

**New species of the genus *Socotralia* and first record  
of the genus *Alogista* from Socotra Island  
(Coleoptera: Tenebrionidae: Alleculinae)\***

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**Abstract.** Four new species of the genus *Socotralia* Novák, 2007 from Socotra Island (Yemen) are described: *Socotralia montana* sp. nov., *S. intermedia* sp. nov., *S. reitteri* sp. nov. and *S. vybirali* sp. nov. A key to all seven known species of the genus is provided. The genus *Alogista* Fåhreaus, 1870 is reported from Socotra for the first time.

**Key words.** Coleoptera, Tenebrionidae, Alleculinae, *Socotralia*, *Alogista*, taxonomy, new species, new records, Yemen, Socotra

### Introduction

*Socotralia* Novák, 2007 (Coleoptera, Tenebrionidae, Alleculinae), an endemic genus inhabiting Socotra Island, was established by NOVÁK (2007) for three species – *S. major* Novák, 2007 (type species), *S. minor* Novák, 2007 and *S. brunnea* Novák, 2007. The same author (NOVÁK 2007) also provided a key to distinguish the related genera of Alleculini that occur in the Arabian Peninsula and adjacent regions. Generally, *Socotralia* belongs to the group of genera in which the penultimate tarsomere of each tarsus possesses a membranous lobe (which also includes *Allecula* Fabricius, 1801, *Mycetocharina* Seidlitz, 1891, *Alogista* Fåhreaus, 1870, *Prionychus* Solier, 1835 and *Hymenalia* Mulsant, 1856), while in other genera of Alleculini living in this area such a lobe is absent. *Socotralia* can also be recognised by the eyes being moderately deeply emarginated anteriorly, with insertions of the antennae located adjacent to the eye in the emargination, by broadly triangular ultimate palpomere, and by having membranous lobes underneath the penultimate tarsomere of each tarsus (NOVÁK 2007).

\* Results of the biodiversity research of darkling beetles on Socotra Island. Part V.

This paper presents descriptions of four new species of the genus *Socotralia* and first record of the genus *Alogista* based on the material collected under biodiversity research projects implemented by a research team from the Mendel University in Brno (Czech Republic) (for details see PURCHART 2012) and is a follow-up to previous contributions devoted to the tenebrionid fauna of the Socotra Island that resulted from these projects (PURCHART 2012; PURCHART & NABOZHENKO 2012; PURCHART & SCHAWALLER 2012; SCHAWALLER & PURCHART 2012).

## Material and methods

Two important morphometric characteristics have been used for descriptions of species of the subfamily Alleculinae: the ‘ocular index’ (CAMPBELL & MARSHALL 1964) is calculated by measuring the minimum distance between the eyes and dividing this value by the maximum dorsal width across eyes, the resulting quotient converted into an index by multiplying by 100, and the ‘pronotal index’ (CAMPBELL 1965) expresses the ratio of the length of the pronotum along the midline to the width at basal angles, this ratio is multiplied by 100 for convenience in handling. Both these indexes are used in this paper as well.

Measurements were made using Olympus SZ 40 stereoscopic microscope with continuous magnification and with Soft Imaging System AnalySIS software. Measurements of body parts and corresponding abbreviations used in text are as follows:

AEB/AEA	ratio of length of basal / apical part of aedeagus	PL	maximum pronotal length
AL	total antennae length	PW	pronotal width at base
BL	maximum body length	RLA	ratios of relative lengths of antennomeres 1–11 from base to apex (3=1.00)
EL	maximum elytral length	RL/WA	ratios of length / maximum width of antennomeres 1–11 from base to apex
EW	maximum elytral width	RLT	ratios of relative lengths of tarsomeres 1–5 (pro- and mesotarsus) and 1–4 (metatarsus) from base to apex (1=1.00)
HL	maximum length of head (visible part)		
HW	maximum width of head		
OI	ocular index		
PI	pronotal index		

Label data are given verbatim. A slash (/) separates data in different rows on locality labels, a double slash (//) separates data on different labels. All specimens of the species described as new bear one printed red label: ‘HOLOTYPUS [PARATYPUS] *name of species* **sp. nov.**, det. V. Novák & L. Purchart 2011 [or 2012]’.

The specimens studied are deposited in the following collections:

BMNH	The Natural History Museum, London, United Kingdom (Maxwell V.L. Barclay);
HNHM	Hungarian Natural History Museum, Budapest, Hungary (Ottó Merkl);
IRSNB	Royal des Sciences Naturelles de Belgique, Brussels, Belgium (Alain Drumont);
JBCP	Jan Batelka collection, Prague, Czech Republic;
LPCB	Luboš Purchart collection, Brno, Czech Republic;
NMPC	National Museum, Prague, Czech Republic (Jiří Hájek);
PLFG	Pietro Lo Cascio and Flavia Grita collection, Lipari, Italy;
SMNS	Staatliches Museum für Naturkunde, Stuttgart, Germany (Wolfgang Schawaller);
VNCP	Vladimír Novák collection, Prague, Czech Republic;
ZSMC	Zoologische Staatssammlung, München (Michael Balke).

