

***Heterostylus tichotai*, a new species from Oman
and the first record of the tribe Cneorhinini from the Arabian Peninsula
(Coleoptera: Curculionidae: Entiminae)**

***Heterostylus tichotai*, nový druh z Ománu a první údaj tribu Cneorhinini z Arabského
poloostrova (Coleoptera: Curculionidae: Entiminae)**

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Abstract. *Heterostylus tichotai* sp. nov. is described from Oman, illustrated and compared with closely related species. The tribe Cneorhinini Lacordaire, 1863 is thus recorded from Arabian Peninsula for the first time.

INTRODUCTION

Rheinheimer (2003) described four new species of the genus *Nematocerus* Reiche, 1849 (originally described in the genus *Systates* Gerstaecker, 1871) from the Arabian Peninsula, showing that entimine weevils from the Afrotropical region can cross the Red Sea and inhabit the Arabian Peninsula. During his travels in Oman, the second author re-collected one of these *Nematocerus* species, but he mostly collected a *Heterostylus* Faust, 1891 species distinct from any species known from continental Africa, which is proposed as a new species in this paper. In addition, this represents the first record of the tribe Cneorhinini Lacordaire, 1863 from the Arabian Peninsula.

Heterostylus is a genus containing 33 species found in a broad, long strip throughout central Africa, extending from Namibia and Cameroon on the western coast to Kenya, Tanzania, and Mozambique on the eastern coast (Alonso-Zarazaga & Lyl 1999). *Heterostylus* has never been properly studied, apart from a series of descriptions of individual species. Descriptions are scattered in 24 articles published by 10 different authors. There is no summarizing treatment of the genus.

MATERIAL AND METHODS

Body length of all specimens was measured in dorsal view from the anterior border of the eyes to the apex of the elytra, excluding the rostrum. Width/length ratio of the rostrum was measured as width at base versus maximum length to the base of the mandibles in dorsal view. Width/length ratios of pronotum, elytra, antennal, and tarsal segments were taken at the maximum width and length of the respective parts in dorsal view. Female genitalia were embedded in Solakryl BMX (Medika, Praha); male genitalia were mounted dry on the same card as the respective specimen. Habitus images were taken with a Canon EOS 5D mark II in combination with a Canon MP-E65 1–5×macro lens. The resulting images were focus stacked by Zereine Stacker and post-processed in Adobe Photoshop CC 2015. Terminology of the rostrum and the genitalia follow Oberprieler et al. (2014).

Exact label data of type material are cited, with separate labels indicated by slash (/), authors' comments are found in square brackets.

The material is deposited in the following collections (identified by acronyms):

BMNH	Natural History Museum, London, United Kingdom (formerly British Museum of Natural History) (Maxwell Barclay);
JPHC	Jan Pelikán private collection, Hradec Králové, Czech Republic;
NMPC	National Museum Prague, Czech Republic (Jiří Hájek);
RBSC	Roman Borovec private collection, Sloupno, Czech Republic;
TKJC	Tomáš Kopecký private collection, Jablonné nad Orlicí, Czech Republic.

TAXONOMY

Heterostylus tichotai sp. nov.

