

**The genus *Notionotus* SPANGLER, 1972
in the Old World
(Coleoptera: Hydrophilidae)
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ABSTRACT

Five species of the assumed exclusively neotropic genus *Notionotus* SPANGLER, 1972 are recorded from the Oriental region and described in this paper: *Notionotus fenestratus* sp. n. (China), *N. mazzoldii* sp. n. (Thailand), *N. notaticollis* sp. n. (China, Laos, Vietnam), *N. ochreatus* sp. n. (India) and *N. siklisi* sp. n. (Nepal, Sri Lanka, Thailand) are described in this paper. The male genitalia of all species are figured.

KEY WORDS

Coleoptera, Hydrophilidae, Hydrophilinae, Anacaenini, *Notionotus*, oriental region, new species, taxonomy.

INTRODUCTION

The genus *Notionotus* of the tribe Hydrophilidae tribe Anacaenini was established by P. J. SPANGLER (1972) basing on the two species *N. rosalesi* and *N. liparus* from Venezuela. P. D. PERKINS (1980) described further three species: *N. mexicanus* (Mexico), *N. nucleus* (Guatemala) and *N. tricarinatus* (Panama). So the distribution pattern of that genus was assumed to be restricted to the neotropic region.

As happened in some other assumed neotropic genera (*Omicrus*, *Cylogymus*, *Pelosoma* etc.) also *Notionotus* was at least found in the Old World too.

DIAGNOSIS OF THE GENUS NOTIONOTUS

The genus *Notionotus* is easily to recognize within the tribe Anacaenini by the shape of the maxillary palpi with the apical segment striking large and almost twice as long as the penultimate segment, bending slightly outwards as in *Enochrus* (fig. 6), also by the small eyes widely separated from one another and a little reniform seen from above. Elytra without sutural stria! The prosternum is : carinate medially and the hind femora are extendedly pubescent on under surface. The epipleura are very oblique and the last ventrit is apically more or less truncate and ciliated there (fig. 7). The elytral punctation is variable reaching from subseriate to almost impunctate. After HANSEN (1991) the hitherto known species should have the elytra without punctural series. Some oriental species in contrast are distinctly subseriate.

BIONOMICS

As to learn from the labels and from the nearctic experiences the members of this genus live terrestrial in rotting leaves and compost as known from most Sphaeridiinae.

ABBREVIATIONS AND ACKNOWLEDGEMENTS

I would like to thank the persons and museums for the loan of specimens, for leaving of doubles and paratypes used for this study. The abbreviations used in the text in parentheses are referring to the collections of the following persons.

CHG Coll. F. Hebauer, Grafling,
MTD Museum für Naturkunde Dresden (O. Jaeger),
NMW Naturhistorisches Museum Wien (M. Jaech),
ZML Zoological Museum Lund, Sweden (R. Danielsson).

KEY

- 1 Elytra distinctly punctate _____ 3
 - Elytra almost impunctate and smooth _____ 2
- 2 Larger, 1.8-2.0 mm; dirty yellowish _____ *ochreatus* sp. n.
 - Smaller, 1.6-1.8 mm; yellow with dark elytral disc and a pair of pale patches besides the scutellum _____ *fenestratus* sp. n.
- 3 Elytra irregularly punctate, entirely black; size 1.5 mm. _____ *mazzoldii* sp. n.
 - Elytra distinctly subseriate _____ 4
- 4 Larger, 2.2 mm; pronotum yellow with T-shaped macula; head with large preocular patches _____ *notaticollis* sp. n.
 - Smaller, 1.6 mm; yellow, elytral apex slightly explanate _____ *siklisi* sp. n.

THE SPECIES

1. *Notionotus fenestratus* sp. n.

Holotypus (male, NMW): CHINA: Yunnan, Xishuangbanna ca. 20 km NW Mengla, 9.XI.1999, ca. 1000 m, leg. Jäch, et al. (CWBS 368).- Paratypes: 4 exs.: same data as holotype (NMW, 1 CHG); 1 m: CHINA: Yunnan, ca. 13 km N Mengyang, 10.XI.1999, ca. 700 m, leg. Jäch, et al. (CWBS 373) (CHG).

DIAGNOSIS:

Between the almost impunctate oriental species close to the indian *N. ochreatus*. To distinguish from that externally by the averaging smaller size and by the contrasty colour pattern.

