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Revisional notes on Palearctic species of the *Hydroporus planus* group (Coleoptera: Dytiscidae)

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Abstract

Notes on classification and nomenclature of the *Hydroporus planus* (FABRICIUS) group - which now contains 17 species - are presented. Four new species are described: *Hydroporus carli* n.sp. from Yemen, *Hydroporus oasis* n.sp. from a single female from Egypt, *Hydroporus feryi* n.sp. from northern Tunisia and Algeria, and *Hydroporus askalensis* n.sp. from Turkey. *Hydroporus antidotus* SHARP is stated as synonym of *Hydroporus pubescens* GYLLENHALL. *Hydroporus pubescens transgrediens* GSCHWENDTNER and *Hydroporus goldschmidtii* var. *recidivus* GSCHWENDTNER are given specific rank. Lectotypes are designated for the following species: *Hydroporus goldschmidtii* GSCHWENDTNER, *Hydroporus transgrediens* GSCHWENDTNER, *Hydroporus ineptus* SHARP and *Hydroporus recidivus* GSCHWENDTNER. A key is provided.

Key words: Dytiscidae, *Hydroporus planus* group, nomenclature, new species.

According to ZIMMERMANN (1931) - and partly to GUIGNOT (1959) - the members of the *Hydroporus planus* (FABRICIUS) group are defined by the following characters: side margin of pronotum with a distinct rim, pronotum not wider than the elytra, elytra widest at about midlength, coloration of elytra brown to reddish-brown (often with yellowish markings), punctuation of the elytra distinct and less dense, spaces between dots larger than their diameters, elytra not reticulated between the punctures except on the extrem apex.

Nine Palearctic species have been included by ZIMMERMANN (1931) in this group of which *Hydroporus humilis* KLUG has to be deleted (BALKE & FERY 1991). Further more two rarely mentioned old species (*Hydroporus inscitus* SHARP and *Hydroporus ineptus* SHARP) and one recently described species (*Hydroporus mariannae* WEWALKA) have to be added. Recent studies convinced me that two taxa of subspecific rank should be treated as valid species (*Hydroporus transgrediens* GSCHWENDTNER and *Hydroporus recidivus* GSCHWENDTNER). Together with four new species described below, the group now contains 17 species.

Key to species of the *Hydroporus planus* group:

- | | | |
|---|---|-----------------------|
| 1 | At least the last two sternites of abdomen with distinct reticulation | 2 |
| - | Abdomen without reticulation | 13 |
| 2 | Punctuation of abdomen rough and confluent | <i>H. analis</i> AUBE |
| - | Punctuation of the abdomen sparse and fine | 3 |
| 3 | Size larger, more than 4 mm | 4 |
| - | Size smaller, less than 4 mm | 8 |
| 4 | Side margins of the pronotum almost completely black | 5 |
| - | Side margins of the pronotum reddish | 6 |

- 5 Reticulation of the pronotum limited to the anterior and lateral margin *H. planus* (FABRICIUS)
 - Reticulation of the pronotum only missing in front of the scutellum *H. carli* n.sp.
 6 Head brownish-black, reddish only on the vertex 7
 - Head predominantly red *H. oasis* n.sp.
 7 Reticulation of pronotum limited to the anterior and lateral margin *H. lucasi* REICHE
 - Reticulation of the pronotum only missing in front of the scutellum *H. inscitus* SHARP
 8 Reticulation covers almost the entire pronotum 9
 - Reticulation of the pronotum limited to the anterior margin and the sides 10
 9 Body narrower, size 3,7 - 3,9 mm, females in most cases strongly reticulated and mat
 *H. goldschmidtii* GSCHWENDTNER
 - Body short oval; size 3 - 3,5 mm, females not dimorphous *H. feryi* n.sp.
 10 Size 3,7 - 4 mm, body outlines evenly oval 11
 - Size 3,5 mm, body more slender and less convex *H. transgrediens* GSCHWENDTNER
 11 Elytra yellowish-black with distinct blackish-brown markings; punctuation of the pronotum strong
 *H. askalensis* n.sp.
 - Elytra light-brown with indistinct dark-brown markings; punctuation of the pronotum delicate, especially on the disk 12
 12 Head black *H. ineptus* SHARP
 - Head reddish *H. recidivus* GSCHWENDTNER
 13 Size above 4 mm 14
 - Size 4 mm or below 15
 14 Lateral margin of the elytra almost straight near the shoulder angle; angles of the pronotum rectangular *H. limbatus* AUBE
 - Lateral margin of the elytra slightly rising near the shoulder angle; posterior angles of the pronotum slightly rounded *H. brucki* WEHNCKE
 15 Pronotum and head brown *H. marianne* WEWALKA
 - Pronotum and head black 16
 16 Punctuation of the last sternite dense and sparse; coxal lines distinctly diverging anteriorly; elytra with 2 or 3 longitudinal rows of punctures *H. pubescens* GYLLENHALL
 - Punctuation of the last sternite slightly denser and stronger than on the preceding sternites; coxal lines slightly diverging anteriorly; elytra without longitudinal rows of punctures
 *H. fuscipennis* SCHAUM

Hydroporus inscitus SHARP

Hydroporus inscitus SHARP 1882, Sci. Trans. R. Dublin Soc. 2: 463; ZIMMERMANN 1931, Monogr. paläarkt.

Dytisciden 2: 33 (footnote); BALFOUR-BROWNE 1951, Exped. S.W. Arabia 1937-1938, 1: 187.