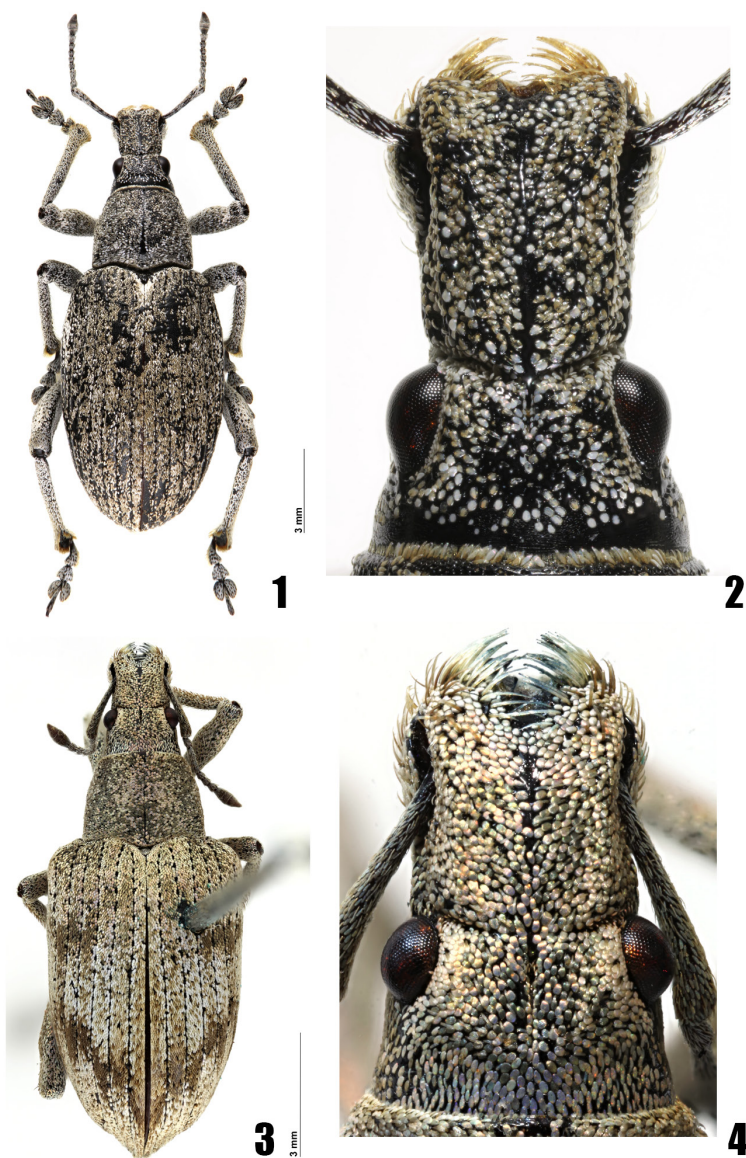
(Figs 1, 2, 5–9)

Type locality. South Oman, Dhofar Gov., 18 km northwest of Sadah, near Lagga Shalyon.

Type material. Holotype: ♂, S Oman, Dhofar Gov., Sadah, 18 km NW, near Lagga Shalyon, 17°11'10.046"N, 54°56'34.295"E, 422 m, wadi rock-stream, beating *Commiphora foliacea*, 1.10.2018, Jan Pelikán lgt. (NMPC). **Paratypes:** 4 ♂♂ 2 ♀♀, same data as holotype (3 ♂♂ 1 ♀ JPHC, 1 ♂ 1 ♀ RBSC); 2 ♂♂, same data as holotype, but 20.9.2022, beating vegetation (JPHC); 3 ♂♂, Oman, Dhofar Gov., 18 km NW of Sadah, near Lagga Shalyon, wadi, 17°11'10.046"N, 54°56'34.295"E, 422 m, 1.10.2018, T. Kopecký lgt. (TKJC).

Description. Body (Fig. 1) length 10.2–13.3 mm, holotype 11.3 mm. Integument black. Dorsal part of body self-coloured lacking spots, bands or stripes, covered with grey, oval appressed scales, 5–7 across width of one interstria, on elytra with irregularly scattered individual whitish scales, not conspicuously different from surrounding scales. Elytra in posterior declivity with one inconspicuous row of short, slender, parallel, semi-appressed setae, only slightly longer than length of one appressed scale. Head including rostrum with almost uniform, oval appressed scales with slightly visible integument. Scapes with dense, white, slender appressed scales; funicle with white piliform appressed setae and short, semi-erect white setae on apical margin of segments; clubs densely finely setose. Legs with oval appressed scales on femora twice as large as those on tibiae and tarsi and with short, semi-appressed narrow setae, long and erect on inner side of tibiae.

Rostrum (Fig. 2) 1.51–1.62× as long as wide, in basal third with slightly rounded sides, then gradually widening apicad, in apical third slightly rounded around antennal insertions, at apex 1.29–1.32× as wide as at base; in lateral view dorsally almost flat, distinctly declined in fronto-epistomal area. Epifrons occupying majority of rostral area in dorsal view, slightly evenly enlarging apicad; dorsal area slightly regularly domed, with three inconspicuous longitudinal carinae along entire length, partly covered with scales, which conceal fine, dense punctulation, posteriorly distinctly separated from head by conspicuous, deep, V-shaped, well edged, slender transverse sulcus. Frons short, sparsely scaled, posteriorly not separated from epifrons. Epistome small, triangular, covered with conspicuous, dense, transverse stout yellowish setae. Antennal scrobes in dorsal view visible only as short narrow furrows around antennal insertions; in lateral view furrow-shaped, slightly enlarged posteriad, sparsely squamose inside, with dorsal margin directed towards ventral eye margin and reaching transverse sulcus between rostrum and head, with ventral margin slightly sinuate, directed towards ventral



Figs 1–4. 1. *Heterostylus tichotai* sp. nov., male paratype, dorsal view; 2. *H. tichotai* sp. nov., male paratype, head with rostrum in dorsal view; 3. *H. gedyei* Marshall, female syntype, dorsal view; 4. *H. gedyei* Marshall, female syntype, head with rostrum in dorsal view (photograph by Jiří Krátký).