DESCRIPTION:

Length: 1.8 mm; width: 1.0 mm.-

Body broadly oval, strongly convex; yellowish with elytra dark brown at disc, interrupted by a pair of pale patches besides the scutellum. Whole surface smooth, almost impunctate. Head obsolete punctate, shining yellow with postfrons infuscate, eyes relatively large, a little reniform seen from above. Antennae 8-segmented. Maxillary palpi yellow with ultimate segment slightly infuscate distally, large, ca. twice as long as penultimate segment, a little bending outwards. Pronotum unicoloured yellow, shining, almost impunctate. Elytra broadly oval, strongly convex, ca. 1.1x as long as their combined width, apex not explanate; colour yellow with disc and sutural stria brown, interrupted by a pair of large yellow patches besides the scutellum, almost impunctate, shining. Underside brown, legs yellow. Basal piece of aedeagophore much shorter than the parameres; the latter rather narrow, strongly tapered to ends and acute there; median lobe narrowly wedge-shaped, a little shorter than the parameres. (Fig. 1).

ETYMOLOGY: Derived from Latin: fenestra = window. Referring the pale elytral patches.

DISTRIBUTION: Known only from the province Yunnan.

2. *Notionotus mazzoldii* sp. n.

Holotypus (male, NMW): Thailand: Sankhlaburi [= Sangkhla Buri] Thung Yai Naresan NP, 7.XII.1996, leg. Mazzoldi.- Paratypes: 1 male, 1 female: same data as holotype (NMW, CHG).

DIAGNOSIS:

Between the Old World *Notionotus* not to confuse with any other species of that genus because of the entirely black and smooth surface.

DESCRIPTION:

Length: 1.5 mm; width: 0.9 mm.- Body broadly oval, rather convex, entirely black, surface polished, almost impunctate, palpi pale.

Head like the whole surface nearly impunctate, smooth and shining, piceous, labrum and cly-

peus castaneous, eyes large, a little oblique and emarginate anteriorly, interspace between eyes in dorsal view ca. 3x the diameter of one eye. Maxillary palpi pale yellow, penultimate segment half as long as ultimate segment, the latter symmetrical, a little bending outwards, as long as the 2nd segment. Antennae 8-segmented. Pronotum coloured and punctate like head, sides and angles pale yellow. Elytra broadly oval, rather convex, hardly longer than their combined width, apex broadly rounded, moderately finely and densely irregularly punctate, without sutural stria, sides and apex laterally almost vertically sloping, compressed, not distinctly explanate, indistinctly paler. Underside piceous, legs rufotestaceous, rather spinose, tarsi very narrow and pale. Epipleura very oblique. Aedeagophore slender, with median lobe narrow and evenly attenuated from base to the straight apex, as long as the parameres, the latter similarly shaped as the median lobe, basal, piece very short. (Fig. 2).

ETYMOLOGY: Named after its discoverer, the specialist in Gyrinidae Paolo Mazzoldi, Brescia, Italia.

DISTRIBUTION: Known only from the type locality.

3. *Notionotus notaticollis* sp. n.

Holotypus (male, NMW): C-LAOS Prov. Viangchan Phou Khao Khouay NP Nam Leuk env. Tad Leuk waterf./ 1.-8.VI.1996, 200 m, flight intercept trap, leg. Schillhammer (15c).- Paratypes: 17 exs.: same data as holotype (NMW, CHG): 1 ex.: S-VIETNAM: 22.-24.IV.1995, 15 km SW Bao Loc, 900 m, 11°27'N 107°43'E, Pacholatko & Dembicky leg. (NMW); CHINA: 9 exs.: Yunnan, Xishuangbanna, ca. 6 km NW Mengla, 8.XI.1999, ca. 700 m, leg. Jäch et al. (CWBS 364) (NMW).

DIAGNOSIS:

This species is characterized by the colour pattern of the pronotum in combination with the piceous elytra with yellow margine. The elytra are subseriate as in *N. siklisi*.

DESCRIPTION:

Length: 2.2 mm; width: 1.2 mm.-

Body broadly oval, nearly hemispherical, elytra piceous with yellow sides, pronotum pale yellow with T-shaped discal macula. Head with pale and large preocular patches, and rather short, unicoloured maxillary palpi.