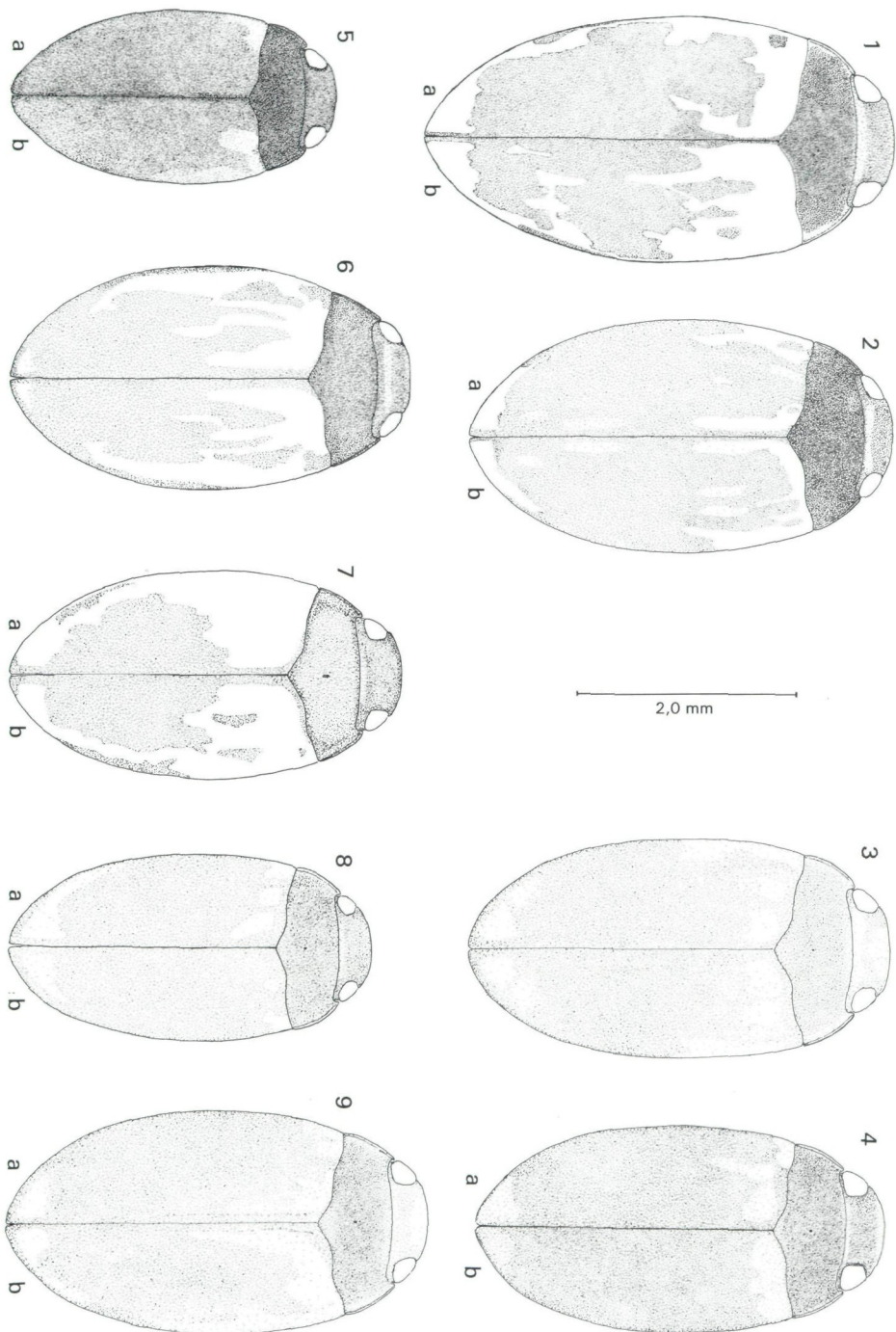
Hydroporus confusus, CARL 1989, Nachrbl. bayer. Ent. 38 (1): 17; CARL 1989, Arch. Hydrobiol. 116: 509.

? *Hydroporus planus*, ABDUL-RASSOUL et al. 1987, Biol. Sci. Res. 18: 63.

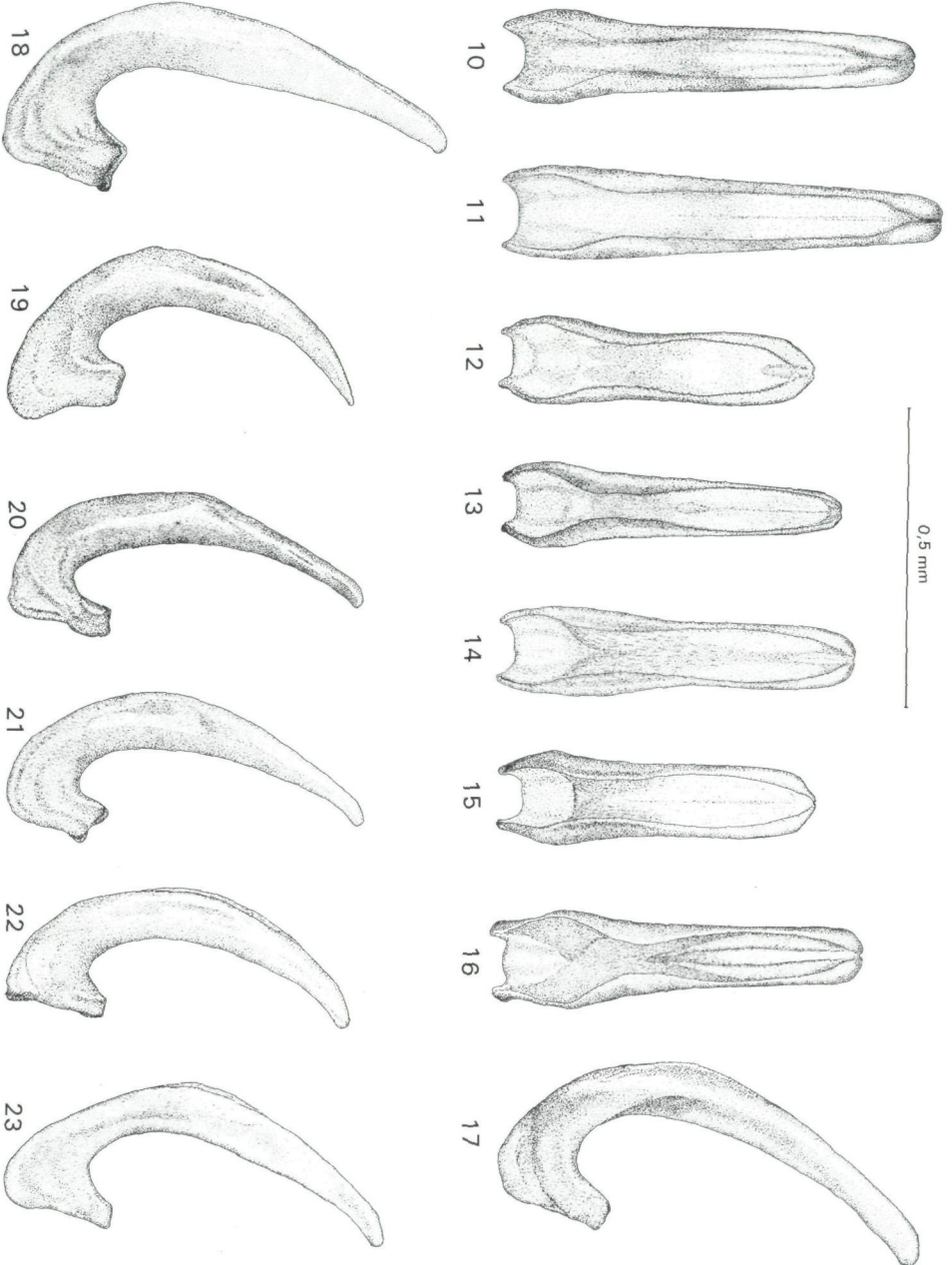
Holotypus: ♂, Mesopotamia, coll. Sharp, Nat. Hist. Mus. London.

