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New *Siagona* species from Thailand (Coleoptera: Carabidae: Siagonini) and new findings of known species

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Abstract. *Siagona peculiariclypeata* sp. nov. from Thailand (Nakhon Rathasima Province) is described, illustrated and compared with related congeners. *Siagona jeanneli* Lecordier, 1978 is reported as a species new to the fauna of Ethiopia, *S. longula* Reiche, 1855 as a species new to the fauna of Turkmenistan and *S. picea* Chaudoir, 1843 as new to the fauna of Egypt and Senegal.

INTRODUCTION

The genus *Siagona* is widely distributed in Afrotropical, Oriental and southern parts of Palaearctic Region. Recently, 81 species belongs to the genus *Siagona* (Lorenz 2005). More than half of the species (46) are known from the Afrotropical (= Ethiopian) Region, 28 species are known from the Oriental Region. Few species from both zoogeographical regions mentioned occur in neighbouring southern parts of the Palaearctic Region, which has several own species; altogether 18 species is known from the Palaearctic Region.

Oriental fauna has never been revised as a whole, but overwhelming majority of species (24) are included in first part of the monograph of "British India" Oriental Carabidae (Andrewes 1929).

The purpose of the present short paper is to describe additional species of genus *Siagona* from North-eastern Thailand, collected in the deciduous dipterocarp forest in Nakhon Rathasima Province, and to give new data about the distribution of several *Siagona* species from Palaearctic and Afrotropical Regions.

MATERIAL AND METHODS

The present paper is based on the study of type material of the new species described below and of available congeners from authors collection and from the collection of National Museum (Prague). The specimens included in this study are deposited in the following institutional and private collections:

NMPC National Museum, Praha, Czech Republic (J. Hájek);
OHPC Oldřich Hovorka private collection, Praha, Czech Republic.

Measurements were made with a MBS-10 stereoscopic microscope, at magnifications of 8x, 16x and 32x. Measurements of body parts and corresponding abbreviations used in the text are as follows:
EL = elytral length - length of left elytron measured from humerus to apex;
EW = elytral width - maximal width of both elytra combined;
HL = length of head - measured from apex of labrum to neck constriction;
HW = width of head - maximal width of head (including eyes);
PL = pronotal length - length of pronotum measured along mid-line;
PW = pronotal width - maximal width of pronotum;
TL = total length - length measured from the apex of left mandible (mandibles closed) to the apex of left elytron.

The morphological terms used in this study are adopted from Andrewes (1929) or Junger & Faille (2011). Locality labels are cited in the original version, separate label lines are indicated by slash, separate labels by double slash. Addenda and remarks are found in brackets.

The type specimen of newly described species is provided with red printed label: "*Siagona peculiariclypeata* sp. nov., HOLOTYPE, det. O. Hovorka, 2019".

DESCRIPTION OF NEW SPECIES

Siagona peculiariclypeata sp. nov.

(Figs. 1-3)

Type material. Holotype (♂) labelled: "Thai, Nakhon Rathasima / prov., Udomsap, 300 m [a.s.l.] / Wanqnumkheo, Sakarrat / Env. Statt. / O. Košulič leg. // Dicidius [sic] Dipterocarp Forest / 14°30'34.3"N, 101°56'36.2"NE" (NMPC).

Description. Habitus (Fig. 1) - the new species is relatively large, flat, habitually similar to its congeners. Body colour (including antennae) is black, legs red-brown, with femora lighter than tibiae and tarsi; tibiae (especially metatibiae) with knees and outer margin brown to black brown. Palpomeres and labrum brown. Body elongate, relatively narrow. TL 16.8 mm. Head transverse, HL:HW 0.85, only very slightly narrower and distinctly longer than pronotum. Pronotum distinctly wider than long (PW:PL 1.52), 1.08 times wider than head. Elytra elongate, EL:EW 1.67, very slightly wider than pronotum (EW/PW 1.04), widest slightly posteriad to midlength.

Microsculpture. Head and pronotum dorsally with indistinct microsculpture on the disc, therefore relatively shiny, with more distinct isodiametric microsculpture laterally and on punctured areas. Elytra with distinct, relatively strong isodiametric microsculpture, dull. Ventral side - head and thoracic sclerites with isodiametric to transverse microsculpture, abdominal sternites with distinct, dense isodiametric microsculpture only.

Head (Fig. 1) transverse, with small, convex but inconspicuous eyes, about as long as temples and not projecting laterally beyond level of supramaxillary plates. Frons punctate only laterally, triangular central area smooth. Vertex sparsely punctate, punctures distinctly smaller along and in distinct, moderately deep neck furrow. Lateral (supraorbital) ridges long,

