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Two new species of *Cryptocephalus* Geoffroy, 1762 from Yemen and re-examination of *C. oblitus* Suffrian and *C. saudiensis* Lopatin

(Coleoptera: Chrysomelidae: Cryptocephalinae)

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Abstract: So far, eight species of the genus *Cryptocephalus* Geoffroy were recorded from Yemen. In this study, two new species, *Cryptocephalus ajeschae* **n. sp.** from Wadi Sara'a and *Cryptocephalus vanharteni* **n. sp.** from Medina Al-Shirq, Yemen, are described. The new species are compared with *Cryptocephalus saudiensis* Lopatin, 1983 and *C. oblitus* Suffrian, 1857. A lectotype is designated for *C. oblitus* and the male genitalia are illustrated for the first time.

Key words: Coleoptera, Chrysomelidae, Cryptocephalinae, Cryptocephalus, Palaearctic, Asia, Arabia

Introduction

The fauna of the Arabian Peninsula includes Palaearctic and Afrotropical elements, but these regions have mostly been studied independently (MEDVEDEV 1996). In this study, two new species of *Cryptocephalus* are described and compared with similar Palaearctic and Afrotropical species. All type specimens of the new species were collected by Antonius VAN HARTEN in 1991 and 1992 in Yemen.

Materials and Methods

The eye length was measured in lateral view, the interocular space in frontal view. Included in this study are specimens located in the following collections:

LMPC -- Lev MEDVEDEV personal collection, Moskow, Russia

- MLUH -- Martin-Luther-Universiät Halle/Saale, Wissenschaftsbereich Zoologie (K. SCHNEIDER)
- NHMB -- Naturhistorisches Museum Basel, Schweiz, Dr. Michel BRAN-CUCCI
- ZMHUB -- Museum für Naturkunde der Humboldt-Universität, Berlin (Dr. J. FRISCH, Dr. M. UHLIG)

Results

Cryptocephalus (Cryptocephalus) saudiensis Lopatin, 1983 (Figs. 1, 2, 9, 10, 18, 19)

Specimens studied: Holotype, male (NHMB): Saudi Arabia, Jebel an Nir, 990m, 2.X.1979, W. Büttiker; 1 male (LMPC): Yemen, Al Kadan, ca. 20 km N Bajil, V.2002, light trap, leg. A. VAN HARTEN.

Basal margin of prothorax with a pair of acute teeth, apical margin with a mouth parts-basket, covering mouthparts in ventral view (Figs. 1, 2); variability in elytral markings see Figs. 9–10; aedeagus gradually bent in lateral view (Fig. 18) base of aedeagus slightly wider than apical part, tip pointed, two apically truncate endosclerites are visible (Fig. 19).

Cryptocephalus (Cryptocephalus) oblitus Suffrian, 1857

(Figs. 5, 6, 11–13, 20, 21)

Lectotype (male, MNHUB) (this designation): 23651 (= Senegal) (black ink) [white] / Type [red] / Lectotypus *Cryptocephalus* (*Cryptocephalus*) *oblitus* Suffrian 1857, des. Matthias Schöller [red] /.

A lectotype was designated here in order to ensure the name's proper and consistent application.

6 Paralectotypes: 4 females, 1 male (ZMHUB), labelling as in lectotype; 1 female (MLUH): 20428 (= Senegal); all with my label: Paralectotypus *Cryptocephalus* (*Cryptocephalus*) *oblitus* SUFFRIAN 1857, des. Matthias Schöller [red].

Description of Lectotype (male)

Habitus: Body medium-sized, shape cylindrical, size [mm]: length 3.25, width of elytra at humeri 1.9, length of pronotum 1.1, width 1.8.

Head: Yellow, puncturation dense and coarse, glabrous, a deep longitudinal groove between the upper lobes of the eyes, eyes large and upper lobes very close, therefore ratio of minimum distance between upper lobes to eye length is 1.5 : 4.7, canthus deep; antenna longer than pronotum i.e. surpassing pronotum by three and a half segments, antennal segments 1-5 yellow, 6-11 light brown, 6-11 widened and twice as long as broad; labrum yellow and mandibles light brown.