Head very finely and sparsely punctate, black with large yellow preocular patches and almost pale labrum, clypeus without reticulate microsculpture. Maxillary palpi relatively short, unicoloured yellow, apical segment nearly 1.5x as long as penultimate segment. Antennae 8-segmented. Pronotum punctate like head, pale yellow with T-shaped discal macula. Elytra broadly oval, nearly hemispherical, without sutural stria, much stronger and denser punctate than head and pronotum, subseriate; colour piceous-black, sides and apex well delimited yellow, apex not explanate. Legs yellow, epipleura very oblique. Aedeagophore with short basal piece and very long and broad parameres tapered and pointed at ends, slightly convex on outer face, median lobe shorter than parameres, pointed at apex. (Fig. 3).

ETYMOLOGY: Derived from Latin: notatus = marked, collis = neck.

DISTRIBUTION: Laos, Vietnam, China.

4. *Notionotus ochreatus* sp. n.

Holotypus (male, NMW): INDIA: Tamil Nadu, Palni Hills, 10°16'N-77°33'E, Perumalmalai, 1500 m, 12.I.1999, leg. D. Boukal (59).- Paratypes: 5 exs.: same data as holotype (NMW); 27 exs.: India, Tamil Nadu, Palni Hills, 10°11'N-77°29'E, Kodaikanal env. Vellagavi, 900 m, 13.I.1999, leg. D. Boukal (62) (NMW, 3 CHG); 5 exs.: India: Tamil Nadu, Palni Hills, 10°16'N-77°35'E, 1200 m, 16.I.1999, leg. D. Boukal (68) (NMW); 1 ex.: India, Tamil Nadu, Palni Hills, 10°16'N-77°35'E, Kodaikanal-Batlagunda rd. Machur env., 1200 m, 16.I.1999, leg. D. Boukal (68) (NMW); 2 exs.: India: Tamil Nadu, Palni Hills, 10°15'N-77°31'E, Kodaikanal-Perumalmalai, 1700 m, 10.I.1999, leg. D. Boukal (56) (NMW); 2 exs.: India: Tamil Nadu, Nilgiri Hills, 5 km E Kundah, 11°18'N-76°40'E, 23.I.1999, leg. D. Boukal (80) (NMW); 11 exs.: India: Kerala, 10 km WSW Munnar, 1200 m, Kallar Valley, 10°03'N-76°59'E, 8.I.1999, leg. D. Boukal (53) (NMW); 1 ex.: India: Kerala, 30 km NNE Trivandrum, 300 m, Kallar Bridge 08°45'N-77°05'E, 1.I.1999, leg. D. Boukal (37) (NMW).

DIAGNOSIS:

A little similar in size and colour to *N. siklisi*, but in contrast to the latter with the surface almost impunctate and smooth like *N. fenestratus*.

DESCRIPTION:

Length: 1.7-2.0 mm; width: 1.0-1.2 mm.-

Body broadly oval, rather convex, yellowish brown, shining, surface glabrous.

Head obsoletely punctate, shining yellow, postfrons slightly infuscate. Maxillary palpi unicoloured yellow, apical segment about twice as long as penultimate segment, a little bending outwards, symmetrical. Eyes slightly oblique seen from above, emarginate anteriorly. Antennae 8-segmented. Pronotum almost impunctate, shining dirty yellow. Elytra testaceo-brunneous, generally a little darker than pronotum, base on both sides of scutellum, at sides and apex distinctly paler, apex broadly rounded, not explanate, microscopically finely punctate, shining, without sutural stria. Underside dark, legs rufotestaceous, tarsi pale, striking narrow and long, epipleura very oblique. Aedeagophore with median lobe obelisk-shaped, shortly point. Parameres rather wide in basal half, strongly attenuated in distal third, acute at apex. Basal piece very short. (Fig. 4).

ETYMOLOGY: Derived from Latin: ochreatus = ochre-coloured.

DISTRIBUTION: India.

5. *Notionotus siklisi* sp. n.

