

**A new species of *Hydraena* KUGELANN from the spring of
Fuenfría (Segura basin, SE Spain),
a site of special conservation interest
(Coleoptera: Hydraenidae)**

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Abstract

Hydraena (s.str.) *mecai* sp.n. (Coleoptera: Hydraenidae) is described from the spring of Fuenfría (Sierra de Alcaraz, Albacete). According to its external morphology and aedeagus it has to be included in the *Hydraena rufipes* group. Some notes on the conservational importance of the type locality are also included.

Key words: Coleoptera, Hydraenidae, *Hydraena*, new species, conservation, southeast Spain.

Introduction

In the course of an extensive survey on the aquatic beetles of the Segura basin (SE Spain), a male of what seemed to be a new species of *Hydraena* KUGELANN was found in the spring of Fuenfría, in the Sierra de Alcaraz, province of Albacete. Unfortunately, the aedeagus of this specimen was damaged during preparation, and more specimens were necessary for its description. Repeated visits to the spring in 1997 and 1998 in search of more specimens were unsuccessful, but in the course of these excursions an extremely rich and interesting fauna was discovered (see also RIBERA et al. 1997 and RIBERA & HERNANDO 1998, including description of *Limnebius millani* RIBERA & HERNANDO, of which Fuenfría is the type locality). Finally, in July 1998 an additional teneral male was collected, allowing an unequivocal identification and description of the species.

We want to thank Juanjo Sánchez-Meca and Ignacio Ribera for allowing the study of their material, and Manfred A. Jäch for confirming the identity of the new species.

***Hydraena mecai* sp.n.**

TYPE LOCALITY: Spring of Fuenfría, a small tributary of the river Mundo, in Paterna de Madera, province of Albacete, Spain (U.T.M. 10x10 km grid square 30SWH5268).

TYPE MATERIAL: **Holotype** ♂ (teneral), deposited in Naturhistorisches Museum, Wien (NMW), labelled: "SPAIN Albacete, Paterna de Madera \ Arroyo de Fuenfría, río Mundo \ 30. VII. 98 I. Ribera leg." **Paratype:** 1 ♂ (median lobe of aedeagus broken) (NMW): "SPAIN Albacete, Paterna de Madera \ Arroyo de Fuenfría, río Mundo \ 7. VII. 90 JJ. Sánchez-Meca leg."

DESCRIPTION OF HOLOTYPE: length 2.25 mm, width 0.64 mm. Body form elongate. Elytra oval, maximum width in the middle. Pronotum and elytra uniformly dark brown. All appendages pale testaceous.

Labrum entirely granulated, paler than head, anterior margin strongly emarginated. Clypeus finely punctured, punctures more dense laterally. Central punctation on frons coarser and sparser than on clypeus, denser and smaller laterally. Pronotum sub-hexagonal; finely bordered and serrate around the entire edge; surface entirely granulate; punctures of disc stronger and sparser than in the margin, where the punctation is double. Explanate lateral margin of elytra well developed except in the humerus, less accentuate in the apex. Ten to twelve rows of punctures, less impressed at the margin. Intervals on disc smooth and shiny, wider than the striae.

Ventral surface covered by dense, fine, grey-pale hydrophobic pubescence except on the anterior margin of the head and the last abdominal sternite, where the pubescence is sparser and thicker. Metasternal plaques rectangular, reaching posterior margin of metasternum. Surface totally granulate, less coarsely on the last two visible sternites. Epipleura of equal width throughout their length, except at the union with the humerus and at the apex, where they become progressively narrower.

Aedeagus as in Figs. 1 - 4. Median lobe regularly arched; apical third expanded laterally, with two principal groups of setae and a short and wide tube (visible in dorsal view). Parameres almost symmetrical, with very long groups of apical setae.

FEMALE: unknown. Four females of the same locality probably belong to this species, but they are not designated as types as their identification is still uncertain.

DISTRIBUTION: So far know only from the type locality.

ETYMOLOGY: The species is named after our friend Juan José Sánchez Meca, who first collected the new species in 1990.