Additional material: 20 specimens, Iraq, 30 km southwest of Kirkuk, temporary pool, 27.3.1986, leg. Carl; 3 specimens, Iraq, 3 km north of Baiji, artificial groundwater pond, 19.3.1986, leg. Carl, in coll. Zool. Staatssamml., München and in coll. Wewalka.

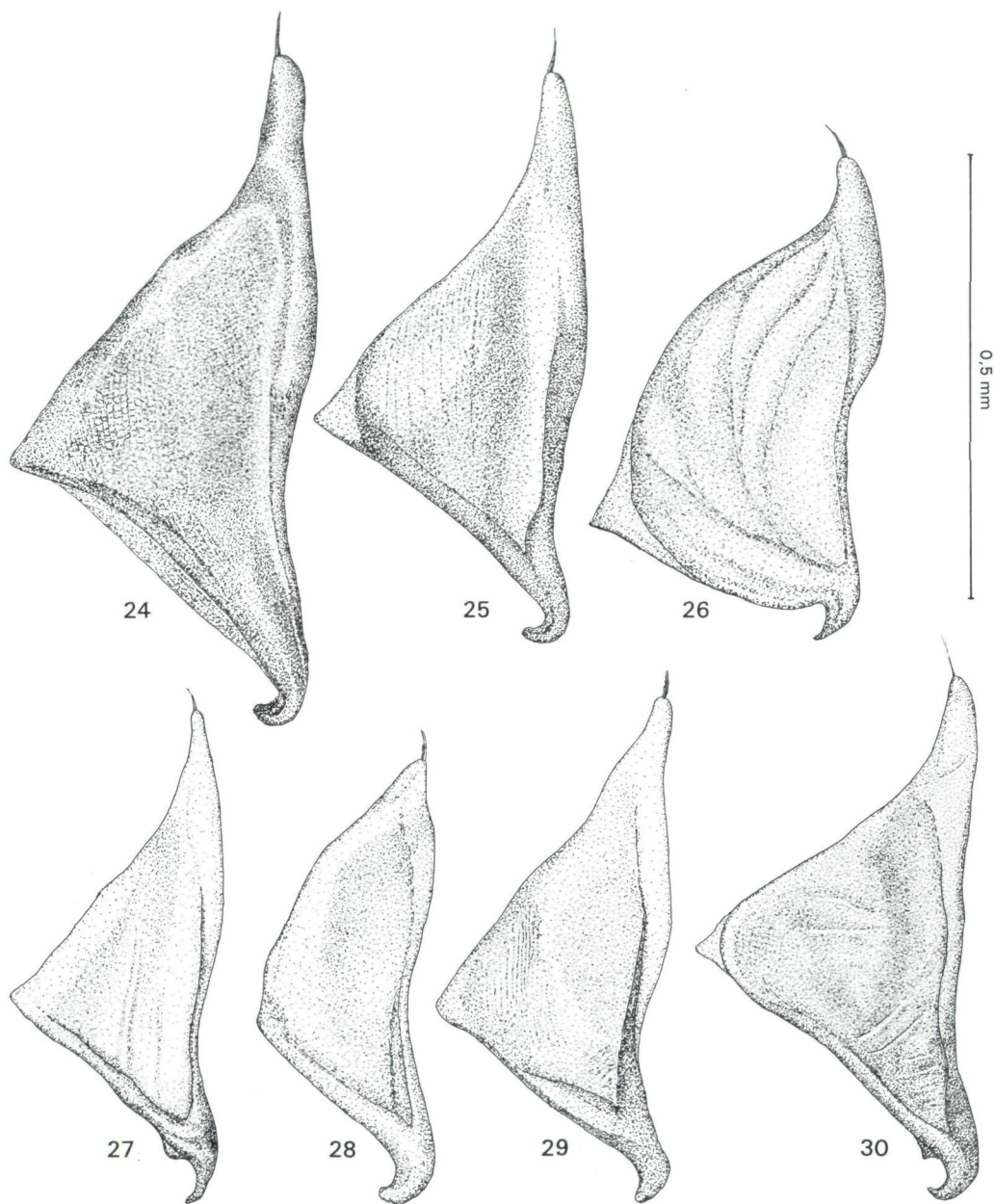
Hydroporus inscitus has been described after a single specimen from Mesopotamia which SHARP (1882) erroneously thought to be a female. In fact it is a male.



Figs. 1 - 9: Body outlines and colouration: 1) *Hydroporus inscius* SHARP, (a) specimen from Iraq, (b) holotype; 2) *H. carli* n.sp., (a) paratype, (b) holotype; 3) *H. oasus* n.sp., holotype; 4) *H. goldschmidtii* GSCHEWENDTNER, (a) lectotype, (b) paralectotype; 5) *H. feryi* n.sp., (a) holotype, (b) paratype; 6) *H. inepius* SHARP, lectotype; 7) *H. askalensis* n.sp., (a) holotype, (b) paratype; 8) *H. transgrediens* GSCHEWENDTNER, (a) lectotype, (b) paralectotype; 9) *H. recidivus* GSCHEWENDTNER, (a) lectotype, (b) specimen from Kirgiziya.