## Results

### *Socotralia intermedia* sp. nov.

(Figs. 1–5)

**Type locality.** Yemen, Socotra Island, Alooove area, Hassan village.

**Type material.** HOLOTYPE: ♂ (NMPC), labelled: 'YEMEN, SOCOTRA Island / Alooove area, HASSAN vill. env. / N 12°30'58.2", E 54°06'39.2" / 270-350 m, 3.-4.ii.2010 / L. Purchart lgt.'. PARATYPES: 18 ♂♂ 3 ♀♀, same data as holotype (1 ♀ NMPC, 1 ♂ BMNH, 1 ♂ HNHM, 1 ♂ SMNS, 1 ♂ ZSMC, 7 ♂♂ 1 ♀ LPCB, 7 ♂♂ 1 ♀ VNCP); 4 ♂♂, same data as holotype, but '300 m, at light / L. Purchart & J. Vybíral lgt.' (2 ♂♂ LPCB, 2 ♂♂ VNCP); 1 ♂: 'YEMEN, SOCOTRA Island / Kesa env., 220-300 m / 12°39'37"N, 53°26'42"E / 28.-29.i.2010, L. Purchart lgt.' (LPCB); 1 ♂, 'Yemen: Socotra Isl. / Ayhaft, 15.3.2000 / V. Bejček & K. Šťastný lgt.' (VNCP); 2 ♂♂: 'Yemen, Socotra Isl., Calanthia, / 29.-30.iii.2001, / leg. V. Bejček & K. Šťastný' (VNCP); 1 ♂: 'SOCOTRA: Homhill / 23-24.II.2009-leg. P. / Lo Cascio & F. Grita' (PLFG); 1 ♂: 'YEMEN, SOCOTRA Island / Alooove area, ALOOOVE vill. env. / *Jatropha unicostata* shrubland with / *Boswellia elongata* trees / 19.-20.vi.2012 / 12°31.2'N, 54°07.4'E, 221 m // SOCOTRA expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg.' (LPCB).

**Description. Male** (holotype). Habitus as in Fig. 1. Body small, elongate, brown, with pale brown setation, BL 6.1 mm. Widest near elytral midlength; BL/EW 2.69.

Head (Fig. 2) brown, with long, pale brown setation and microgranulation, slightly shiny, punctuation distinct, punctures relatively large. HW 1.1 mm; HW/PW 0.69; HL 0.5 mm. Eyes dark, very large, transverse, deeply excised, space between eyes distinctly shorter than length of antennomere 2; OI equal to 13.42.

Antennae (Fig. 3). Long, relatively narrow, unicoloured pale brown with microgranulation, punctuation and pale brown setation, slightly shiny; AL 3.8 mm; AL/BL 0.62. Antennomere 2 shortest, antennomere 3–10 distinctly broadest at apex. RLA (1–11): 0.82: 0.47: 1.00: 1.11: 1.07: 1.02: 1.05: 1.13: 1.05: 0.93: 1.14. RL/WA (1–11): 2.30: 1.77: 3.39: 3.13: 2.66: 2.79: 2.46: 2.81: 2.67: 2.46: 3.19.

Maxillary palpus. Pale brown with pale brown setation and microgranulation. Palpomeres 2–4 distinctly broadened from base to apex, slightly shiny. Ultimate palpomere broadly triangular.

Pronotum (Fig. 2) unicoloured brown, elongate, distinctly longer than semicircular, bell-shaped, with long, dense pale brown setation, setae directed backwards, closely covering body, with microgranulation and punctuation. Punctures conspicuous, relatively large, coarse. PL 1.3 mm; PW 1.6 mm; PI equal to 81.25. Borders complete, pronotal base bisinuate. Posterior angles of pronotum rectangular, anterior angles indistinct.

Elytra. Unicoloured brown, slightly oval, covered with dense, long, backward directed, closely adhering to body, pale brown setation. Broadest near midlength. EL 4.3 mm; EW 2.3 mm; EL/EW 1.87. Elytra with microgranulation and punctuation; punctures relatively large. Rows of punctures in striae not clearly conspicuous, punctures in elytral interspaces smaller than in striae. Scutellum triangular, brown, with darker sides, covered with long, pale brown setae. Epipleura well developed, brown, with large punctures and pale brown setation, regularly narrowing from pronotal base to first abdominal ventrite, then continuing as parallel.

Ventral part. Reddish-brown, with pale brown setation, punctuation and microgranulation. Punctures large. Abdomen with shallow, medium-sized punctures.

Legs. Unicoloured pale brown, covered with dense, short, pale brown setation. Tibiae and tarsi narrow, tibiae slightly dilated anteriorly. Penultimate tarsomere of each tarsus very slightly broadened, distinctly lobed. RLT: protarsus: 1.00: 0.49: 0.46: 0.55: 1.12; mesotarsus: 1.00: 0.54: 0.37: 0.35: 0.93; metatarsus: 1.00: 0.34: 0.29: 0.50. Both anterior tarsal claws with 10 visible teeth.