ECOLOGY: Specimens were found in a small mountain stream with clean and very calcareous water (with concretions), almost devoid of vegetation in some areas. Together with *Hydraena mecai* sp.n. another eight species of *Hydraena* were collected (*H. affusa* d'ORCHYMONT, *H. capta* d'ORCHYMONT, *H. carbonaria* KIESENWETTER, *H. claryi* JÄCH, *H. cordata* SCHAUFUSS, *H. exasperata* d'ORCHYMONT, *H. hernandoi* FRESNEDA & LAGAR, *H. riparia* KUGELANN). A total of 69 species of aquatic beetles were found in this stream (Iberian endemics marked with an *):

Dytiscidae: *Agabus biguttatus* (OLIVIER), *A. bipustulatus* (L.), *A. brunneus* (F.), *A. brunneus* gr. sensu MILLAN et al. (1997), *A. chalconatus* (PANZER), *A. didymus* (OLIVIER), *A. nebulosus* (FORSTER), *A. nitidus* (F.), *A. paludosus* (F.), *Deronectes moestus inconspectus* (LEPRIEUR), *Graptodytes ignotus* (MULSANT), *G. varius* (AUBÉ), * *Hydroporus decipiens* SHARP, *H. discretus* FAIRMAIRE & BRISOUT, *H. lucasi* REICHE, *H. normandi* RÉGIMBART, *H. planus* (F.), *H. pubescens* (GYLLENHAL), *H. tessellatus* DRAPIEZ, *Hygrotus impressopunctatus* (SCHALLER), *H. lagari* (FERY), *Ilybius meridionalis* AUBÉ, *Stictionectes epipleuricus* (SEIDLITZ)

Halipilidae: *Halipilus lineatocollis* (MARSHAM), *H. mucronatus* STEPHENS

Hydraenidae: * *Hydraena affusa*, *H. capta*, * *H. carbonaria*, *H. claryi*, *H. cordata*, *H. exasperata*, *H. hernandoi*, * *H. mecai*, *H. riparia*, * *Limnebius gerhardti* (HEYDEN), *L. maurus* BALFOUR-BROWNE, * *L. millani* RIBERA & HERNANDO, *Ochthebius aeneus* (STEPHENS), * *O. bellieri* KUWERT, *O. bonnairei* GUILLEBEAU, *O. viridis* sp. 2 sensu JÄCH, 1992

Hydrochidae: * *Hydrochus ibericus* VALLADARES, DÍAZ & DELGADO, * *H. nooreinus* BERGE HENEGOUWEN & SÁINZ-CANTERO

Helophoridae: *Helophorus alternans* GENÉ, *H. asturiensis* KUWERT, *H. brevipalpis* BEDEL, * *H. seidlitzii* KUWERT

Hydrophilidae: *Anacaena bipustulata* (MARSHAM), *A. globulus* (PAYKULL), *A. lutescens* (STEPHENS), *Berosus affinis* BRULLÉ, *Chaetarthria similis* WOLLASTON, *Helochares lividus* (FORSTER), *Hydrobius convexus* BRULLÉ, *Hydrobius fuscipes* (L.), *Laccobius bipunctatus* (F.), *L. hispanicus* GENTILI, *L. neapolitanus* ROTTENBERG, *L. obscuratus* ROTTENBERG, *L. sinuatus* MOTSCHULSKY

Georissidae: *Georissus crenulatus* ROSSI

Heteroceridae: *Augyles maritimus* (GUÉRIN-MÉNEVILLE)

Dryopidae: *Dryops gracilis* (KARSCH), *D. luridus* (ERICHSON)

Elmidae: *Esolus parallelepipedus* (MÜLLER), *Limnius intermedius* FAIRMAIRE, *L. volckmari* (PANZER), *Oulimnius troglodytes* (GYLLENHAL), *Riolus illiesi* STEFFAN

Discussion

Hydraena mecai sp.n. has to be included in the *Hydraena rufipes* group, as it has the maxillary palpi darkened apically, wide metasternal plaques and the aedeagus with groups of setae on the median lobe (BERTHÉLEMY et al. 1992).