nearly reaching neck furrow, anteriorly uninterrupted at the bend, fluently passing into well-developed frontal tubercles. Connection of lateral ridge and frontal tubercle forming blunt, obtuse angle. Clypeo-frontal suture distinct, deep, slightly concave. Clypeus asymmetrical (Fig. 2), anteriorly with deep, round incision, front angles forming uneven, bulging lobes, left one distinctly longer and higher, more convex, right lobe shorter, less convex; lateral parts of clypeus sparsely punctured and setose. Labrum subquadrate, anteriorly in mid third with distinct, wide W-shaped incision, anterior margin dorsally with 5 large setae - two pairs of lateral setae and one unpaired seta on small knob in the middle of the incision. Postero-lateral areas of labrum with transverse wrinkles. Mandibles large, strong, with outer margin strongly, regularly curved; mandibular base not wrinkled, not dilated and without any process created. Terminal maxillar palpomere elongate, only indistinctly widened towards more truncate apex. Terminal labial palpomere asymmetrical, strongly widened, obliquely truncate, axe-like. Mentum with deep, nearly parallel-sided incision and with short, bifid tooth, about quarter as long as incision. Antennae long, surpassing pronotal base by approximately four terminal flagellomeres. Scapus long, as long as three following antennomeres together, moderately clavate, more or less suddenly broadened at 0.4 length.

Pronotum transverse, approximately 1.5 times wider than long. Pronotal base strongly narrowed; both apical and basal margins concave, shallowly but distinctly incised; anterior angles protruding, narrowly rounded. Lateral pronotal sides not clearly parallel in anterior half, but with shallow but distinct concavity anteriad to pronotal midlength, making lateral margin somewhat wavy. Median sulcus distinct, not reaching pronotal apex or base. Narrow lateral margin of pronotum developed, not reaching pronotal base but ending anteriorly to basal constriction. Lateral pronotal grooves not interrupted on disc, very slightly diverging anteriad, then approximately in anterior sixth strongly bending laterally and diverging almost towards anterior pronotal angles, reaching anterior margin at less than 0.1 of pronotal width. Pronotum punctate mainly along margins, median sulcus and lateral grooves, disc only with few punctures. Stridulatory apparatus under lateral margins of prothorax distinctly developed.

Elytra pedunculate, black, relatively sparsely (more densely towards lateral margins) and irregularly punctate. Elytral epipleuron brown-black, with fine, short, adjacent setae. Humerus widely rounded, hind wings strongly reduced.

Male. Median lobe of aedeagus (Fig. 3) is almost parallel in left lateral view, only very slightly concave ventrally, apex is rounded and distinctly bent down. Both parameres similar, elongate with few (3-4) fine setae apically.

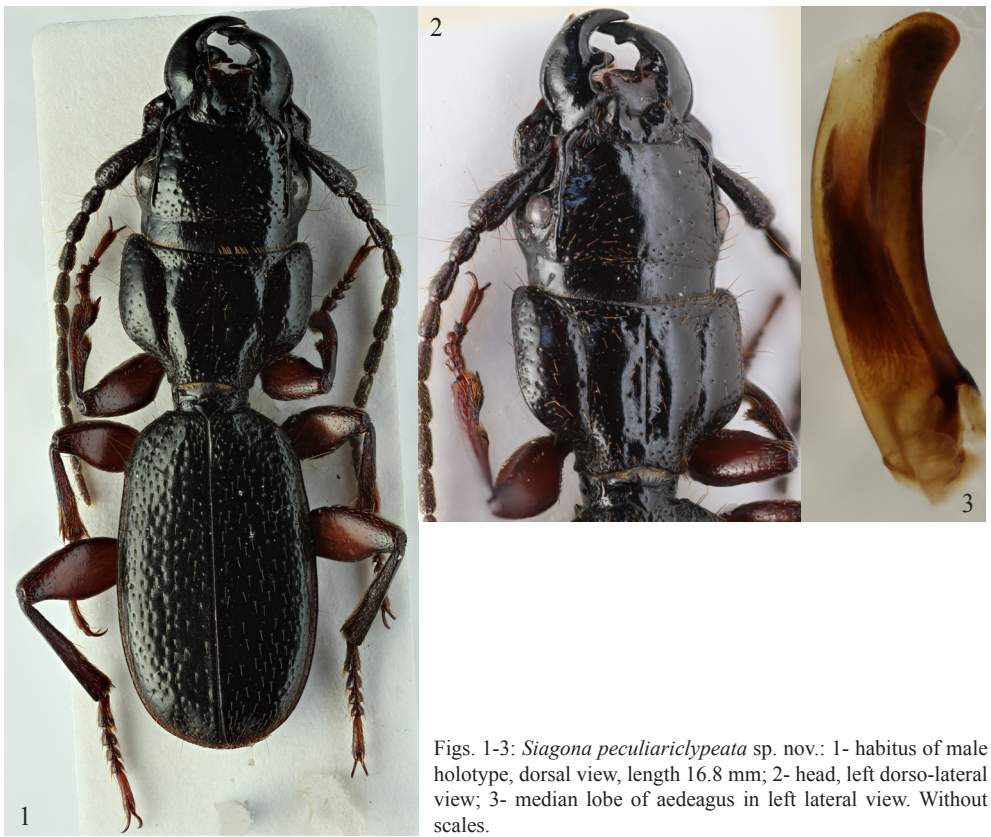
Female unknown.