Figs. 10 - 23: dorsal (10 - 16) and lateral (17 - 23) view of penis: *Hydroporus inscius* SHARP, holotype (10, 17); *H. carli* n.sp., holotype (11, 18); *H. goldschmidti* GSCHWENDTNER, paralectotype (12, 19); *H. feryl* n.sp., holotype (13, 20); *H. transgrediens* GSCHWENDTNER, lectotype (14, 21); *H. askalensis* n.sp., holotype (15, 22); *H. ineptus* SHARP, lectotype (16, 23).



Figs. 24 - 30: right paramere: 24) *Hydroporus inscitus* SHARP, holotype; 25) *H. carli* n.sp., holotype; 26) *H. goldschmidtii* GSCHWENDTNER, lectotype; 27) *H. feryi*, holotype; 28) *H. transgrediens* GSCHWENDTNER, lectotype; 29) *H. askalensis* n.sp., holotype; 30) *H. ineptus* SHARP, lectotype.

CARL (1989) reported on collections of aquatic insects from Iraq and mentioned 23 specimens of *Hydroporus confusus* LUCAS (= *H. lucasi* REICHE). Studying these specimens, kindly made possible by M. Carl (Munich) and comparing them with the holotype of *H. inscitus* from

Mesopotamia (Nat. Hist. Mus. London) proved them to belong to the same species.

ABDUL-RASSOUL et al. (1987) recorded *Hydroporus planus* from Iraq but its occurrence in this area is very doubtful. Probably the records also refer to *H. inscitus*.

BALFOUR-BROWNE (1951) reported on two female specimens labelled "Yemen, Arabia, leg. Millingen, ?? inscitus" by Sharp and mentioned that they are close to the type specimen but a little broader and the sides more rounded. One of these specimens turned out to be a male. Three additional specimens (2 ♂♂ + 1 ♀) obviously of the same series from Yemen in the collection of the Nat. Hist. Mus. London (coll. Fry) and labelled in Sharps' handwriting "*H. inscitus* var. vel sp. nov." were studied. The specimens from Yemen differ constantly from specimens from Iraq. Therefore they are treated as a new species described below as *Hydroporus carli*.

As *H. inscitus* has not been characterized sufficiently, this species is compared with other related species:

In size (length: 4.3 - 4.6 mm; width: 2.2 - 2.4 mm) *H. inscitus* is similar to *H. planus* (FABRICIUS), *H. lucasi* and *H. carli* n.sp.: The shape of the elytra is a little more slender and the apex is more pointed. The coloration of the elytra (fig. 1) is similar to that of *H. carli* n.sp. and also resembles that of *H. lucasi* and *H. multiguttatus* REGIMBART but it is less distinct and the apex is completely reddish. The side margins of the pronotum are reddish as in *H. lucasi*.

The microsculpture of the surface of *H. inscitus* is similar to that of *H. planus* and *H. lucasi* but the punctuation of the head is less dense and distinct and the reticulation of the pronotum is more extended and is only missing in the area of the scutellum as in *H. carli* n.sp. The density of the punctuation of the elytra resembles that of *H. planus*, *H. lucasi* and *H. carli* n.sp. while in *H. multiguttatus* the punctuation is about one third more dense. Therefore the latter species is not included in the *H. planus* group. The punctuation of *H. inscitus* is similarly impressed as that of *H. lucasi* but less than that of *H. planus*. The apex of the elytra is densely reticulated between the punctures as in the resembling species.

The ventral surface of *H. inscitus* is reticulated to a great part including the whole abdomen. The fine reticulation is therefore much more extended than in *H. lucasi*, *H. planus* and *H. carli* n.sp. and the punctuation is less dense and less deeply impressed.

Legs and antennae reddish; antennae slender.

Male: pro- and mesotarsi almost undilated; aedeagus (figs.: 10, 17, 24).

Ecology: ponds and temporary pools.

Distribution: Iraq.

Hydroporus carli n.sp.

Hydroporus inscitus, BALFOUR-BROWNE 1951, Exped. S. W. Arabia 1937 - 1938, 1: 187 (partim).

Holotypus: ♂, Arabia, Yemen, leg. Millingen, Sharp coll. 1905-313, Nat. Hist. Mus. London.

Paratypes: 1 ♂, with same data as the holotype; 2 ♂, 1 ♀, from same location, Fry coll. 1905-100, in coll. Nat. Hist. Mus. London and in coll. Wewalka.

The material of *Hydroporus inscitus* collected by M. Carl (Munich) in Iraq provided an opportunity to study this species more accurately and to compare the specimens from Iraq with old material from Yemen treated as *H. inscitus* by BALFOUR-BROWNE (1951). This led me to the conclusion that the specimens from Yemen mentioned by BALFOUR-BROWNE and additional specimens of the same series of collection do not belong to *H. inscitus* but represent a new species described below.

Length: 4.1 - 4.3 mm; width: 2.1 - 2.25 mm. Shape of the body similar to *Hydroporus planus*. More convex and sides more rounded than in *H. inscitus*.

Head black, vertex reddish; pronotum almost completely black, only the posterior parts of the side margins are sometimes narrowly reddish. The coloration of the elytra (fig. 2) is very similar to that of *H. inscitus* but even less distinct.

The microsculpture of the surface resembles very much that of *H. inscitus* but the punctuation and reticulation of the head is more dense and distinct. The reticulation of the pronotum is similarly extended as that of *H. inscitus* and is only missing in the area of the scutellum. The density of the punctuation of the elytra resembles that of *H. planus*, *H. lucasi* and *H. inscitus*. The elytra are not reticulated between the punctures in the main part, only the apex is densely reticulated as in the resembling species.

The ventral surface is black, only the epipleura are light-brown. A reticulation covers the abdomen entirely and sporadically also the anterior parts of the ventral surface.