Aedeagus (Figs. 4, 5). Pale brown, with microgranulation, slightly shiny. Basal part slightly rounded dorsally in lateral view, in dorsal view regularly narrowing laterally. Apical part (apex) short, in lateral view in form of long narrow triangle and dorsal view regularly narrowing laterally, with sharp tip. AEB/AEA 4.53.

**Female.** Antennae slightly shorter than in male. Anterior tarsal claws with seven visible teeth.

RLA (1–11): 0.76: 0.54: 1.00: 1.30: 1.11: 1.22: 1.24: 1.41: 1.19: 1.16: 1.30. RL/WA (1–11): 1.40: 1.54: 2.31: 2.67: 2.16: 2.50: 2.88: 2.89: 2.32: 2.39: 3.20.

RLT: protarsus: 1.00: 0.56: 0.59: 0.72: 1.48; mesotarsus: 1.00: 0.63: 0.45: 0.51: 0.89; metatarsus: 1.00: 0.32: 0.35: 0.61.

BL 6.1 mm; HL 0.5 mm; HW 1.0 mm; OI 17.05; PL 1.2 mm; PW 1.5 mm; PI 80.00; EL 4.4 mm; EW 2.4 mm; HW/PW 0.67; BL/EW 2.54; EL/EW 1.83; AL 3.6 mm; AL/BL 0.59.

**Variability.** Measurements: mean (minimum–maximum). Males (n=28). BL 5.2 mm (4.5–6.1 mm); HL 0.5 mm (0.4–0.6 mm); HW 1.0 mm (0.8–1.0 mm); OI 18.05 (13.42–24.95), PL 1.2 mm (1.0–1.3 mm) PW 1.4 mm (1.2–1.7 mm); PI 82.39 (76.53–88.48); EL 3.5 mm (3.0–4.4 mm); EW 1.9 mm (1.7–2.4 mm). Females (n=3). BL 5.7 mm (5.2–6.0 mm); HL 0.5 mm (0.4–0.7 mm); HW 1.0 mm (0.9–1.0 mm); OI 19.27 (17.05–23.18), PL 1.1 mm (0.9–1.3 mm) PW 1.5 mm (1.4–1.6 mm); PI 75.25 (65.49–81.28); EL 4.1 mm (3.8–4.4 mm); EW 2.1 mm (1.9–2.4 mm).

**Differential diagnosis.** *Socotralia intermedia* sp. nov. differs, besides characters stated in the key, from all similar species of *Socotralia* mainly in having space between eyes very narrow, distinctly narrower than length of antennomere 2, while other *Socotralia* species have space between eyes distinctly broader than length of antennomere 2.

**Etymology.** Latin adjective *intermedius*, -a, -um (= intermediate), expressing the species body size, which is halfway within the size range of the genus *Socotralia*.

**Collection circumstances.** Members of this species were collected during the day on herb layer – flowering plants of the family Fabaceae. They were also attracted to the light.

**Distribution.** Yemen: Socotra Island.

### *Socotralia major* Novák, 2007

*Socotralia major* Novák, 2007: 326.

**Material examined.** 8 ♂♂ 5 ♀♀, 'YEMEN, SOCOTRA Island E / Homhil area, 400-510 m / N 12°34'25", E 54°18'53" / 9.-10.ii.2010 / L. Purchart & J. Vybíral lgt.' (1 ♀ NMPC, 4 ♂♂ 2 ♀♀ LPCB, 4 ♂♂ 2 ♀♀ VNCP); 2 ♂♂, 'YEMEN, SOCOTRA Island / Diksam plateau, Bidehor, Digeila / Cave env., 920 m, 8. ii. 2010 / N 12°30'31", E 53°56'18" / L. Purchart & J. Vybíral lgt.' (1 ♂ LPCB, 1 ♂ VNCP); 2 ♂♂ 2 ♀♀, 'SOCOTRA: W. Ayheft / 28.II-1.III.2009 – leg. P. / Lo Cascio & F. Grita' (PLFG); 1 ♂, 'Coll. LR.Sc.N.B. / N.SOKOTRA isld., / Top of Ayheft valley / 17-I-2010/Leg Saldaitis / Achat Saldaitis.I.G31.512' (IRSNB).

*Socotralia minor* Novák, 2007*Socotralia minor* Novák, 2007: 330.

