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A NEW GENUS AND SPECIES OF THE SUBTRIBE ANISODACTYLINA FROM SOUTH-WESTERN AUSTRALIA (COLEOPTERA: CARABIDAE: HARPALINI)

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The new monotypical genus *Nornalupia* gen. n. with new species *N. megacephala* sp. n. are described from the Nornalup-Walpole Nature Park, south-western Australia. The taxonomic position of the new genus within the subtribe Anisodactylina is discussed.

Key words: Coleoptera, Carabidae, Harpalini, Anisodactylina, *Nornalupia*, Australia, new genus, new species

INTRODUCTION

The supra-specific system of the subtribe Anisodactylina is the most advanced and phylogenetically the most substantiated within Harpalini thanks largely to the fundamental works of NOONAN (1973, 1976). This subtribe comprises about 40 valid genera and subgenera with about 340 species distributed in all major zoogeographical regions, predominantly in temperate zones. The Australian fauna has not been adequately studied and needs revision. The modern catalogue of all described taxa with information about their distribution has been published by MOORE *et al*. (1987). The Australian Anisodactylina includes the rather primitive genera *Gnathaphanus* MACLEAY, 1825, *Cenogmus* SLOANE, 1898, *Hypharpax* MACLEAY, 1825, and *Notiobia* PERTY, 1830, which all are characterized by the plesiomorphic condition of labium with complete transverse suture between mentum and submentum. Of these genera, only *Cenogmus* is endemic to Australia, other genera extend more widely but, except for *Notiobia*, are most diverse also in the Australian region. The rather diverse genus *Notiobia* (sensu lato) is distributed in the New World, Africa and Australia.

While working on the collections of Harpalini in the Hungarian Natural History Museum, Budapest, I found a series of the highly peculiar species of the tribe Anisodactilina captured in the Nornalup-Walpole Nature Park, south-western Australia, which, in my opinion, belongs to a new species and a new genus. Their descriptions are provided in the present paper.

MATERIAL AND METHODS

The holotype of the new species is deposited in the Australian National Insect Collection (ANIC), Canberra. Most of the paratypes are kept in the collection of Hungarian Natural History Museum, Budapest, and some in the collection of Zoological Institute of the Russian Academy of Sciences, St. Petersburg.

Measurements were taken as follows: body length from anterior margin of clypeus to elytral apex; width of head as maximum linear distance across head, including compound eyes, and as minimum linear distance across neck constriction just behind eyes; length of pronotum along its median line; length of elytra from basal ridge in scutellar region to apex of sutural angle; width of pronotum and elytra at their broadest place.

Nornalupia gen. n.

Type species: *Nornalupia megacephala* sp. n.

Diagnosis – Head very large, punctate dorsally and with small eyes widely separated from buccal fissure ventrally; fronto-clypeal suture deepened and continuing to deep clypeo-ocular prolongation; mentum with prominent medial tooth and separated from submentum by complete transverse suture; ligula not expanded at apex and with only two ventroterminal setae; elytra each with one discal pore on 3rd interval and without scutellar stria; first metatarsomere rather long; and anal sternite in male with one pair of setae at apical margin.

Description – Wingless. Body small, elongate and convex, glabrous on dorsal side.

Head very large, longer and only a little narrower than pronotum, distinctly, even if finely and sparsely, punctate dorsally, with small flat eyes very broadly separated from buccal fissure ventrally; genae broad, nearly as wide as eyes (Fig. 1). Temples long, very convex and rather abruptly descending to neck. Fronto-clypeal suture clearly deepened, continuing posterio-laterally towards eyes as rather deep clypeo-ocular prolongation reaching inner margin of eye; additional groove extended from clypeus to apical portion of supraorbital furrow externally of clypeo-ocular prolongation and parallel to it forming convex bead at base of mandible. Labral apex not concave, more or less straight. Clypeus with one lateral setigerous pore on each side, scarcely emarginate anteriorly and labral base not exposed. Mandibles stout, left clearly truncate at apex (Fig. 2). Labium (Fig. 7) with mentum and submentum completely separated by transverse suture. Submentum with two lateral setae on each side (inner seta much longer than external). Mentum with well developed acute median tooth and with a pair of median setae. Ligular sclerite moderately broad, not expanded apically, with two ventroterminal setae and without dorsal setae. Paraglossae glabrous, narrow, notably extending beyond ligular sclerite and separated distally from it by deep notch. Penultimate labial palpomere approximately as long as terminal, with two long and several (3–4) shorter setae at anterior margin and with one ventroapical seta. Antennae slender, pubescent from apical half of 3rd segment on.