Legs and antennae reddish; antennae almost as slender as in *H. inscitus*.

Male: pro- and mesotarsi almost undilated; aedeagus (figs. 11, 18, 25) very similar to that of *H. inscitus*.

Hydroporus carli n. sp. is very closely related to *H. planus* but the elytra are less dark, the reticulation of the pronotum is more extended and the penis is much more slender. The new species can be distinguished from *H. inscitus* by the more convex body and more rounded sides, by the almost black pronotum and the less reticulated ventral surface.

Ecology: unknown.

Distribution: Yemen.

Hydroporus oasis n.sp.

Some undetermined material of the Nat. Hist. Mus. London revealed a single specimen of the *H. planus* group which belongs to a new species described below.

Holotypus: ♀, Egypt, Bahrein (? Oasis El Bahrein), 13.6.1935, leg. J. Omer - Cooper, Armstrong College Expedition (B.M. 1935 - 354) in coll. Nat. Hist. Mus. London.

Length: 4,1 mm; width: 2,1 mm; body oblong oval and quite convex; pronotum regularly rounded, distinctly but relatively finely rimmed; elytra subparallel.

Head red with two brown markings between the eyes; pronotum black, sides broadly red; elytra dark-brown with yellowish-brown markings at the base, at the sides and at the apex (fig. 3).

Punctuation of the head very sparse, reticulation regular; pronotum distinctly but not very densely punctured, reticulation present on the anterior half; elytral punctuation similar to the pronotum, without regular series of strong punctures, reticulation confined to the extreme apex.

Ventral surface mostly black; epipleura yellowish-brown, metasternum and posterior part of the metacoxae reddish, abdomen brownish-black. Punctuation strong and dispersed on most parts of the metasternum and the metacoxae and the first and second sternite; rest of the abdomen finely punctured. Without reticulation on the ventral surface. Coxal lines moderately diverging anteriorly.

Legs and antennae reddish-brown; antennae moderately thick.

Male unknown.

Hydroporus oasis n. sp. belongs to the *H. planus* group in respect of the shape of the pronotum, the density of the elytral punctuation and the missing reticulation on the elytra. The new species differs from most other species of the group by the less rounded body, similar to *H. goldschmidtii* GSCHWENDTNER. The red head also distinguishes *H. oasis* n. sp. from most other species of the group; only *H. mariannae* and *H. recidivus* have a reddish head too.

Ecological data about the new species are not known to me. If the interpretation of the labelled of the only known specimen is right *H. oasis* n. sp. has been found in a small oasis in the Libyan desert in the north western part of Egypt near Siwa.

Distribution: Egypt.

Hydroporus goldschmidtii GSCHWENDTNER

Hydroporus goldschmidtii GSCHWENDTNER 1923, Arch. f. Naturgesch. 89, A 8: 101; ZIMMERMANN 1931, Monogr. paläarkt. Dytisciden 2: 34; ZAITZEV 1953, Fauna SSSR, Coleoptera 4: 164.

Lectotypus (designated here): ♂ labelled "Issyk-Kul, Ton-Fluß" (Kirgiziya, Issyk-Kul) leg. Winkler in coll. Gschwendtner, Oberösterreich. Landesmuseum Linz.

Paralectotypes: 1 ♂ and 3 ♀♀, with same data as lectotypus; 2 ♀♀, from same locality, in coll. Wewalka; 1 ♂, labelled "Ost-Turkistan, Bagratsch-Kul" (China, Sinkiang-Uighur, Bagratsch-Kul or Po-ssu-teng Hu) leg. Winkler, in coll. Wewalka.

Additional material: 2 ♂♂ and 5 ♀♀, labelled "Ost-Turkistan, Bagratsch-Kul", in coll. Wewalka.

Hydroporus goldschmidtii belongs to the *H. planus* group but it differs from the other species of this group by the narrower and less rounded body (fig. 4), by the longer pronotum and especially by the existence of mat females.

The size (length: 3,7 - 3,9 mm, width: 1,8 - 1,9 mm) and the coloration - head and pronotum black, the elytra almost uniformly dark-brown and lighter at the base and the apex - is similar to that of *H. pubescens* and *H. transgrediens*.

Male specimens of *H. goldschmidtii* have a punctuation similar to that of *H. pubescens* but less strong than that of *H. transgrediens*. The reticulation of the head of *H. goldschmidtii* is stronger and the reticulation of the pronotum is much more extended than that of the related species; it covers almost the entire pronotum, only the disc is free of it. Elytra are without reticulation except on the extreme apex but with fine rectangular meshes around the points. Last three sternites are reticulated like in *H. transgrediens*.

The pro- and mesotarsi are moderately dilated; aedeagus (figs. 12, 19, 26). The penis is broader than that of related species, the apex is rounded.

Female specimens of *H. goldschmidtii* seem to be dimorphous. All but one female examined are strongly reticulated on the dorsal surface and appear mat; the ventral surface is also almost completely reticulated. One female is reticulated similar to the male specimens and is shiny but the elytra are reticulated not only on the apex but finely also on the posterior half.

The "var." *recidivus* of *H. goldschmidtii* in my opinion is a separate species.

Ecology: GSCHWENDTNER (1923) stated that the type specimens have been collected at the Ton river near the Issuk-Kul and at the banks of the Baghratsh-Kul but he did not mention if the species prefers standing or running water.

Distribution: Kirgiziya; Uzbekistan (ZAITZEV 1953); China (Sinkiang-Uighur).

Hydroporus feryi n.sp.

Since for a couple of years my collection contains specimens of a *Hydroporus* from Tunisia resembling *Hydroporus analis* AUBE. After studying specimens of *H. analis decipiens* SHARP I came to the conclusion that they belong to a new species described below.

Holotypus: ♂, Tunisia, streamlet 4 km south of Ain Draham, 660 m (T5), 18.5.1982, leg. Malicky, in coll. Wewalka.