Holotypus (male, MTD): NEPAL-Himalaya, SE Annapurna mts., leg. O. Jäger 1996/Siklis mts., 28.VI., Sturzbach an Kyojo-Kharka, 1850 m.- Paratypes: NEPAL: 9 exs.: same data as holotype (MTD, CHG); 1 ex.: Nepal, Tibetan border, 3.III.81, leg. M. Jäch, N 38. (NMW); 6 exs.: Nepal, Annapurna mts. Madi Khola vall., north of Siklis, river near Kyojo Kharka, 1900m, 2.V.1996, leg. O. Jäger (MTD); INDIA: 17 exs.: India: Kerala, 10 km WSW Munnar, 1200 m, Kallar Valley 10°03'N-76°59'E, 7./8.I.1999, leg. D. Boukal (51) (NMW); 1 male: THAILAND: Sankhlaburi [= Sangkhla Buri] Thung Yai Naresan NP, 27.XII.1996, leg. Mazzoldi (NMW).- SRI LANKA: 4 exs.: Ceylon, Sabaragamuwa Prov. Deerwood Kuruwita 6 mis. NNW Rathnapura 18.II.62. Loc. 90:II:1\ sieved from leaves\ on forest floor\ indigenous forest\ Lund University Ceylon Expedition 1962 Brinck-Andersen-Cederholm. (ZML,CHG).

DIAGNOSIS:

By the subseriate elytra only close to *N. notaticollis*, but distinctly smaller and in contrast to that without the characteristic T-shaped pronotal macula.

DESCRIPTION:

Length: 1.8-2.0 mm; width: 1.0-1.1 mm.-

Body oval, strongly convex; dirty yellowish, shining, only frons between the eyes infuscate. Elytra finely punctate, subseriate, without sutural stria, apex distinctly explanate.

Head very finely, very sparsely punctate, eyes small and not protruding, a little reniform seen from above as usual in that genus, the distance between the eyes ca. 4x the diameter of one eye. Clypeus broad, yellow, frons infuscate between the eyes and around the eyes. Maxillary palpi unicoloured yellow, apical segment strongly thickened and bent outwards, penultimate segment very small. Antennae 8-segmented. Pronotum strongly transversally shield-shaped, punctate like head, without systematic punctures, without discal patch, yellowish brown. Elytra broadest between the shoulders, almost regularly attenuated behind, apex broadly rounded, sides distinctly explanate, without sutural stria, moderately coarsely subseriate punctate (except the long wedge-shaped portion between shoulder and elytral margin). Femora flat and widened medially, tibiae strongly spinose. Prosternum not distinctly carinate, mesosternum apically slightly elevated. Last ventrit slightly truncate and ciliated apically. Aedeagophore long and slender, median lobe regularly attenuated from base to apex, parameres attenuated, subapically shallowly concave on inner face. (Fig. 5).

ETYMOLOGY: Named after the type locality.

DISTRIBUTION: Nepal, Sri Lanka, Thailand.