Pronotum relatively small and convex, with unisetose sides convergent basad. Anterior margin bordered only laterally, bead along posterior margin complete. Surface, except for small central part, coarsely punctate. Basal pronotal edge glabrous.

Elytra oblong-oval, moderately convex, with prominent angulate humeral angles and somewhat deep subapical sinuations. Striae slightly deepened, either smooth or irregularly punctate and weakly crenulate. Ninth stria separated from lateral furrow by narrow flat area. Seventh stria with ocellate pore before apex. Scutellar stria absent, basal pore large, separated from basal edge. Intervals weakly convex, in some specimens covering by indistinct punctation. Third interval with one discal pore behind middle (in one specimen with two on one elytron); 5th and 7th intervals without pores. Marginal series widely interrupted medially, consisting of basal and apical groups of umbilicate pores. Basal elytral edge glabrous.

Ventral surface of body, except for obligatory setae and very fine pubescence on pro- and metasternum, glabrous. Apex of prosternal lobe with several setae. Anal sternite rounded at apex (in male sometimes scarcely truncate), with one pair of setigerous pores along apical margin in male and with two pairs in female. Apex of anal tergite in both sexes roundly angulate but in male more narrowly than in female.

Legs slender. Fore tibia with two apical spines at outer margin and one spine at apex of very small ventroapical tubercle; apical spur slender, lanceolate. Hind femur with two setigerous pores at hind margin. Tarsi dorsally impunctate and glabrous; fifth segment with usually two, sometimes three pairs of latero-ventral setae. Metatarsus shorter than width of head measured at neck constriction; 1st segment slender, approximately as long as 2nd and 3rd together and about three times as long as wide at its apical part. Pro- and mesotarsi of male weakly dilated and carring spongy adhesive vestiture underneath.