**Material examined.** 4 ♂♂ 5 ♀♀, 'YEMEN, SOCOTRA Island E / Homhil area, 400-510 m / 12°34'25" N, 54°18'53" E / 9.-10.ii.2010 / L. Purchart lgt.' (1 ♀ NMPC, 4 ♂♂ 4 ♀♀ LPCB); 2 ♂♂, 'YEMEN, SOCOTRA Island E / Homhil area, 400-510 m / N 12°34'25", E 54°18'53" / 9.-10.ii.2010 / L. Purchart & J. Vybíral lgt.' (LPCB); 1 ♂, 'YEMEN, Socotra Isl. / Deiqub cave env., / 10.vi.2010, / V. Hula & J. Niedobová leg.' (LPCB); 1 ♂, 'YEMEN, SOCOTRA Island / Zemhon, 260-320 m / N 12°32'17.5", E 54°4'12.7" / 20.vi.2009 / L. Purchart lgt.' (LPCB); 1 ♂, 'YEMEN, SOCOTRA Island / Aloove area, HASSAN vill. env. / N 12°30'58.2", E 54°06'39.2" / 270-350 m, 3.-4.ii.2010 / L. Purchart lgt.' (LPCB); 1 ♂, 'Republic of Yemen / Socotra Isl. 16.-17.6.2010 / Aloove area, 270-300 m a.s.l. / N 12°30.58', E 054°06.39' / lgt. V. Hula & J. Niedobová' (LPCB); 2 ♂♂ 1 ♀, 'YEMEN, SOCOTRA Island, S / Nograd plain, Deiqyub Cave / 16.vi.2009 / L. Purchart & J. Vybíral lgt.' (1 ♂ 1 ♀ LPCB, 1 ♂ VNCP); 2 ♂♂, 'YEMEN, SOCOTRA Island / Aloove area, HASSAN vill. env. / N 12°30'58.2", E 54°06'39.2" / 300 m, 9.-10.ii.2010, at light / L. Purchart & J. Vybíral lgt.' (1 ♂ LPCB, 1 ♂ VNCP); 27 ♂♂ 36 ♀♀, 'YEMEN, SOCOTRA Island / Aloove area, 270-350 m / N 12°30'58", E 54°06'39" / 16.-17.vi.2010, V. Hula lgt. // window trap / Installed 4. ii. 2010 / by L. Purchart / medium - ethylenglycol 98%' (1 ♂ 1 ♀ BMNH, 1 ♂ 1 ♀ HNHM, 1 ♂ 1 ♀ NMPC, 1 ♂ 1 ♀ SMNS, 1 ♂ 1 ♀ ZSMC, 12 ♂♂ 16 ♀♀ LPCB, 10 ♂♂ 15 ♀♀ VNCP); 3 ♂♂, 'YEMEN, SOCOTRA Island / Firmihin, 400-500 m / N 12°28'27.9", E 54°0'54.2" / 22.-25.vi.2009, L. Purchart lgt.' (2 ♂♂ LPCB, 1 ♂ VNCP); 1 ♂, 'Yemen, Soqotra Is., 2003 / 2-3/xii., Dixam plateau, / WADI ESGEGO, 300m / N12°28'09" E54°00'36" / [GPS], David Král lgt. // YEMEN - SOQOTRA 2003 / Expedition; Jan Farkač, Petr Kabátek & David Král' (NMPC); 4 ♂♂, 'YEMEN, SOCOTRA Island / Dixam plateau / Firmihin (*Dracaena forest*) / 12°28.6'N, 54°01.1'E, 490 m / P. Hlaváč leg., 15-16.xi.2010' (NMPC).

*Socotralia montana* sp. nov.

(Figs. 6–10)

**Type locality.** Yemen, Socotra Island, Al Haghier Mts., Scand Mt. env.

**Type material.** HOLOTYPE: ♂ (NMPC), labelled: 'YEMEN, SOCOTRA Island / Al Haghier Mts. / Scant Mt. env. / 12°34.6'N, 54°01.5'E, 1450m / 12.-13.xi.2010, J. Bezděk leg.'. PARATYPES: 1 ♂, same data as holotype, but J. Hájek leg. (NMPC); 1 ♂, same data as holotype, but P. Hlaváč lgt. (VNCP); 4 ♂♂, same data as holotype, but J. Batelka leg. (3 ♂♂ JBPC, 1 ♂ LPCB); 3 ♀♀, 'YEMEN, SOCOTRA Island / Al Haghier Mts. / wadi Madar, 1180-1230 m / 12°33.2'N, 54°00.4'E / 13.-14.xi.2010, P. Hlaváč lgt.' (1 ♀ VNCP, 1 ♀ LPCB, 1 ♀ JBPC).

**Description. Male** (holotype). Habitus as in Fig. 6. Body relatively large, elongate, narrow, from pale reddish-brown to dark blackish-brown, with pale brown setation, slightly shiny, BL 7.4 mm. Widest near midlength of elytra; BL/EW 3.08.

Head (Fig. 7) relatively small, reddish-brown, with sparse, pale brown setation and microgranulation, dull. HW 1.2 mm; HW/PW 0.71; HL 0.9 mm. Eyes dark, large, transverse, deeply excised, space between eyes approximately as broad as length of antennomere 1, distinctly broader than length of antennomere 2; OI equal to 30.09.