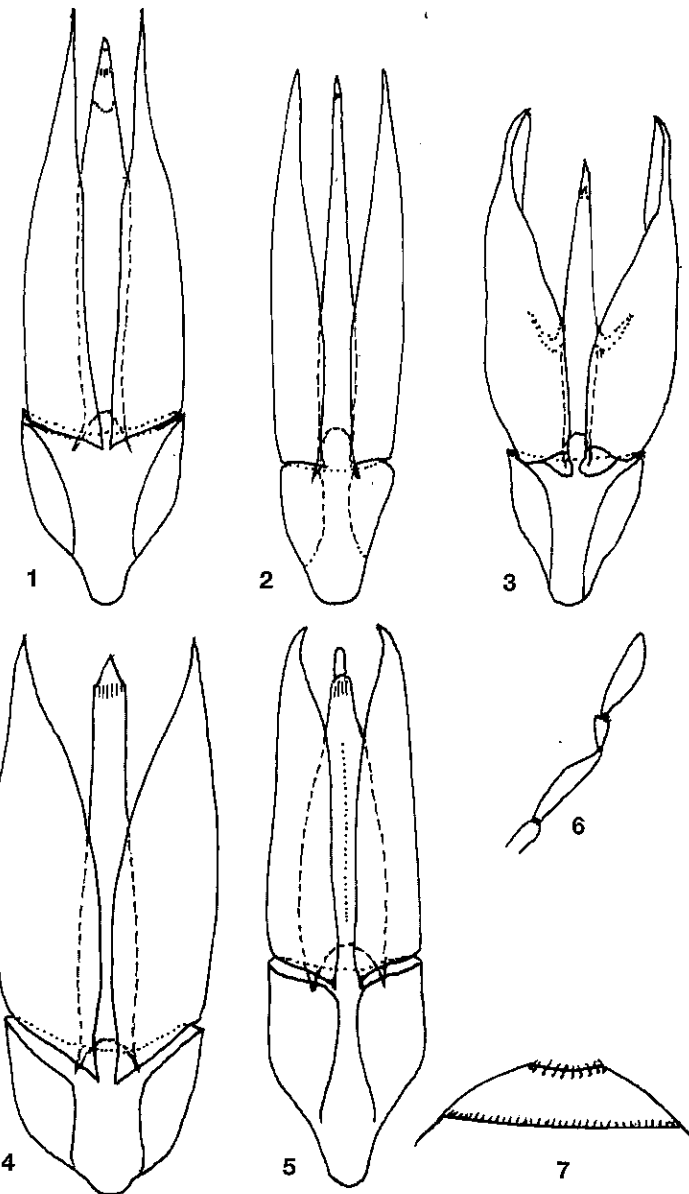


Fig. 1. *Notionotus fenestratus* sp. n., aedeagophore (0.38 mm).
 Fig. 2. *Notionotus mazzoldii* sp. n., aedeagophore (0.30 mm).
 Fig. 3. *Notionotus notaticollis* sp. n., aedeagophore (0.50 mm).
 Fig. 4. *Notionotus ochreatus* sp. n., aedeagophore (0.37 mm).
 Fig. 5. *Notionotus siklisi* sp. n., aedeagophore (0.36 mm).
 Fig. 6. Right maxillary palpus of *Notionotus siklisi*.
 Fig. 7. Last ventrit of *Notionotus siklisi*.

REFERENCES

- HANSEN, M. 1991: The Hydrophiloid Beetles. Phylogeny, Classification and a Revision of the Genera (Coleoptera, Hydrophiloidea).-
 Biologiske Skrifter 40. Copenhagen; 367 pp.
- PERKINS, P. D. 1980: Three Middle American species of aquatic beetles in the genus *Notionotus* SPANGLER (Hydrophilidae: Hydrobiinae).
 - Journal of the New York entomological Society 87 (1979): 304-311.
- SPANGLER, J. P. 1972: A new genus and two new species of madicolous beetle from Venezuela (Coleoptera: Hydrophilidae).
 - Proceedings of the Biological Society of Washington 85: 139-146.

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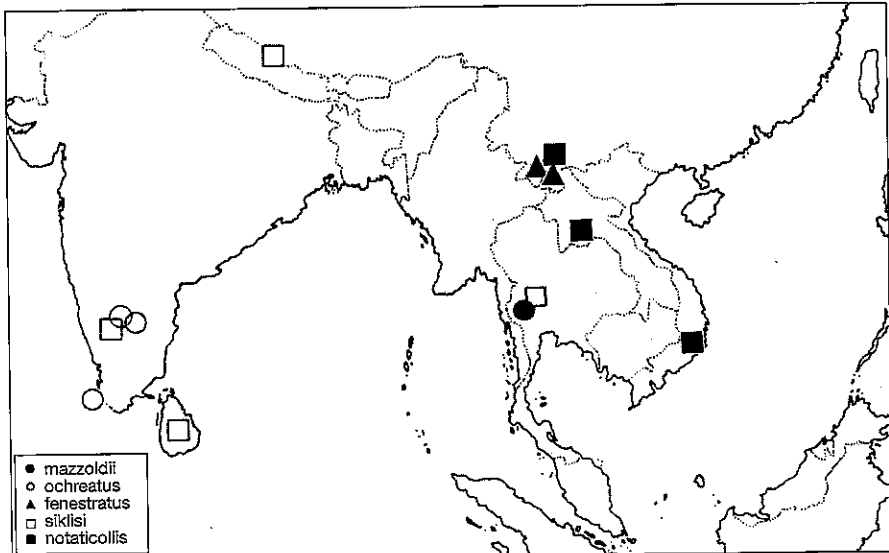


Fig. 8. Geographical distribution of the genus *Notionotus* in the Old World.