Paratypes: 6 specimens with same data as holotype; 2 specimens, Tunisia, rivulet 3 km south of Hammam Bourgiba, 460 m (T2), 5.5.1982, leg. Malicky; 10 specimens, Tunisia, spring-fed streamlet 8 km east of Hammam Bourgiba,

520 m (T9), 18.5.1982, leg. Malicky; 1 specimen, Tunisia, Ain Draham, 7.6.1982, leg. Olexa; 5 specimens, Algeria, Laverdure, 30.4. - 14.5.1927, leg. Maran; Paratypes in coll. Wewalka, coll. Fery, coll. Nat. Hist. Mus. London and coll. National Mus. Prague.

Length: 3 - 3,5 mm; width: 1,54 - 1,76 mm; the shape of the body is similar to that of *Hydroporus pubescens* GYLLENHALL, but a little broader and more convex.

Head black, vertex brownish; pronotum black, only the posterior part of the side margin is brownish; elytra almost uniformly dark-brown, darkest along the suture, light-brown at the shoulders (fig. 5).

The microsculpture resembles very much that of *H. pubescens* but the punctuation and the reticulation of the head is more dense and regular and the reticulation is more distinct. The reticulation of the pronotum is much more extended than that of *H. pubescens* and is absent only at the posterior margin, the scutellum and the center of the pronotum. The punctuation of the elytra is a little more dense than that of *H. pubescens*. The elytra are not reticulated between the punctures, only the extreme apex is reticulated as in *H. pubescens*.

Ventral surface black, only the epipleura are brownish in the anterior part. The punctuation of the ventral surface resembles that of *H. pubescens* but it is denser on the metacoxae. The coxal lines diverge anteriorly as in *H. pubescens*. A fine reticulation covers the entire abdomen and greater parts of the metacoxae and the metasternum.

Legs reddish-brown; antennae light-brown at the base, the rest is darker; antennae as thick as in *H. pubescens*.

Male specimens: pro- and mesotarsi almost undilated; aedeagus (figs. 13, 20, 27).

Hydroporus feryi n. sp. belongs to the *H. planus* group. It resembles *H. analis* in respect to the microsculpture of the dorsal surface but it can be distinguished by the less dense punctuation of the abdomen, the smaller size and the shape of the body less pointed at the apex. *H. feryi* is also very similar to small specimens of *H. pubescens* from which it can be differentiated by a more extended reticulation of the pronotum and the reticulation of the ventral side.

Ecology: *H. feryi* seems to live in small running waters while it has not been found in stagnant waters in the area of the type locality.

Distribution: Northern Tunisia; Algeria.

Hydroporus transgrediens GSCHWENDTNER stat.nov.

Hydroporus pubescens ssp. *transgrediens* GSCHWENDTNER, 1923, Arch. f. Naturgesch. 89, A 8: 109; ZIMMERMANN, 1931, Monogr. paläarkt. Dytisciden 2: 41; ZAITZEV, 1953, Fauna SSSR, Coleoptera 4: 165.

Lectotypus (designated here): ♂, Transkaspien, Neu-Saratow, coll. Oberösterr. Landesmuseum, Linz.

Paralectotypus: 1 ♂, with same data as the lectotype.

GSCHWENDTNER (1923) described *H. transgrediens* as subspecies of *H. pubescens* based on two specimens. Subsequent authors accepted Gschwendtner's description without seeing additional material. After studying the type specimens I came to the conclusion that *H. transgrediens* is a separate species.

Hydroporus transgrediens can be differentiated from *H. pubescens* by the rather small size (length: 3,5 mm; width: 1,9 mm), the shape of the body which is more slender and less convex, the sides of the pronotum more rounded (fig. 8), the punctuation of the pronotum less strong and the reticulation of the pronotum more extended from the sides to the center. The coloration is similar to that of *H. pubescens* but the side margins of the pronotum are reddish-brown, the coloration of the elytra is almost completely reddish-brown, only a basal transverse stripe consisting of three spots and the apex is yellowish; antennae and legs completely reddish. The aedeagus (figs. 14, 21, 28,) is similar to that of *H. pubescens*.

The crucial difference which in my opinion justifies the specific rank of *H. transgrediens* is the presence of a reticulation on the last three sternites which is absent in *H. pubescens*.

Together with *H. ineptus* n.sp. and *H. askalensis* n.sp., *H. transgrediens* belongs to a group of species similar to *H. pubescens* but is clearly distinguished from the latter by the presence of a reticulation on the last two to four sternites. In comparison with *H. askalensis* and *H. ineptus*, *H. transgrediens* is a little smaller, much less convex, its body is more slender, has different markings of the elytra and has almost completely reddish legs and antennae.

Ecology: unknown.

Distribution: Turkmeniya.

Hydroporus askalensis n.sp.

During the work on this revision a great number of specimens determined as *Hydroporus pubescens* have been examined. To my surprise I found specimens closely related to *H. pubescens* from central Anatolia having reticulation on the last two sternites. After accurate examination other differences to the related species turned out and I am describing these specimens as a new species.

Holotypus: ♂, Turkey, Prov. Erzurum, Askale, 16.7.1973, leg. Wewalka, in coll. Wewalka.

Paratypes: 1 ♂, 1 ♀, with same data as the holotype; 1 ♂, 4 ♀♀, Turkey, Prov. Erzurum, Çoruh river east of Bayburt, 1.6.1989, leg. Jäch (36), in coll. Wewalka and coll. Naturhist. Mus. Wien.

Additional material: 1 immature ♀, Turkey, Prov. Çanakkale, Ezine, 5.5.1970, leg. Holzschuh, in coll. Wewalka, probably belonging to *H. askalensis* n.sp.

Length: 3,7 - 4,0 mm; width: 1,8 - 2,0 mm, shape of the body very similar to *H. pubescens* but slightly more convex; the pronotum is broader and has slight depressions median of the posterior angles.

Head black, vertex narrowly brownish; pronotum completely black; elytra yellowish-brown with distinct brownish-black markings (fig. 7).

The microsculpture closely resembles that of *H. pubescens* but the punctuation of the head and the pronotum is a little more dense. The reticulation of the pronotum is more extended on the sides than that of *H. pubescens*. The punctuation of the elytra is a little more dense than that of *H. pubescens*. The elytra are not reticulated between the punctures, only the apex is densely reticulated as in *H. pubescens*.