Antennae (Fig. 8). Long, relatively narrow with pale reddish-brown setation; antennomeres 1 and 2 reddish-brown, antennomere 3 bicolored, antennomeres 4–11 dark blackish-brown with distinctly paler apex. AL 4.5 mm, AL/BL 0.61. Antennomere 2 shortest, antennomere 3 distinctly longer than antennomere 2. RLA (1–11): 0.55: 0.33: 1.00: 1.16: 1.01: 0.99: 1.02: 1.03: 0.94: 0.85: 0.88. RL/WA (1–11): 1.85: 1.59: 3.57: 4.13: 3.60: 3.65: 3.88: 3.92: 3.48: 3.16: 3.24.

Maxillary palpus. Pale brown with sparse, short, pale brown setation and a few long pale brown setae. Palpomeres 2–4 with microgranulation, distinctly broadened from base to apex. Ultimate palpomere broadly triangular, with darker posterior half.

Pronotum (Fig. 7). Narrower than base of elytra, blackish-brown with sides narrowly reddish-brown, covered with pale brown setation, microgranulation and punctation, punctures small. PL 1.2 mm; PW 1.7 mm; PI equal to 70.59. Borders complete but not clearly conspicuous. Base of pronotum finely bisinuate, on antescutellar area straight. Posterior angles finely obtuse, anterior angles indistinct.

Elytra. Narrow, parallel, distinctly shiny, blackish-brown, covered with dense pale brown setation, microgranulation and punctation. Broadest near midlength. EL 5.4 mm; EW 2.4 mm; EL/EW 2.25. Elytral striae indistinct. Elytral surface with rows of medium-sized punctures. Scutellum small, triangular, reddish-brown with sides dark blackish-brown, covered with pale brown setae. Elytral epipleura well-developed, blackish-brown, covered with pale brown setation, regularly narrowing from elytral base to first abdominal ventrite, then continues as parallel.

Ventral aspect. Pale reddish-brown, with pale brown setation and punctation. Metaventrite and abdominal ventrites 1–3 partly dark brown. Abdomen reddish-brown with pale brown setation and punctation, slightly shiny.

Legs. Narrow, brown, covered with dense pale brown setation, anterior part of femora pale brown, posterior part dark brown. Tibiae and tarsi narrow, tibiae slightly dilated anteriorly. Penultimate tarsomere of each tarsus very slightly broadened and distinctly lobed. RLT: protarsus: 1.00: 0.80: 0.86: 1.00: 1.57; mesotarsus: 1.00: 0.47: 0.40: 0.61: 0.84; metatarsus: 1.00: 0.45: 0.42: 0.60. Both anterior tarsal claws with 15 visible teeth.

Aedeagus (Figs. 9, 10). Pale brown, slightly shiny. In dorsal view basal part long, shortly rounded, then parallel laterally. In lateral view basal half of basal part rounded dorsally and apical half slightly narrowing dorsally. Apical part (apex) short, covered with short spines, in lateral view in form of long narrow triangle and in dorsal view broadly cross-shaped, respectively. AEB/AEA 3.47.

**Female.** Anterior tarsal claws with nine visible teeth.

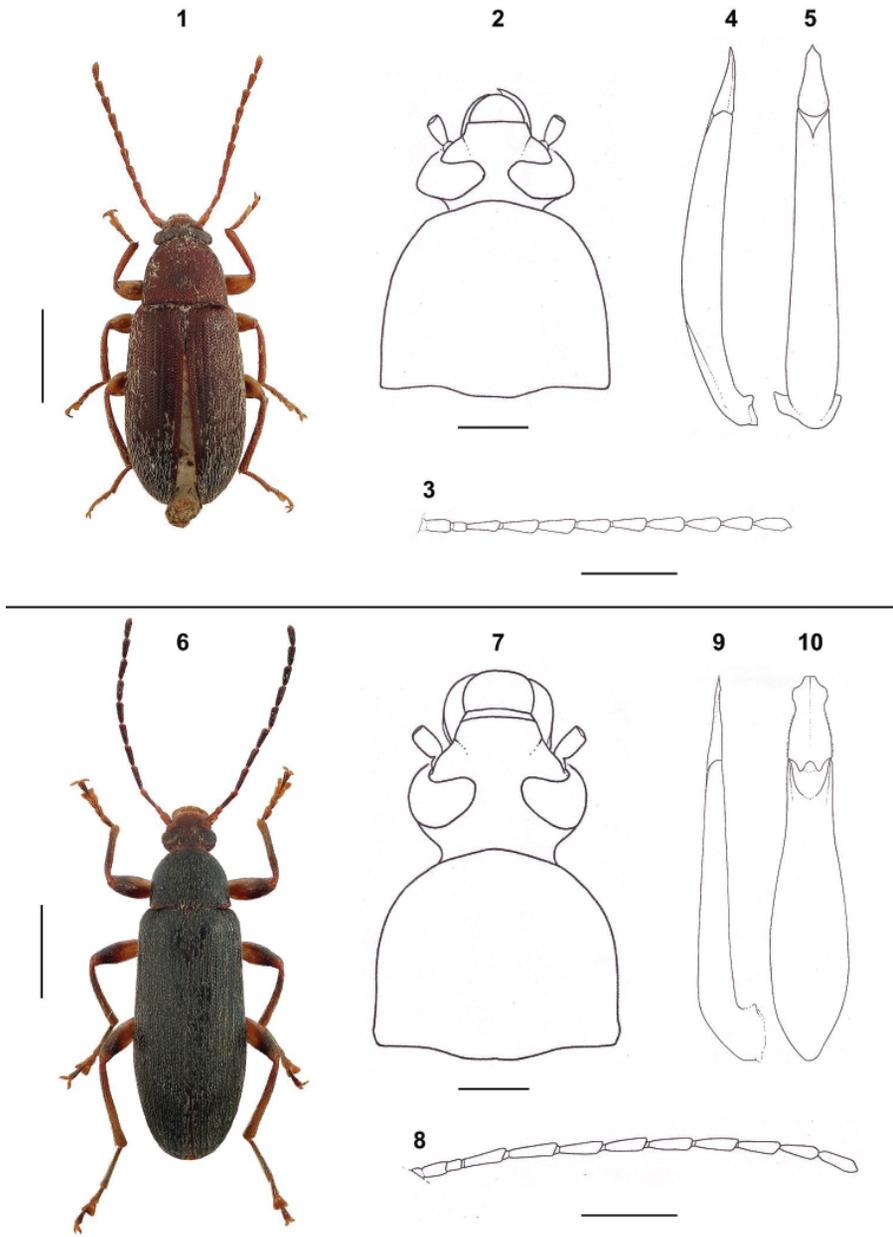
RLA (1–11): 0.55: 0.36: 1.00: 1.23: 1.10: 1.07: 1.05: 1.11: 1.05: 0.97: 1.02. RL/WA (1–11): 1.79: 1.47: 3.65: 3.62: 3.24: 3.00: 2.71: 3.29: 3.10: 3.00: 3.32.