Figs. 1–8: Prothorax, ventral and lateral; 1, 2) Cryptocephalus saudiensis Lopatin; 3, 4) Cryptocephalus ajeschae n. sp.; 5, 6) Cryptocephalus oblitus Suffrian; 7, 8) Cryptocephalus vanharteni n. sp.

Thorax: Pronotum vellowish orange, centre of base vellow, hind margin black, glabrous, dull, puncturation deep and coarse except for the vellow centre of base where punctures are more shallow, interstices elevated except for the vellow centre of base; lateral margins not visible simultaneously in dorsal view, frontal and lateral margins yellow, basal margin with a row of 55 black homogenous teeth, except for two larger teeth opposite to scutellum; apical margin of prothorax with a mouth parts-basket which is bearing apically long setae, covering mouthparts in ventral view (Figs. 5, 6), distance between procoxae 1.2 times the longitudinal diameter of coxa, prothorax and metathorax yellowish orange, metathorax black; scutellum yellow with black margin, heart-shaped, apically rounded (Figs. 11-13); elytra glabrous, basal margin of elytra black, elvtra with nine rows of punctures which are pigmented, interstices with rows of micropunctures, scutellar row not reaching middle of elvtra, elytra with a basal black band which is not touching the black basal margin of the elytra and a preapical spot which is touching the suture

(Fig. 11), side margins of elytra not visible simultaneously in dorsal view; legs yellow, tibiae simple, first segment of fore tarsus slightly widened, as wide as apex of tibia, lobes of third tarsal segment symmetrical, claws black, simple.



Figs. 9–16: Left elytra; 9, 10) Cryptocephalus saudiensis Lopatin; 11–13) Cryptocephalus oblitus Suffrian; 14, 15) Cryptocephalus ajeschae n. sp.; 16) Cryptocephalus vanharteni n. sp.

Abdomen: Black except for yellowish-orange hind margin of last sternite, without modifications, sternites covered with short white setae; length of aedeagus 1.00 mm, aedeagus in lateral view gradually bent (Fig. 20), apical part of aedeagus as wide as base, tip pointed, two S-shaped bands and two rounded endosclerites are visible (Fig. 21).

Variability: SUFFRIAN (1857) described four aberrations, (1) in which the inner basal spot or the preapical spot is missing, (2) in which the preapical spot is fused with the suture (Fig. 12) and (3) in which the basal black band might be interrupted, forming an inner and an outer black spot (Fig. 13).

Female: Length 3.75, width of elytra at humeri 2.1, length of pronotum 1.35, width 2.1; antenna longer than pronotum i.e. surpassing pronotum by three segments; abdominal pit large and semicircular.

Distribution and biology: So far known from Senegal only, without exact collection locality. No information on the biology is available.



Fig. 17: Wadi Sara'a south of Al Mahwit near Khamis Bani Sa'ad, type locality of *Cryptocephalus ajeschae* **n. sp.** (Photo by A. VAN HARTEN).

Cryptocephalus (Cryptocephalus) ajeschae n. sp. (Figs. 3, 4, 14, 15, 17, 22, 23, 26–28)

Holotypus (male, ZMHUB): Yemen: Wadi Sara'a s Al Mahwit near Khamis Bani Sa'ad, 17.3.1992, v. Harten / Holotypus *Cryptocephalus ajeschae* des. Matthias Schöller [red] /.

2 Paratypes: Two females (LMPC): Yemen: Wadi Sara'a s Al Mahwit near Khamis Bani Sa'ad, 17.3.1992, v. Harten/ Paratypus *Cryptocephalus ajeschae* des. Matthias Schöller [red] /.

Type locality: Wadi Sara'a south of Al Mahwit near Khamis Bani Sa'ad (15°24'N, 43°42'E), 1200 m asl. (Fig. 17).