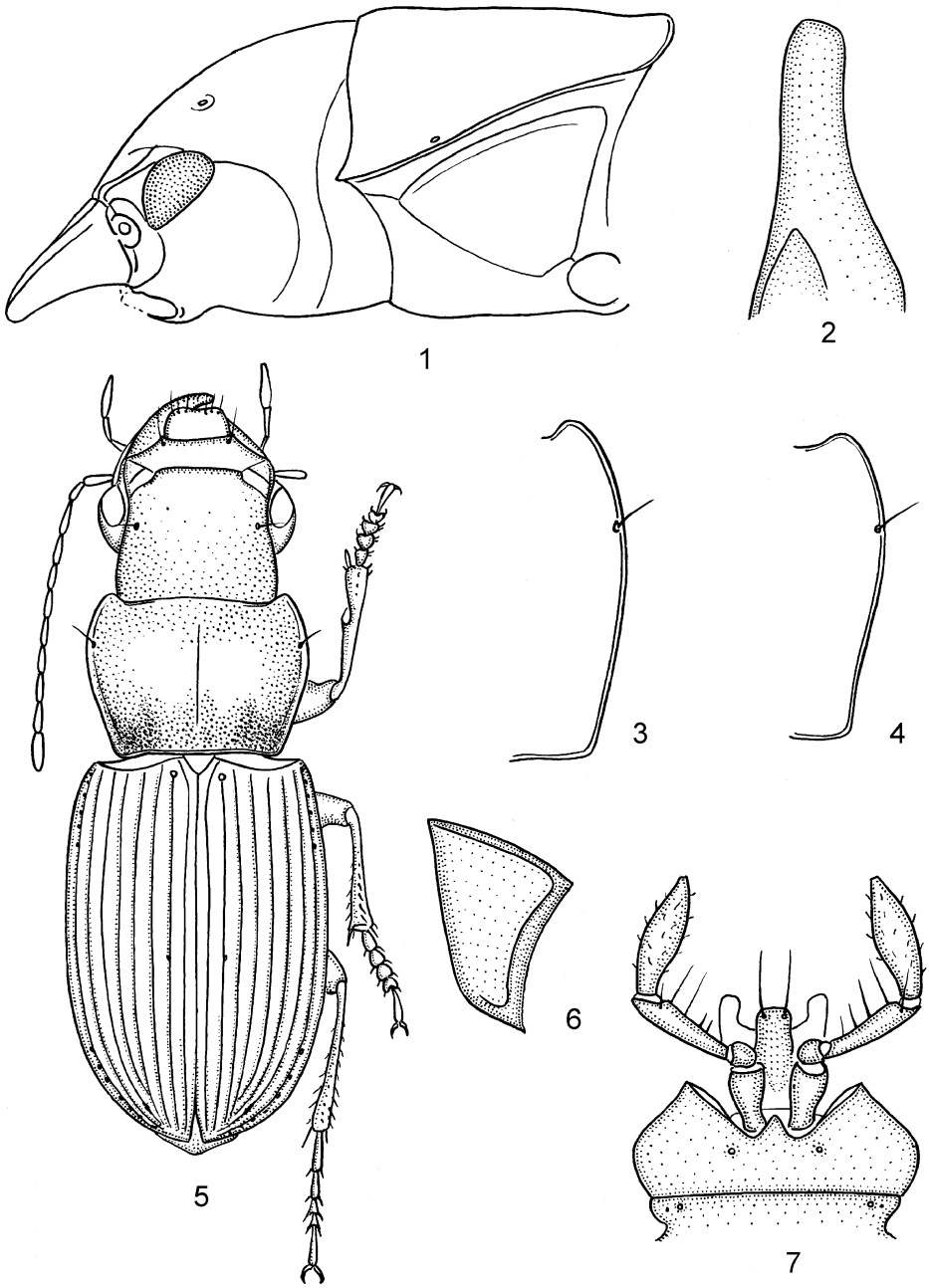
Median lobe of aedeagus (Figs 8–9) without any apical capitulum, with apical orifice in dorsal position and with membranous area widely extending to large basal bulb.

Female genitalia (Figs 10–11): valvifer broad, weakly sclerotized apically and with 1–3 fine distal setae. Stylus with basal segment rather short, markedly widened apically, with two short distal setae; apical segment arcuate, somewhat sharp apically, with one seta on inner margin before apex.

Etymology – The generic name is female, referring to the type locality, Nornalup-Walpole Nature Park.

Included species – The new genus includes a single species *Nornalupia megacephala* sp. n. from south-western Australia.

Remarks – In appearence, this new genus resembles some small representatives of the genus *Chydaeus* CHAUDOIR, 1854 but possesses the labium with mentum and submentum separated by a complete transverse suture and therefore, like all the other Australian taxa of the subtribe Anisodactylina, belongs to the notiobioid main branch sensu NOONAN (1973). Within this branch, the genus seems to be rather separated from other groups and is well recognizable on the basis of the combination of characters listed in the diagnosis. Some of these characters (small eyes, well dentate mentum, comparatively narrow apex of ligula, one pair of setae on anal sternite of male) are common to both *Nornalupia* gen. n. and the New Zealand genus *Allocinopus* BROUN, 1903, but the latter is easily distinguished by having the frontal fovea punctiform, metepisterna wider than long, anal sternite of female with only one pair of setae and median lobe of aedeagus with shorter membranous area. Based on rather long first segment of hind tarsus and