The ventral surface is black, only the epipleura are yellowish-brown in the anterior part. The punctuation of the ventral surface resembles that of *H. pubescens* but it is denser. The coxal lines are deeply impressed and are diverging anteriorly as in *H. pubescens*. A fine reticulation covers the two last sternites.

Legs reddish-brown with distally darkened segments; antennae reddish-brown at the base, the rest is brownish-black.

Male specimens: pro- and mesotarsi almost undilated; aedeagus (figs. 15, 22, 29).

Hydroporus askalensis n.sp. belongs to the *H. planus* group. It resembles large specimens of *H. pubescens* but it can be clearly distinguished by the reticulation of the last two sternites. Additionally, the punctuation of the dorsal surface is slightly more dense and stronger, the markings of the elytra are less extended and more distinct and the apex of the penis is more pointed.

In *Hydroporus askalensis* n.sp. the sternites are reticulated as in *H. ineptus* and *H. transgrediens*. The former species has a stronger punctuation of the dorsal surface, much more distinct markings of the elytra and a much wider penis than *H. ineptus*. In comparison to *H. transgrediens*, *H.*

askalensis has a much more rounded and more convex body, much less extended markings on the elytra and a wider penis.

Ecology: *H. askalensis* n.sp. lives in small running waters.

Distribution: Turkey.

Hydroporus ineptus SHARP

Hydroporus ineptus SHARP, 1882, Sci. Trans. R. Dublin Soc. 2: 462; ZIMMERMANN 1920, Coleopt. Catal. 71: 88.

Lectotypus (designated here): ♂, Egypt or Syria, Nat. Hist. Mus. London, coll. Sharp 1905 - 313.

Additional material: 1 ♂ and 1 ♀ (in bad condition), Syria, coll. Sharp 1905 - 313, in coll. Nat. Hist. Mus. London.

SHARP (1882) distinguished *H. ineptus* from *H. planus* by smaller size, more finely punctured surface and the darker antennae and legs and stated that it is similar to the dark varieties of *H. tessellatus* DRAPIEZ but has the elytra much more densely and finely punctured.

Hydroporus ineptus has been rarely mentioned since its description but after having studied the type specimen and two additional specimens I am convinced that it is a separate species and it is necessary to characterize this species sufficiently and compare it with related species.

Length: 3,7 - 3,9 mm; width: 2,0 - 2,1 mm; shape of the body very similar to that of *Hydroporus pubescens*. Head and pronotum completely black; elytra light brown with dark brown spots (fig. 6) similar to *H. carli* n. sp.

The microsculpture closely resembles that of *H. pubescens* but the punctuation of the head is less distinct; the punctuation of the pronotum is much less dense and distinct especially on the disc; the reticulation is limited to the anterior margin and to the sides similar to that of *H. pubescens*. The punctuation of the elytra is more dense but less distinct; elytra are reticulated between the punctures but only the extreme apex is reticulated as in *H. pubescens*.

The ventral surface is black, only the epipleura are light brown. The punctuation of the ventral surface resembles that of *H. pubescens* but it is a little denser on the metacoxae. The coxal lines are diverging anteriorly as in *H. pubescens*. The last three to four sternites are reticulated between the punctures.

Legs dark-brown; antennae dark-brown, lighter at the base; antennae as thick as in *H. pubescens*.

Male specimens: pro- and mesotarsi almost undilated, aedeagus (figs. 16, 23, 30).

Hydroporus ineptus n. sp. belongs to the *H. planus* group since it lacks the reticulation between the punctures of the elytra. It is very similar to *H. pubescens* in respect to the shape of the body, the coloration, the size and the extension of the reticulation of the pronotum.

Together with *H. askalensis* n.sp. and *H. transgrediens*, *H. ineptus* belongs to a group of species similar to *H. pubescens* but clearly to be distinguished from the latter by the presence of a reticulation on the last two to four sternites. *H. ineptus* also has a finer punctuation on the head, on the elytra and especially on the pronotum than *H. pubescens* and the aedeagus is much more slender.

The main difference between *H. ineptus* and *H. askalensis* n.sp. is the more distinct punctuation of the surface in the latter and the form of the penis.

In comparison to *H. transgrediens*, *H. ineptus* is longer, the body is more rounded, the pronotum is completely black and the antennae and the legs are darker.

Hydroporus ineptus is similar to *H. carli* n.sp. in respect of the coloration of the elytra but it can be separated by the smaller size and the less extended reticulation of the pronotum and the ventral surface.

Ecology: unknown.

Distribution: Middle East.

Hydroporus recidivus GSCHWENDTNER stat.nov.

Hydroporus goldschmidti var. *recidivus* GSCHWENDTNER 1923, Arch. f. Naturgeschichte 89, A 8: 103; ZIMMERMANN 1931, Monogr. paläarkt. Dytisciden 2 : 35; ZAITZEV 1953, Fauna SSSR, Coleoptera 4: 164.

Lectotypus (designated here): ♀, labelled "Thian-shan, Aksu - Musart." (Kirgiziya, Tyan-shan), "coll. Winkler, Type, Gschw", coll. Gschwendtner in coll. Oberösterreich. Landesmuseum Linz.

Paralectotypes: 1 ♀ with same data as lectotypus, in coll. Wewalka; 1 ♂ from the type locality, designated by Gschwendtner as "Type" probably does not belong to the same species.

Additional material: 1 ♀, Thian-shan, Musart, in coll. Wewalka.

GSCHWENDTNER (1923) described *Hydroporus recidivus* as "var." of *Hydroporus goldschmidti* but mentioned that in his opinion this "var." has the same phylogenetic significance as the subspecies *transgrediens* (now treated as separate species) in relation to *Hydroporus pubescens*. Therefore I do not treat the "var." *recidivus* as infrasubspecific.

The three female specimens known from the type locality differ very much from glabrous as well as from mat females of *H. goldschmidti* because of the much more rounded body, the lighter coloration and the reduced reticulation. On the other hand the single male specimen from the type locality is very similar to male specimens of *Hydroporus goldschmidti* in the shape of the body and also in the form of the aedeagus, yet the reticulation of the pronotum is a little less distinct. Therefore I designated a female syntype as lectotype.