Figs. 18–25: Aedeagus lateral, dorsal; 18, 19) Cryptocephalus saudiensis Lopatin; 20–21) Cryptocephalus oblitus Suffrian; 22, 23) Cryptocephalus ajeschae **n. sp.**; 24, 25) Cryptocephalus vanharteni **n. sp.**

Diagnosis

A medium-sized yellowish orange species with orange pronotum and black spots on the elytra. Differs from *C. saudiensis* Lopatin, 1983 in colour and size, from *C. sudanicus* Weise, 1907 in the yellow abdomen and the absence of black markings on the pronotum, from the similarly coloured *C. dinae* Lopatin & Chikatunov, 2001 in the inconspicuous puncturation of the pronotum, and from all these species in the shape of the aedeagus.

Description of holotype (male)

Habitus: Body medium-sized, shape cylindrical-oval, size [mm]: length 3.5, width of elytra at humeri 1.9, length of pronotum 0.9, width 1.9.

Head: Brownish orange, between the eyes yellow, puncturation sparse and coarse, canthus bearing some erect short white setae, eyes large and upper lobes close, therefore ratio of minimum distance between upper lobes to eye length is 1.4 : 2.7; antenna longer than pronotum i.e. surpassing pronotum by three segments, antennal segments 1-5 yellowish orange, 6-11 brown, 6-11 twice as long as broad; mandibles brown.

Thorax: pronotum brownish orange, centre of base yellowish orange, hind margin black, glabrous, dull, very fine and sparse punctures visible at 70x only, lateral margins not visible simultaneously in dorsal view, frontal and lateral margins yellowish orange, basal margin with a row of 42 black inhomogeneous teeth, two larger teeth opposite to scutellum and four larger teeth opposite to shoulder; lateral margins without punctures; apical margin of prothorax with a broadly rounded tooth-like projection, covering mouthparts in ventral view (Figs. 3, 4), distance between procoxae 1.0 times the longitudinal diameter of coxa, metathorax laterally partly black; scutellum yellow with black margins, heart-shaped, apically rounded (Fig. 14); elytra glabrous, basal margin of elytra black, elytra with nine rows of punctures which are not pigmented, interstices slightly rugose, scutellar row not reaching middle of elytra, elytra with basal and preapical black bands which are fused parallel to the suture, but not touching the suture, apical and lateral margin, basal band including the shoulder and touching the black basal margin of the elytra (Fig. 14), side margins of elytra not visible simultaneously in dorsal view; legs yellowish orange, tarsi fuscous, tibiae simple, first segment of fore tarsus only slightly widened, lobes of third tarsal segment symmetrical, claws black, simple.

Abdomen: Yellow, without modifications, sternites covered with short white setae; length of aedeagus 1.6 mm, aedeagus in lateral view gradually bent (Fig. 22), apical part of aedeagus wider than base, tip pointed, an acute endosclerite and two apically truncate endosclerites are visible (Fig. 23), apex ventrally with a pair of depressions.

Variability: The black markings on the elytra are reduced to a basal and a subapical band in the paratypes (Fig. 15), and the sternites are laterally black in one paratype.

Female: Tarsi yellowish orange, abdominal pit large and deep, wider than long; spermatheca hook-shaped, base not swollen, spermathecal duct spiral (Fig. 26); ventral band of kotpresse weakly pigmented in the centre, ventral apodemes as long as ventral band, additional weakly pigmented sclerite apical of ventral band present (Fig. 27), dorsal sclerites extending towards suture, attaching dorsal fold (Fig. 28); size [mm]: length 3.8–4.0, width of elytra at humeri 2.3, length of pronotum 1.1–1.25, width 2.0–2.1.

Etymology: This nice species is dedicated to Ajescha PROZELL.

Distribution and biology: So far known from the type locality only. No information on the biology is available. Wadi Sara is a Wadi with water present almost all year round in some places.

Cryptocephalus (Cryptocephalus) vanharteni n. sp. (Figs. 7, 8, 16, 24, 25)

Holotypus (male, ZMHUB): Yemen, Madinat ash-Shirq, 20.2.1991, sweepnet, leg. A.v.Harten [white] / Holotypus *Cryptocephalus vanharteni* des. Matthias Schöller [red] /.