Differential diagnosis and relationships. The new species differs from all oriental consubgeners by the following combination of characters: clypeus strongly modified, anteriorly deeply incised, with front angles forming uneven, bulging lobes; male with simple, unmodified mandibles; lateral ridge of head long, nearly reaching neck furrow, uninterrupted at the bend; hind wings reduced, humerus widely rounded; stridulatory apparatus present; male genitalia of typical shape.

Siagona peculiariclypeata sp. nov. is of uncertain relationships, as the oriental fauna of *Siagona* was not recently revised as a whole. There is only an old monograph of the

tribe Siagonini (Chaudoir 1876), containing only a small part of species recently known from the Region. The basal criterion used by Chaudoir (1876) to divide species of *Siagona* was the presence or absence of hind wings; he believed that winged and apterous forms could not occur in the same species. This opinion was criticised by Andrewes (1929), who processed *Siagona* species from India, Myanmar and Sri Lanka and described many new species from this region. This author clearly demonstrated the existence of macropterous and brachypterous forms in the same species, but the determination key is again based on the absence or presence of hind wings; moreower, the wing dimorphism was found only in three oriental species and evidently is not very frequent. Applying this key will lead to the couple of theses 44 (45) and vice versa and to the species *S. angustipennis* Bates, 1892 from Myanmar and *S. pygmaea* Andrewes, 1921 from India, which are very small (8.5-11 mm), without stridulating apparatus, with different microsculpture etc. and evidently not related to *Siagona peculiariclypeata* sp. nov.

It is necessary to mention four oriental species not included in the key given by Andrewes (1929): two of them are from geographically distant areas (*S. insulana* Andrewes, 1936 from Java and *S. sinistra* Darlington, 1967 from Philippines), and differ from *S. peculiariclypeata* sp. nov. by many characters, judging by their descriptions (Andrewes 1936, Darlington



Figs. 1-3: *Siagona peculiariclypeata* sp. nov.: 1- habitus of male holotype, dorsal view, length 16.8 mm; 2- head, left dorso-lateral view; 3- median lobe of aedeagus in left lateral view. Without scales.

1967). *S. insulana* differs by small size, absence of stridulating apparatus, impunctate vertex etc., *S. sinistra* by larger size, wrinkled mandibles with dorsal tubercle, both by the presence of hind wings, therefore there are evidently very different. *S. crassidens*, described by Bates (1889) from Mytho (recently Mỹ Tho in South Vietnam) differs again by striate and tuberculate mandibles. The description of *S. sublaevis* Chaudoir, 1876 is based on numerous specimens from Cambodia, Malaysia and Thailand. The *S. sublaevis* is slightly larger than *S. peculiariclypeata* sp. nov. (17.5-18.5 mm) and differs by reduced lateral ridges on head, distinct posthumeral plica on elytron, basal antennomeres brown, not black, and male with mandibles without tubercle, but distinctly basally striate.

There is a possibility that *S. peculiariclypeata* sp. nov. is in fact related with some winged species, maybe with some other relatively large species with stridulating apparatus and long, complete, and uninterrupted at the bend lateral ridge on head. The unique modification of clypeus in *S. peculiariclypeata* sp. nov., not known in any other *Siagona* species, and the absence of any modification of mandibles in male leaves the relationships of this new species obscure. The modern revision of at least oriental species of *Siagona* is necessary to clarify relationships among them.

Name derivation. The species name refers to its peculiar clypeus, distinguishing the new species from its congeners.

DISTRIBUTIONAL RECORDS

Siagona jeanneli Lecordier, 1978

Studied material: 1 ♂ (NMPC), "Ethiopia, Ginir prov., / forest in valley to / S of Omar cave, 16.vi.2011 / V. Hula, J. Niedobová / & M. Morandmand leg., 1249 m". Described (Lecordier 1978) from Kenya and subsequently no other distributional record mentioned in literature. A species new to the fauna of Ethiopia.

Siagona longula Reiche, 1855

Studied material: 1 spec. (NMPC), "Kara-Kum Wüste / Transcaspien / B.v. Bodemeyer" (= Turkmenistan). Known from Cyprus, Israel, Lebanon, Syria and Turkey (Huber & Marggi 2017). A species new to the fauna of Turkmenistan.

Siagona picea Chaudoir, 1843

Studied material: 1 ♂ (NMPC), "Egypt 1997, Western Oases, Dakhla oasis - Mut, 1.-2.4. 1997, Batelka et Podrouzková lgt."; 2 ♀♀ (OHPC), "Senegal W, Toubacouta (Kaolack), 30.7. 2015, S. Prepsl leg.". The species was described from Kordofan and later mentioned from Nubia (Chaudoir 1843, 1876), both regions being recently in Sudan. Bänninger (1928) reported the species from Ubangi (it is not clear if author meant Ubangi River and therefore territory of Central African Republic or Ubangi Province in Zaire, recently Democratic Republic of the Congo; the second possibility seems to be more probable). Complete recently known distribution was given by Lecordier (1978) - the known range of species include (except areas mentioned in previous text) Eritrea, Mali, Niger, Tchad, and Upper Volta (= Burkina Faso). New species for Senegal and for Egypt (and therefore for the Palaearctic Region).

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