Figs 1–7. *Nornalupia megacephala* sp. n. Head and pronotum, lateral apect (1). Apex of left mandible, frontal aspect (2). Right margin of pronotum (3–4). Habitus (5). Right metepisternum (6). Labium (7). Scales: A = 1 mm (Figs 1, 3–4), B = 0.5 mm (Figs 2, 6, 7), C = 1 mm (Fig. 5)

presence of only one discal pore on third elytral interval, the new genus seems to be most related to the genus *Notiobia* PERTY, 1830 represented in Australian Region by the subgenus *Anisotarsus* CHAUDOIR, 1837 (= *Diaphoromerus* CHAUDOIR, 1843) but well differs in rather peculiar characteristics of the head (great size, presence of dorsal punctation, very broad genae, deepened fronto-clypeal suture continuing to deep clypeo-ocular prolongation, etc.). It is apparent that at least some of these features, in particular the great size of head and very broad genae, are adaptive but, unfortunately, the mode of life of the new genus is still unknown to understand their real functional significance. The unique morphological features of the new genus and its locality suggest that this taxon may be an old relict. It is well known that south-western corner of Western Australia is one of the major centers of endemism of Australian fauna and flora with many old elements related to the temperate forms of South America, more rarely of South Africa (e. g. MARCHANT 1973, HOWDEN 1981, MAIN 1981). In this connection it should be interesting to compare in detail the new genus with the unknown to me in nature, monobasic genus *Nemaglossa* SOLIER, 1849 from Chile, which, according to BALL (in REICHARDT 1977: 424), also belongs to the notiobioid complex. This genus is dissimilar to other groups of Neotropical *Anisodactilina* and has been included in the subtribe *Pelmatelina* formerly. Some of its distinctive generic features listed by BALL (l. c.), in particular small size, very short metepisterna and reduced wings, are similar to those of the *Nornalupia* gen. n. Based on the original description (SOLIER 1849), *Nemaglossa* differs from the new genus at least in lesser head, broader paraglossae and impunctate dorsum.

Nornalupia megacephala sp. n.
(Figs 1–11)

Type material – Holotype, male, SW Australia, W Gully Rd., Nornalup-Walpole Nature Park, 25.I.1979, unknown collector (ANIC). Paratypes. 10 males, 9 females, same data as holotype.

Description – Body length in male 6.2–6.6 mm, in female 6.4–7.6 mm, width 2.4–2.6 and 2.6–2.9 mm, respectively.

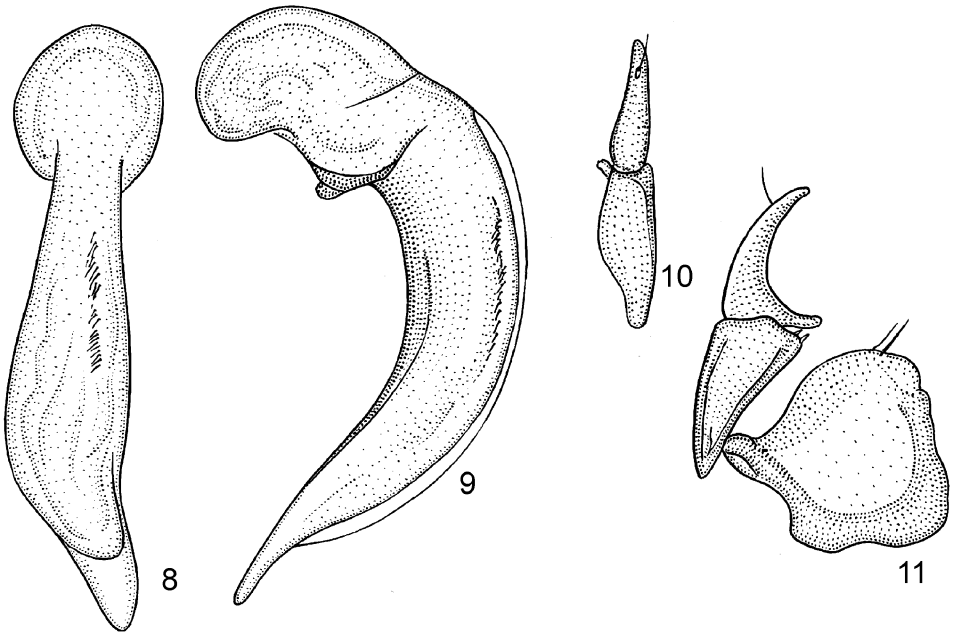
Body dark brown to almost black, with labrum, anterior margin of clypeus, narrow margins of pronotum and elytra usually reddish brown; palpi, antennae and legs brown, tibiae apically and femora more or less infuscated. Upperside shining, not iridescent and without metallic tinge.