Type locality: Madinat ash-Shirq (14.38'N 43.58'E).

Diagnosis

A medium-sized yellow species with a longitudinal black band on the elytra. Differs from *C. obesus* Suffrian, 1857 and *C. sudanicus* Weise, 1907 in the elytral colouration and the shape of the prothorax and the aedeagus.

Description of holotype (male)

Habitus: Body medium-sized, shape cylindrical, size [mm]: length 3.5, width of elytra at humeri 2.2, length of pronotum 1.2, width 2.0.

Head: Yellow, puncturation dense and coarse, glabrous, a deep longitudinal groove between the upper lobes of the eyes, eyes large and upper lobes close, therefore ratio of minimum distance between upper lobes to eye length is 2.3 : 4.8; antenna short but longer than pronotum i.e. surpassing pronotum by two segments, antennal segments 1–5 yellow,

6-11 light brown, 6-11 twice as long as broad; labrum and mandibles light brown.





Thorax: Pronotum yellowish orange, centre of base yellow, hind margin black, glabrous, dull, puncturation deep and coarse except for the vellow centre of base where punctures are more shallow, lateral margins not visible simultaneously in dorsal view, frontal and lateral margins yellow, basal margin with a row of 65 black homogenous teeth, except for two larger teeth opposite to scutellum; above lateral margins interstices elevated; apical margin of prothorax almost straight, not covering mouthparts in ventral view (Figs. 7, 8), distance between procoxae 1.2 times the longitudinal diameter of coxa, prothorax and epimeron of pro- and mesothorax yellow, respectively, mesothorax blackish brown, metathorax black; scutellum black, heart-shaped, apically rounded (Fig. 16); elytra glabrous, basal margin of elytra black, elytra with nine rows of punctures which are pigmented, interstices with rows of micropunctures, strongly rugose in the apical third, scutellar row not reaching middle of elytra, elytra with a longitudinal black band which is touching the black basal margin of the elytra (Fig. 16), side margins of elytra not visible simultaneously in dorsal view; legs yellowish orange, tibiae simple, first segment of fore tarsus not widened, lobes of third tarsal segment symmetrical, claws black, simple.

Abdomen: Black, without modifications, sternites covered with short white setae; length of aedeagus 0.95 mm, aedeagus in lateral view gradually bent (Fig. 24), apical part of aedeagus narrower than base, tip pointed, two triangular and two quadrangular endosclerites are visible (Fig. 25).

Female: not known.

Etymology: This species is dedicated to its collector Antonius VAN HARTEN, who greatly contributed to our knowledge of the beetle fauna of Yemen.

Distribution and biology: So far known from the type locality only. The specimen was collected from ground vegetation in a coffee plantation.

Discussion

Cryptocephalus vanharteni **n. sp.** is another species from Yemen which belongs to an Afrotropical species-group, namely the *Cryptocephalus oblitus*-species-group. The *Cryptocephalus oblitus*-species-group was defined by REINECK (1915) to include the following species: *C. oblitus* from Senegal, *C. oricola* from Rep. Congo, *C. tritransversatus* from Togo, *C. evanescens* from Namibia and *C. dimophisticus* from Ethiopia. Consequently, *Cryptocephalus vanharteni* **n. sp.** has the most northern distribution of the species of the *Cryptocephalus oblitus*-species-group. In the species of this group, the apex of the aedeagus is simple and there is no central plate in the orificium, and the fore- and mid-tarsi are not enlarged unlike in the morphologically similar species of the *Cryptocephalus bistripustulatus* species-group which was described by REINECK (1915), too.

The apical margin of the prothorax of *Cryptocephalus ajeschae* **n. sp.** bears a broadly rounded tooth-like projection, covering mouthparts in ventral view, a structure which could be named mouth-parts basket. A mouth-parts basket can be found in some Palaearctic and many Afrotropical species of *Cryptocephalus*, and also in Neotropical Cryptocephalinae. It might protect the mouth-parts from attack of e. g. ants. This structure helps to distinguish *C. ajeschae* **n. sp.** from similarly coloured species like *C. dinae*.

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