RLT: protarsus: 1.00: 0.83: 1.00: 0.96: 1.39; mesotarsus: 1.00: 0.57: 0.53: 0.64: 0.97; metatarsus: 1.00: 0.41: 0.35: 0.59.

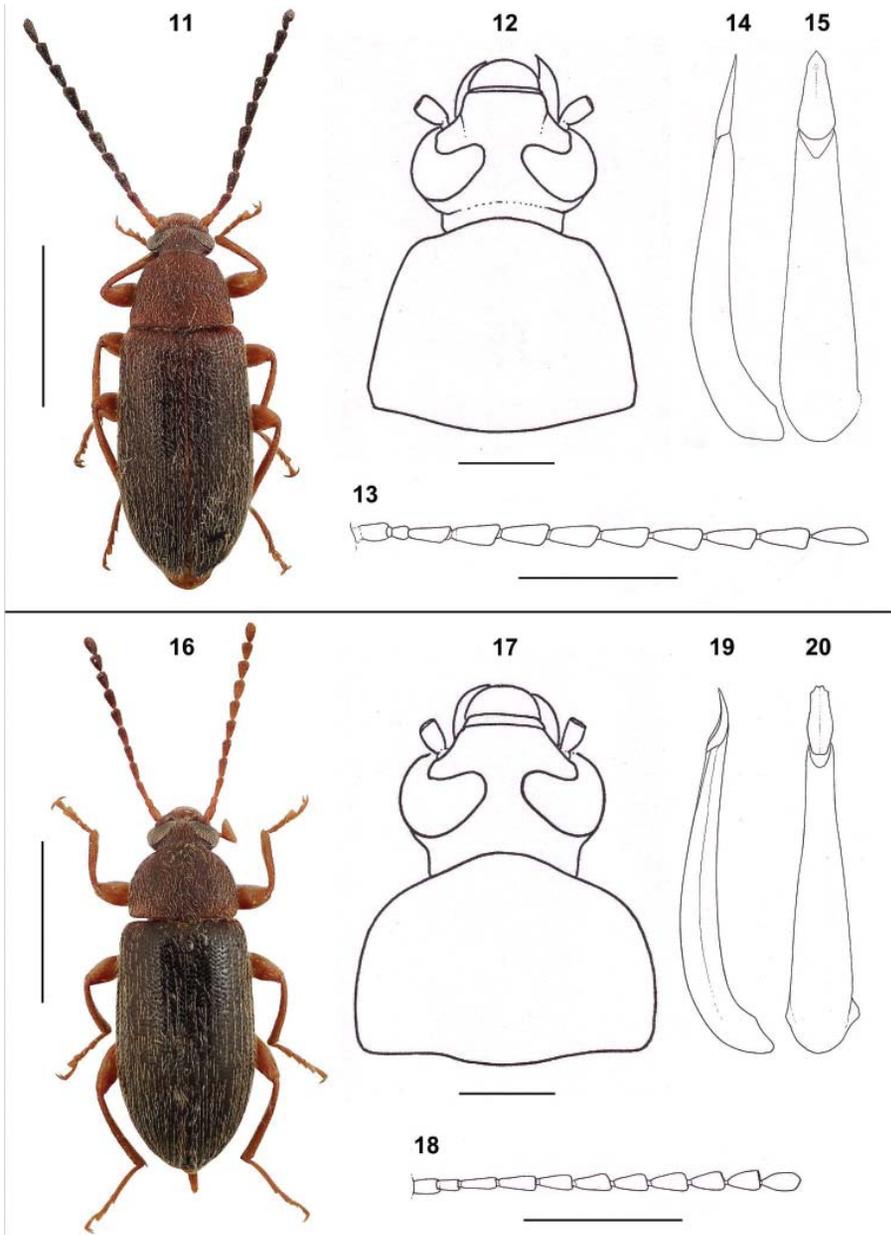
BL 8.2 mm; HL 1.0 mm; HW 1.2 mm; OI 31.62; PL 1.3 mm; PW 2.0 mm; PI 65.00; EL 5.9 mm; EW 2.8 mm; HW/PW 0.60; BL/EW 2.93; EL/EW 2.11; AL 4.4 mm; AL/BL 0.54.