Obr. 1–4. *Heterostylus tichotai* sp. nov., samec, paratyp, pohled shora; 2. *H. tichotai* sp. nov., samec, paratyp, hlava s noscem, pohled shora; 3. *H. gedyei* Marshall, samice, syntyp, pohled shora; 4. *H. gedyei* Marshall, samice, syntyp, hlava s noscem, pohled shora (fotografie Jiří Krátký).

margin of rostrum, not reaching it. Head capsule elongate, temples subequal in length to eyes; vertex regularly domed with deep longitudinal median stria as long as eyes, the dense, fine punctulation hidden by scaling; eyes strongly convex, distinctly prominent from outline of head; in lateral view subround in outline.

Antennae (Fig. 1) black, densely squamose; scapes straight, slender, slightly evenly enlarging apicad, reaching posterior eye margin when folded, at apex $0.8-0.9\times$ as wide as clubs. Funicle seven segmented; segments 1 and 2 conical, segment 1 $1.7-1.8\times$ as long as wide and $0.8-0.9\times$ as long as segment 2, this $2.0-2.2\times$ as long as wide; segments 3–6 $1.1-1.2\times$ as long as wide; segment 7 slightly longer and wider than segment 6, $1.1-1.2\times$ as long as wide; club $1.8-2.0\times$ as long as wide.

Pronotum (Fig. 1) $1.22-1.29\times$ as wide as long, widest at base, with sides almost straight, slightly converging from base behind two thirds, in anterior third more narrowing with slightly concave sides, not distinctly constricted behind anterior margin. Disc regularly domed with small longitudinal fovea before base, under vestiture densely finely punctured, base distinctly bisinuate. Pronotum in lateral view slightly vaulted. Scutellum subtriangular, somewhat sloping anteriorly, squamose.

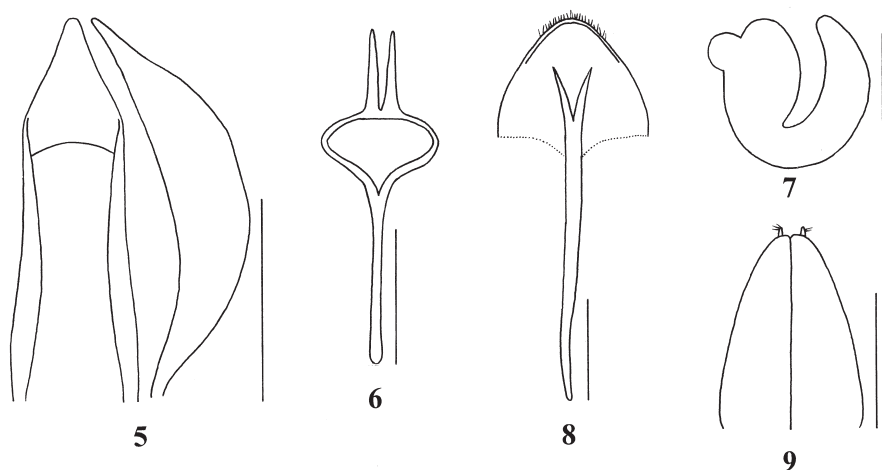
Elytra (Fig. 1) $1.49-1.55\times$ as long as wide, with shortly obliquely slanting humeral calli, widest in middle with regularly rounded sides, gradually narrowing posteriorly, apically narrowly rounded. Striae narrow, finely punctured; interstriae flat, $5\times$ as wide as striae, under vestiture smooth with very fine, sparse punctures; elytra in lateral view slightly vaulted.

Femora (Fig. 1) edentate. Protibiae slender with straight lateral margin, apex distinctly enlarged outside and inside, broadly rounded, fringed by very dense yellowish white setae, shortly mucronate, short inner portion finely denticulate. Meso- and metatibiae with inner side in apical half finely and densely denticulate with long erect white setae, apical surface large, elongate, glabrous, very densely fringed by yellowish white setae, metatibiae with wide, densely squamose true corbel. Tarsi (Fig. 1) robust; segment 2 $1.2-1.3\times$ as wide as long; deeply bilobed segment 3 $1.2\times$ as wide as long and $1.3-1.4\times$ as wide as segment 2; onychium short, $0.7\times$ as long as segment 3; claws solidly fused to their midlength, parallel.

