERBST, 1784: 128.

= *Noterus geerii* LEACH, 1817: 71.

= *Noterus minor* F. BALFOUR-BROWNE, 1965: 19 (replacement name for *Dytiscus crassicornis* O.F. MÜLLER).

= *Noterus crassicornis* var. *simulator* PORTA, 1923: 257.

= *Noterus angustatus* ZAITZEV, 1915: 258 (nomen nudum).

DISTRIBUTION: Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Belarus, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Hungary, Iran, Ireland, Italy, Kashmir, Latvia, Lithuania, Luxembourg, Macedonia, Moldavia, Netherlands, Norway, Poland, Russia (East Siberia, European Territory), Slovakia, Slovenia, Sweden, Turkey, Ukraine, Yugoslavia.

MATERIAL EXAMINED:

ITALY: various localities of northern and central Italy (Lombardy, Venetia, Emilia-Romagna, Tuscany) (about 150 exs. in MTB).

granulatus RÉGIMBART, 1883: 225 – Type Locality: China, "Doo-choo-foo" (may be Qufu in Shandong); holotype in MNHNP.

DISTRIBUTION: China (Shandong). Status unclear.

japonicus SHARP, 1873: 52 – Type Locality: Japan, Nagasaki; syntypes in NHML.

DISTRIBUTION: China (Beijing, Fujian, Guizhou, Hainan, Hebei, Heilongjiang, Hong Kong, Hubei, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Yunnan), Taiwan, Japan (Hokkaido, Honshu, Kyushu, Ryukyu Islands, Shikoku), Russia (Far East), South Korea.

MATERIAL EXAMINED:

CHINA: most of Chinese provinces and Hong Kong (see TOLEDO 2003: 82) (hundreds of exs. in NMW).

JAPAN: Fukushima, Iwaki City, Fujima-Numa Pond, 29.VII.1988, Y. & T. Abe leg. (5 exs. in MTB); Nakanoshima, Tokara Isl., 7.VII.1960, M. Satô leg. (1 ex. in MTB).
 RUSSIA: Primorye, 5 km E Kraskino, 13.-16.VII.1992, D. Boukal leg. (3 exs. in MTB).

laevis STURM, 1834: 135 – Type locality: Spain; syntypes in ZSM.
 = *Noterus laevis* DEJEAN, 1821: 19 (nomen nudum).

DISTRIBUTION: Algeria, Croatia, France, Italy, Morocco, Portugal, Spain, Tunisia.

MATERIAL EXAMINED:

SPAIN: Salamanca, pond on road Rodrigo-Salamanca, 13.VII.1990, P. Mazzoldi leg. (20 exs. in PMB, MTB).
 ITALY: Sicily, Messina Prov., Caronie Mts., Urio Quattrocchi, 1000 m, 8.XI.1987, M. Romano leg. (10 exs. in MTB); same locality, 24.IV.1992, M. Toledo leg. (30 exs. in MTB).

ponticus SHARP, 1882: 266 – Type locality: Mesopotamia; lectotype (here designated) and paralectotype in NHML.

DISTRIBUTION: South-western Iran, Iraq.

Correction

In my previous article on Noteridae (TOLEDO 2003) there is a major error:

p. 80: under TAXONOMIC REMARKS of *Canthydrus antonellae* sp.n. (3rd line) it should read "all these three species are moderately convex ..." instead "all these species are more convex ...".

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Band/Volume: [74 2004](#)

Autor(en)/Author(s): Toledo Mario A.

Artikel/Article: [Diagnosis of *Noterus ponticus* SHARP, 1882 \(Coleoptera: Noteridae\). 33-43](#)