As currently recognised, the *Hydraena rufipes* group has seven species in the Iberian peninsula: *H. affusa*, *H. andalusa* LAGAR & FRESNEDA, *H. angulosa* MULSANT, *H. claryi*, *H. delia* BALFOUR-BROWNE, *H. lucasi* LAGAR, and *H. stussineri* KUWERT (LAGAR & FRESNEDA 1990, BERTHÉLEMY et al. 1992, M. JÄCH pers. comm. 1999), to which *H. mecai* has to be added.

Hydraena mecai can be clearly separated from the other Iberian species of the group by the shape of the median lobe of the aedeagus (Figs. 1 - 4). The external morphology is more similar to other species, being in general paler (both body and appendages, which have uniform coloration), smaller in size, and with the punctation of head and pronotum less impressed and dense.

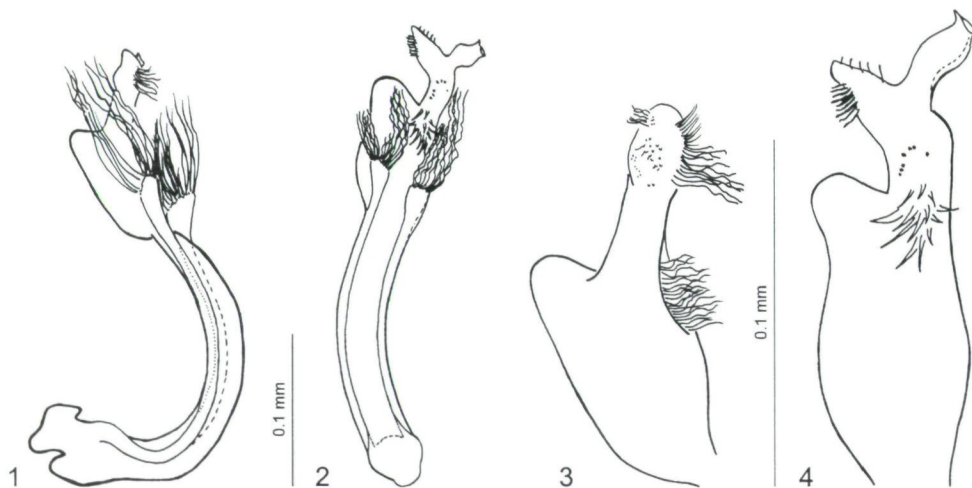
Five of the eight Iberian species of the *Hydraena rufipes* group are endemics, *H. affusa* (central and eastern Iberian peninsula), *H. delia* (Pyrenean area), *H. lucasi* and *H. stussineri* (Pyrenean area and Iberian system), and *H. mecai* (Baetic mountains system). With the exception of *H. stussineri* and *H. lucasi*, with a more widespread distribution in the Iberian Peninsula (VALLADARES & MONTES 1991, RIBERA et al. 1999), the other Iberian endemics of the group have allopatric distributions similar to those of other Iberian endemic species of *Limnebius* (FRESNEDA & RIBERA 1999).

Among the non-Iberian endemics of the group, *H. angulosa* has the most widespread distribution in the Palearctic region; *H. andalusa* has a North African - Iberian distribution (JÄCH et al. 1998); and *H. claryi* has a west Mediterranean distribution. At the type locality three species of the group were found: *H. mecai*, *H. affusa* and *H. claryi*.

We finally want to point out the conservation interest of the spring of Fuenfría as a hotspot for aquatic beetles. Of the 69 species of aquatic Coleoptera so far collected from the area ten are Iberian endemics. The large number of species found in this relatively small spring shows the complexity of the ecological and biogeographical factors acting in the colonisation and establishment of the aquatic beetles of this spring within the Baetic mountain system. Among the reasons for this species richness three factors seem likely to be of major relevance: 1) the geological history of the area, which is of tertiary origin, 2) the fact that it is a transition zone between faunas of European and southern Mediterranean origin, and 3) its great environmental heterogeneity, with both permanent and temporary lotic and lentic water bodies, and with a remarkable variability in their degree of mineralisation.

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Figs. 1 - 4: *Hydraena mecai*, 1) aedeagus, lateral view, 2) aedeagus, dorsal view, 3) apex of aedeagus, lateral view, 4) apex of aedeagus, dorsal view.

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