Abdominal ventrites densely scaled; ventrite 1 in middle slightly shorter than ventrites 2–4 combined; ventrite 2 slightly longer than ventrite 3 or 4; ventrite 5 in males short, apically broadly rounded, in females slightly longer, subtriangular. All sutures straight. Metaventral process obtuse, somewhat narrower than transverse diameter of metacoxa.

Penis (Fig. 5) in dorsal view $2.9-3.1\times$ as long as wide, widest at base, weakly tapered apicad with slightly concave sides, apical portion slightly elongated, subtriangular with concave sides, tip narrowly rounded; in lateral view regularly curved, subequal in width in middle portion, apical portion evenly tapered apicad; temones twice as long as body of penis; endophallus with two somewhat long, rod-shaped sclerites. Tegmen (Fig. 6) with manubrium almost twice as long as diameter of complete ring, bearing two long, slender parameres.

Spermatheca (Fig. 7) with regularly curved cornu; corpus rounded; ramus slightly wider than long, apically rounded; nodulus short, shorter and wider than ramus. Female sternite VIII (Fig. 8) with apodeme widest at middle, terminating inside plate, here Y-shaped; plate umbrella-shaped with narrow apical margin fringed by short setae, and posterior margin membranous. Gonocoxites (Fig. 9) well sclerotized, elongate subtriangular, with very short apical styli with tuft of short, fine setae.



Figs 5–9. *Heterostylus tichotai* sp. nov.: 5 – penis, dorsal and lateral view; 6 – tegmen, dorsal view; 7 – spermatheca; 8 – sternite VIII of female, dorsal view; 9 – ovipositor, dorsal view. Scale bars 1.0 mm for all figures.

Obr. 5–9. *Heterostylus tichotai* sp. nov.: 5 – penis, pohled shora a zбоку; 6 – tegmen, pohled shora; 7 – spermatéka; 8 – sternit VIII samice, pohled shora; 9 – ovipositor, pohled shora. Měřítko 1,0 mm u všech obrázků.

Etymology. The newly described species is dedicated to Jiří Tichota (Točná u Prahy, Czech Republic), a musicologist, lutanist, guitarist, and lyric writer, as a token of gratitude for the wonderful music that accompanied us throughout our lives and to which he contributed as both an author and an interpreter.

Biology. Adult specimens were gathered on stony slopes with small tree and shrub cover, above the drying riverbed (Fig. 10). All material was repeatedly collected by beating at night or individually collected from *Commiphora foliacea* Sprague (Burseraceae) at night. Adults are most likely exclusively active at night.

Remarks. By having the “brachyderinae” type of laterally placed antennal scrobes, pronotum lacking vibrissae at sides of anterior margin, wide squamose metatibial true corbels and claws connate at base, the newly described species clearly belongs to the tribe Cneorhinini. It can be assigned to the genus *Heterostylus*, by the rostrum separated from head by transverse sulcus, enlarged apicad, at apex distinctly wider than vertex, but not forming pterygia, base of rostrum not distinctly wider than vertex, eyes convex, in a solid distance from anterior margin of the pronotum, scapes reaching posterior margin of eyes, club not pyriform, its first segment solidly separated from last funicular segment, elytra with laterally prominent humeral calli, ventrite 2 slightly longer than ventrites 3 or 4, suture between ventrite 1 and 2 straight.

The new species can be identified by its relatively long rostrum, self-coloured vestiture, and hardly noticeable humeral calli. *Heterostylus tichotai* sp. nov. is similar to *H. longiceps* (Pascoe, 1886) in the uniform grey scales on body and also to light coloured specimens of *H. metallescens* (Pascoe, 1886), both species described from Tanganyika (currently Tanzania). However, it differs from these species by elytra much more narrowed posteriad from the basal part, wider glabrous elytral striae, epifrons sharply emarginate, and by only one median wide longitudinal carina.

Heterostylus argenteolus Faust, 1896 (described from Tanzania), *H. aliberti* Marshall, 1946 (described from Ivory Coast), *H. letestui* Hustache, 1938 (described from Gabon) and *H. roseotinctus* Hustache, 1936 (described from Mozambique) also have self-coloured brown body vestiture, but all these species have the rostrum wider than long, at most as wide as long, and also a wide glabrous median longitudinal carina.

