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**Revisions of the genera *Parhydraena* Orchymont,
Protozantaena Perkins, *Decarthrocerus* Orchymont,
and *Parhydraenopsis* nomen novum, aquatic and
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and comparative morphology of the tribe Parhydraenini
(Coleoptera: Hydraenidae)**

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Philip D. Perkins

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Abstract

The hydraenid genera *Parhydraena* Orchymont, 1937, *Decarthrocerus* Orchymont, 1948, *Protozantaena* Perkins, 1997, and *Parhydraenopsis* nomen novum are comprehensively revised, based on the study and databasing of 13,323 specimens. *Decarthrocerus* Orchymont is considered a valid genus, not a subgenus of *Parhydraena*. A new generic name, *Parhydraenopsis* nomen novum, is provided to replace *Pseudhydraena* Orchymont, 1947 (a junior homonym of *Pseudhydraena* Acloque, 1896). The genera are redescribed, and new species are described in *Parhydraena* (14), *Protozantaena* (4), *Parhydraenopsis* (2), and *Decarthrocerus* (3). Redescriptions are provided for *Parhydraena brevipalpis* (Régimbart), *P. lancicula* Perkins & Balfour-Browne, *P. seriata* Balfour-Browne, *Protozantaena labrata* Perkins, *Parhydraenopsis cooperi* (Orchymont), and *Decarthrocerus jeanneli* Orchymont. Selected morphological features of *Pneuminion* Perkins, and members of the tribe Hydraenidini, *Hydraenida* Germain and *Parhydraenida* Balfour-Browne, are illustrated and compared with those of members of Parhydraenini. Keys to the genera of Parhydraenini and keys to the species of the genera revised herein are given. Male genitalia, representative spermathecae, antennae, and elytra are illustrated. Scanning electron micrographs of external morphological characters are presented. High resolution digital images of the primary types of all species (except the holotypes of three species, which could not be found) are presented (online version in color), and geographical distributions are mapped. The tribe Parhydraenini has both fully aquatic and humicolous adapted species, and shows notable diversity in the lengths of the maxillary palpi and legs, reflecting the microhabitat type. Humicolous species have relatively short maxillary palpi and tarsi, and often have a specialized body form, as in the very differently shaped members of *Discozantaena* and *Decarthrocerus*. *Parhydraena* has both aquatic and humicolous species, the latter being broad-shouldered species with very short maxillary palpi and tarsi. *Protozantaena* has one aquatic species, the four other species in the genus being collected by sifting litter in humicolous microhabitats. Species of *Decarthrocerus* have only been collected by sifting litter; many of the specimens are from bamboo forests. As far as is known, members of *Parhydraenopsis* are fully aquatic, or found in wet streamside mosses. The following new species are described (type locality in South Africa unless otherwise given): ***Parhydraena ancylis*** (Western Cape Province, Heuningnes River), *P. asperita* (Western Cape Province, Knysna, Diepwalle), *P. brahma* (Mpumalanga Province, Uitsoek), *P. brunovacca* (Eastern Cape Province, Umtata, Nquadu Mt.), *P. divisa* (Sudan, Gilo), *P. sebastiani* (KwaZulu-Natal Province, Cathedral Peak), *P. maculicollis* (KwaZulu-Natal Province, Polela River, Himeville), *P. maureenae* (Western Cape Province, W. Wiedouw farm), *P. mpumalanga* (Mpumalanga Province, Fanie Botha Trail, Maritzbos Hut area, SW Sabie), *P. namaqua* (Western Cape Province, Van Rhyns Pass), *P. ora* (Western Cape Province, Cape Town), *P. parva* (Western Cape Province, George, Saasveld, Kaaimans River), *P. semicostata* (Mpumalanga Province, Soutpansberg, Entabeni), *P. toro* (Western Cape Province, Kirstenbosch, Table Mountain), ***Protozantaena ankaratra*** (Madagascar, Antananarivo, Ankaratra, Reserve Manjakatampo, M. Arirana, SE drainage River Ambodimangavo), *P. grebennikovi* (Tanzania, W. Usambara Mts., Lushoto district, Grant's Lodge, Mkuzu river, 3–4 km upstream of Kifungilo), *P. malagastica* (Madagascar, Antsiranana, Parc National Montagne d'Ambre), *P. palpalis* (Madagascar, Antananarivo, Anjozorobe, Ravoandrina, left affluent of River Ampanakamonty), ***Parhydraenopsis alta*** (Ethiopia, Wolamo Province, Mt. Damota), *P. simiensis* (Ethiopia, Simien Mountains National Park, Jinbar Wenz), ***Decarthrocerus bambusicus*** (Democratic Republic of Congo, P. N. Virunga, Volcan Sabinyo, Chanya W., W. Sabinyo), *D. mahalicus* (Tanzania, Mahali Peninsula, Kungure), *D. mbizi* (Tanzania, Mt. Mbizi, 12 mi. NE Sumbawanga).

Key words: Coleoptera, Hydraenidae, *Parhydraena* Orchymont, *Protozantaena* Perkins, *Pseudhydraena* Orchymont, *Decarthrocerus* Orchymont, *Parhydraenopsis* nomen novum, *Pneuminion* Perkins, new species, Africa, Madagascar, aquatic insects, aquatic microhabitats, humicolous microhabitats, holotype digital images