The female lectotype and paralectotype of *H. recidivus* is similar to *H. planus* in size (length: 3,9 - 4 mm; width: 2,1 mm) and in the extension of the reticulation of the dorsal and ventral surface but the body is a little narrower and less rounded (fig. 9) and the punctuation of the dorsal surface is much less strong. It also differs from *H. planus* in coloration; head except for the area between the eyes and the side margins of the pronotum are reddish; elytra almost uniformly brown, only a basal band and a spot near the apex are yellowish.

Hydroporus recidivus is similar to longer specimens of *H. pubescens* in the shape of the body and the coloration of the elytra but can be distinguished by the existence of a reticulation on the abdomen and the reddish head.

From *H. transgrediens* it can be separated by the larger size, the more rounded body outlines and the finer punctuation of the elytra.

Ecology: unknown.

Distribution: Kirgiziya.

Hydroporus mariannae WEWALKA

Hydropopus mariannae WEWALKA 1974, Koleopt. Rdsch. 51: 106; WEWALKA 1986, Entomologica Basiliensia 11: 278.

Holotypus: ♂, Dead Sea Area, Ne'ot HaKikkar, 22.2.1970, leg. Avrahami, in coll. Academy of Science, Jerusalem.

Additional material: 7 specimens, Dead Sea Area, Ne'ot HaKikkar, pool, 8.4.1981; 34 specimens, Ne'ot HaKikkar, mall brook, 8.4.1981; 12 specimens, Neue Zohar, spring near Dead Sea, 9.4.1981, leg. G. Wewalka, R. Ortal and G. Herbst; 1 specimen, Palestine, Jericho plain, IV.1926, leg. O. Theodor, in coll. Zool.Staatssamml.München; 1 specimen, Dead Sea Area, Ein Feshkha, 27.3.1985, leg. Jäch, in coll. Naturhist.Mus.Wien; 1 specimen, Dead Sea Area, Nahal Arugot, 28.5.1985, leg. Jäch, in coll. Naturhist.Mus.Wien; 7 specimens, Dead Sea Area, En HaKikkar, 7.3.1985, leg. Jäch, in coll. Naturhist.Mus.Wien.

The female, which was not known at the time of the original description, does not differ

externally from the male.

In the original description (WEWALKA 1974) the type localities Ne'ot HaKikkar and Ein Drus were erroneously assigned to the Sinai area. However, all localities are near the Dead Sea.

Ecology: hyperhaline ponds and springs at the banks of the Dead Sea (WEWALKA 1986, JÄCH 1987).

Distribution: Israel (Dead Sea Area).

Hydroporus pubescens GYLLENHALL

Hydroporus pubescens GYLLENHALL 1808, Ins. Suec. 1: 536.

Hydroporus antidotus SHARP 1882, Sci. Trans. R. Dublin Soc. 2: 462; nec ZIMMERMANN 1931, Monogr. paläarkt.

Dytisciden 2: 31; nec BALFOUR-BROWNE 1944, Anm. Mag. Nat. Hist. 11: 351; 1951, Exped. S.W. Arabia 1937 - 1938, 1: 187, nov.syn.

Holotypus of *Hydroporus antidotus*: ♂, Syria, leg. Millingen, Nr. 1149, Coll. 1905-313, in coll. Nat. Hist. Mus. London.

ZIMMERMANN (1931) - not knowing the type specimen of *H. antidotus* - included this species in the *H. tessellatus* group.

BALFOUR-BROWNE (1944, 1951) treated *H. antidotus* "as the true *humilis*". This opinion is wrong as was discussed by BALKE & FERY (1991).

Recently I studied the holotype of *H. antidotus*. The specimen lacks the reticulation on the main part of the elytra and on the sternites and the elytra are brown. Therefore it has the same characteristics as *H. pubescens*.

Hydroporus antidotus SHARP (1882) has been described after a single specimen from Syria. The type specimen of *H. antidotus* is 3,7 mm long and fits well to the average size of populations of *H. pubescens* from the Middle East. Specimens (n = 42) measured from Turkey have an average size of 3,7 mm (3,4 - 4,1 mm), specimens (n = 13) from Israel 3,6 mm (3,2 - 4,0 mm) and specimens (n = 12) from Syria 3,8 mm (3,65 - 3,9 mm).

The uniformly reddish brown elytra, the rather fine elytral punctuation and the completely reddish antennae prompted SHARP (1882) to separate *H. antidotus* from *H. pubescens*. These characteristics more or less can be found in specimens of *H. pubescens* from the Middle East. The aedeagus of the holotype of *H. antidotus* does not differ from that of *H. pubescens*. It is no doubt for me that *H. antidotus* is a synonym of *H. pubescens*. Mario Franciscolo, who studied the holotype of *H. antidotus* in 1978, came to the same result and added a referring table.

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Zusammenfassung

Aus dem Studium des größten Teils der Arten der *Hydroporus planus* (FABRICIUS) Gruppe, die nun 17 Arten enthält, ergaben sich folgende Neuerungen in der Klassifikation und der Nomenklatur. Vier neue Arten werden beschrieben: *Hydroporus carli* n.sp. aus dem Jemen, *Hydroporus oasis* n.sp. nach einem einzigen ♀ aus Ägypten, *Hydroporus feryi* n.sp. aus Nord-Tunesien und Algerien und *Hydroporus askalensis* n.sp. aus der Türkei. *Hydroporus antidotus* SHARP wird als Synonym von *Hydroporus pubescens* GYLLENHALL festgestellt; *Hydroporus*

pubescens transgrediens GSCHWENDTNER und *Hydroporus goldschmidtii* var. *recidivus* GSCHWENDTNER werden als eigene Arten behandelt. Lectotypen werden für folgende Arten festgelegt: *Hydroporus goldschmidtii* GSCHWENDTNER, *Hydroporus transgrediens* GSCHWENDTNER, *Hydroporus ineptus* SHARP und *Hydroporus recidivus* GSCHWENDTNER. Für die 17 Arten der Gruppe wird ein Bestimmungsschlüssel angegeben.

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