The newly described species is thus most similar to *H. gedyei* Marshall, 1944, described from Kenya. Both species share a rostrum longer than wide, enlarged apicad, but both are easily possible to distinguish by the following set of characters:

Heterostylus tichotai sp. nov.: rostrum longer, 1.5–1.6× as long as wide, at apex 1.3× as wide as at base (Fig. 2). Pronotum longer, 1.2–1.3× as wide as long (Fig. 1). Body covered with grey appressed scales with only individual irregularly scattered whitish scales of equal size (Fig. 1). Humeral calli laterally weakly prominent (Fig. 1). Larger, 10.2–13.3 mm.

Heterostylus gedyei: rostrum shorter, 1.2× as long as wide, at apex 1.1× as wide as at base (Fig. 4). Pronotum shorter, 1.5× as wide as long (Fig. 3). Body with pearl-grey appressed scales, elytra with zigzagged pale brown V-shaped stripe across the top of declivity, brown scales of half width as grey ones (Fig. 3). Humeral calli obtusely laterally prominent (Fig. 3). Smaller, 8.9–10.8 mm.

Type material of *H. gedyei* examined. 3 syntypes (BMNH): 1 ♂ 2 ♀♀, Cotype [printed, rounded label with yellow margin] / Emali Range Sultan Hamud 4900–5900 ft. 3–40 [printed] / *Heterostylus gedyei* Mshl. COTYPE ♂ [handwritten, Marshall's handwriting] / Pres. by Imp. Inst. Ent. B. M. 1942–86 [printed].

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SOUHRN

Rod *Heterostylus* Faust, 1891 zahrnuje 33 druhů, dosud známých pouze z kontinentální Afriky, a to ze širokého pásu mezi Namibií a Kamerunem na západě a Keňou, Tanzanií a Mozambikem na východě kontinentu. Nález dalšího druhu rodu *Heterostylus* v Ománu je tak nejen nálezem nového druhu, ale také prvním nálezem rodu mimo Afriku. Navíc je to i první údaj tribu Cneorhinini Lacordaire, 1863 z Arabského poloostrova. Již dříve Rheinheimer (2003) popsal čtyři druhy rodu *Nematocerus* Reiche, 1849 z Arabského poloostrova, tedy rodu, který



Fig. 10. Habitat of *Heterostylus tichotai* sp. nov., Wadi Ataq, near Lagga Shalyon waterfall (photograph by Jaroslav Větrovec).

Obr. 10. Biotop *Heterostylus tichotai* sp. nov., Wadi Ataq, blízko vodopádu Lagga Shalyon (fotografie Jaroslav Větrovec).

byl také znám jen z kontinentální Afriky a Sokotry. Nový nález *Heterostylus* je tak dalším dokladem toho, že některé rody afrotropických nosatců osídlily také Arabský poloostrov.

Nově popsáný druh patří do rodu *Heterostylus* na základě následujících znaků: nosec oddělený od hlavy příčnou, ostře ohraničenou rýhou, dopředu rozšířený, v apikální části širší než je čelo mezi očima, ale netvořící laterálně vystupující pterygia, báze nosce stejně široká jako čelo mezi očima, oči vypouklé, zřetelně vzdálené od předního okraje štítu, tykadlové násadce dosahující k zadnímu okraji očí a tykadlové paličky zřetelně oddělené i od posledního článku bičíku, krovky s laterálně vystupujícími rameny, druhý ventrit delší než je ventrit 3 i 4, šev mezi ventrity 1 a 2 přímý.







Nově popsáný druh je nejvíce podobný druhu *H. gedyei* Marshall, 1944 z Keni, především noscem dopředu rozšířeným, delším než širokým. Od něho se ale odlišuje delším a v apexu širším noscem, delším štítem, tělem pokrytým jednobarevně šedými přilehlými šupinkami a také větší velikostí těla.

Typový materiál byl sbírán na kamenitých svazích s řídkým porostem stromů a keřů nad vysychajícím korytem řeky. Všechny kusy byly sbírány výhradně nočním oklepem či individuálně chyceny v noci na myrhovníku *Commiphora foliacea* Sprague (Burseraceae). Lze tedy usuzovat, že tento druh má výhradně noční aktivitu.

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