Head, measured across eyes and across neck constriction, correspondingly 0.81–0.87 and 0.66–0.72 times as wide as pronotum in male, and 0.85–0.92 and 0.69–0.76 times as wide as pronotum in female. Antennae slender, with middle segments a little more than 1.5 times as long as wide, reaching only base of elytra. Dorsal punctation variable from very fine and restricted to lateral portions of head to somewhat coarse and distributed almost throughout. Dorsal microsculpture, ex-

cept for very narrow area under each eyes covered with fine isodiametric meshes, invisible even at high magnification.

Pronotum 1.40–1.54 times as wide as long, widest in anterior third just behind lateral setigerous pores, with sides rounded anteriorly and straightly or weakly sinuately covergent in posterior half (Figs 3–4). Anterior and posterior margins more or less straight, latter a little narrower than former and notably narrower than elytral base between humeal angles. Apical angles small and acute, weakly protruding, very narrowly rounded at tip. Basal angles obtusangular, more or less narrowly rounded at apex. Lateral furrowes narrow anteriorly and medially, weakly widened before basal angles and usually fused there with small and shallow basal foveae forming comparatively deep united laterobasal deppressions; lateral margins at basal angles slightly reflexed. Mediobasal portion of pronoum very convex. Punctures in laterobasal depressions most coarse and often confluent. Microsculpture invisible.

Elytra widest at middle, in male 1.40–1.44 times as long as wide, 2.32–2.43 times as long and 1.17–1.27 times as wide as pronotum; in female these indices 1.46–1.54, 2.58–2.71 and 1.19–1.28, respectively. Humeri prominent, sharp at apex, without denticles. Sutural angles acutangular, narrowly rounded at apex. Basal edge rather strongly sinuate laterally and meeting lateral margin in weakly obtuse or nearly right angle. Intervals strongly narrowed before apex. Striae somewhat thin. Marginal series consisting of 6 basal and 7 apical umbilicate pores. Microsculpture visible in female only on two lateral intervals throughout and usually also in narrow basal portion of all other intervals, consisting of fine and narrow transverse meshes, in male obliterate meshes visible sometimes only in apical portion of lateral intervals.



Figs 8–11. *Nornalupia megacephala* sp. n. Median lobe of aedeagus, dorsal (8) and lateral (9) aspects. Stylus, lateral aspect (10). Stylus and valvifer, ventral aspect (11). Scale: 0.5 mm

Wings completely reduced. Metepisterna (Fig. 6) small, hardly longer than wide, strongly narrowed posteriad. Metacoxae each only with two obligatory setigerous pores, without any additional pores.

Median lobe of aedeagus arcuate, with apical portion curved dorsad (lateral aspect) and to right; terminal lamella asymmetrical, longer than wide, moderately broad, narrowly rounded at apex, with sides roundly convergent apicad (dorsal aspect). Internal sac with dorso-lateral longitudinal chain of small spines.

Etymology. The species epithet is derived from the Greek, *megas* (big) and *cephale* (head), referring to the remarkable feature of the new species.

Distribution – Known only from the type locality, Nornalup-Walpole Nature Park, in the south-western corner of Western Australia.

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