**Variability.** Measurements: mean (minimum–maximum). Males (n=2). BL 7.35 mm (7.3–7.4 mm); HL 0.85 mm (0.8–0.9 mm); HW 1.15 mm (1.1–1.2 mm); OI 34.06 (30.09–38.02), PL 1.15 mm (1.1–1.2 mm) PW 1.65 mm (1.6–1.7 mm); PI 69.67 (68.75–70.59); EL 5.55 mm (5.2–5.9 mm); EW 2.35 mm (2.3–2.4 mm). Females (n=3). BL 8.10 mm (8.00–8.2 mm); HL 0.95 mm (0.9–1.00 mm); HW 1.19 mm (1.1–1.2 mm); OI 34.64 (31.62–37.07), PL 1.27 mm (1.2–1.3 mm) PW 1.93 mm (1.9–2.00 mm); PI 65.88 (63.16–68.54); EL 5.85 mm (5.7–5.9 mm); EW 2.72 mm (2.7–2.8 mm).

**Differential diagnosis** (for more details see the key below). *Socotralia montana* sp. nov. differs from the similar species *S. vybirali* sp. nov. mainly in having antennomeres 3–10 relatively narrow while in *S. vybirali* sp. nov. antennomeres 3–10 are slightly serrate and distinctly broadest at apex. From *S. intermedia* sp. nov., *S. reitteri* sp. nov., *S. major* and



Figs. 1–10. Male holotypes of *Socotralia intermedia* sp. nov. (1–5) and *S. montana* sp. nov. (6–10). 1, 6 – habitus in dorsal view; 2, 7 – head and pronotum in dorsal view; 3, 8 – antenna; 4, 9 – aedeagus in lateral view; 5, 10 – aedeagus in dorsal view. Scale bars = 2 mm (body); 1 mm (antenna); 0.5 mm (pronotum).



Figs. 11–20. Male holotypes of *Socotralia reitteri* sp. nov. (11–15) and *S. vybirali* sp. nov. (16–20). 11, 16 – habitus in dorsal view; 12, 17 – head and pronotum in dorsal view; 13, 18 – antenna; 14, 19 – aedeagus in lateral view; 15, 20 – aedeagus in dorsal view. Scale bars = 2 mm (body); 1 mm (antenna); 0.5 mm (pronotum).

*S. minor* it differs mainly in having antennomere 11 distinctly shorter than antennomere 3, while in the previous species the antennomere 11 is distinctly longer than antennomere 3. *Socotralia montana* sp. nov. can be distinguished from *S. brunnea* by its narrow, elongate body and parallel pronotum, while in *S. brunnea* the body is slightly oval and pronotum more transverse and rounded.

**Etymology.** Latin adjective *montanus*, *-a*, *-um* (= montane), expressing the species affinity to high (mountain) altitudes.

**Collection circumstances.** The adults were collected at night by shaking off the shrub vegetation. They were also attracted to light.

**Distribution.** Yemen: Socotra Island.

### *Socotralia reitteri* sp. nov.

(Figs. 11–15)

**Type locality.** Yemen, Socotra Island, Firmihin.

**Type material.** HOLOTYPE: ♂ (NMPC), labelled: 'YEMEN, SOCOTRA Island / Firmihin, 400-500 m / N 12°28'27", E 54°0'54" / 6.-7.ii.2010 at light / L. Purchart & J. Vybiral lgt.' PARATYPES: 3 ♂♂ 5 ♀♀, same data as holotype (1 ♀ NMPC, 1 ♂ 2 ♀♀ LPCB, 2 ♂♂ 2 ♀♀ VNCP).

**Description. Male** (holotype). Habitus as in Fig. 11. Body small, elongate, from pale reddish-brown to dark blackish-brown, with pale brown setation, BL 4.6 mm. Widest near elytral midlength; BL/EW 2.56.

Head (Fig. 12). Small, reddish-brown, with long, pale brown setation and microgranulation, slightly shiny. Anterior aspect and clypeus distinctly paler, punctation conspicuous, punctures relatively large. HW 0.9 mm; HW/PW 0.64; HL 0.5 mm. Eyes dark, large, transverse, deeply excised, space between eyes distinctly broader than antennomere 2 is long; OI equal to 22.28.

Antennae (Fig. 13). Long, with microgranulation, punctation and pale brown setation, bicoloured, with antennomeres 1–2 and base of antennomere 3 pale reddish-brown, slightly shiny, anterior half of antennomere 3 and antennomeres 4–11 black, duller. AL 3.2 mm, AL/BL 0.70. Antennomere 2 shortest, antennomere 3–10 distinctly broader at apex. RLA (1–11): 0.77: 0.51: 1.00: 1.22: 1.20: 1.24: 1.20: 1.33: 1.31: 1.31: 1.45. RL/WA (1–11): 1.93: 1.56: 2.58: 2.46: 2.38: 2.38: 2.61: 2.51: 2.69: 2.64: 3.50.

Maxillary palpus. Pale reddish-brown with pale brown setation and microgranulation. Palpomeres 2–4 distinctly broadened from base to apex, slightly shiny. Ultimate palpomere broadly triangular.

Pronotum (Fig. 12) unicoloured reddish-brown, slightly longer than semicircular, bell-shaped, with long, pale brown setation, setae directed backwards, with microgranulation and punctation. Punctures conspicuous, relatively large. PL 1.0 mm; PW 1.4 mm; PI equal to 70.43. Borders complete, pronotal base bisinuate, on antescutellar area straight. Posterior angles rectangular, anterior angles indistinct.

Ventral part. Reddish-brown, with pale brown setation, microgranulation and punctation, punctures large and coarse.

Elytra unicoloured dark blackish-brown, elongate, covered by dense, long, backward directed, pale brown setation. EL 3.2 mm. Broadest near elytral two thirds, EW 1.8 mm; EL/

EW 1.78. Elytra with microgranulation and punctation; punctures relatively large. Rows of punctures in elytral striae not clearly conspicuous. Scutellum triangular, pale reddish-brown with pale brown setae and sparse microgranulation, shiny. Elytral epipleura well developed, pale reddish-brown, with large punctures and pale brown setation, regularly narrowing from elytral base to abdominal ventrite 1, then continues as parallel.

Legs. Unicoloured pale reddish-brown, with dense, short, pale brown setation. Tibiae, tarsi narrow, tibiae slightly dilated anteriorly. Penultimate tarsomere of each tarsus very slightly broadened, distinctly lobed. RLT: protarsus: 1.00: 0.72: 0.72: 0.80: 1.66; mesotarsus: 1.00: 0.44: 0.36: 0.48: 0.91; metatarsus: 1.00: 0.33: 0.30: 0.54. Both anterior tarsal claws with eight visible teeth.

Aedeagus (Figs 14, 15). Pale brown, slightly shiny. Basal part rounded in lateral view, in dorsal view regularly narrowing anteriorly. Apical part (apex) short, in lateral view narrowly triangular, in dorsal view in form of a long triangle. AEB/AEA 3.54.

**Female.** More oval, antennae distinctly shorter than male. Anterior tarsal claws with five visible teeth.

RLA (1–11): 0.71: 0.40: 1.00: 1.11: 1.09: 1.22: 1.31: 1.36: 1.27: 1.22: 1.29. RL/WA (1–11): 1.95: 1.00: 2.29: 2.26: 1.94: 2.03: 2.06: 2.21: 1.76: 1.91: 2.09.

RLT: protarsus: 1.00: 0.62: 0.76: 0.97: 1.76; mesotarsus: 1.00: 0.49: 0.44: 0.52: 0.88; metatarsus: 1.00: 0.35: 0.32: 0.48.

BL 4.4 mm; HL 0.5 mm; HW 0.8 mm; OI 29.86; PL 0.8 mm; PW 1.2 mm; PI 66.67; EL 3.2 mm; EW 1.7 mm; HW/PW 0.67; BL/EW 2.59; EL/EW 1.88; AL 2.6 mm; AL/BL 0.59.

**Variability.** Measurements: mean (minimum–maximum). Males (n=4). BL 4.5 mm (4.1–4.9 mm); HL 0.5 mm (0.4–0.6 mm); HW 0.8 mm (0.7–0.9 mm); OI 25.44 (22.28–28.85), PL 0.9 mm (0.8–1.0 mm) PW 1.2 mm (1.1–1.4 mm); PI 70.39 (68.61–71.59); EL 3.1 mm (2.8–3.5 mm); EW 1.7 mm (1.4–1.9 mm). Females (n=6). BL 4.3 mm (4.00–4.5 mm); HL 0.4 mm (0.4–0.5 mm); HW 0.75 mm (0.7–0.8 mm); OI 33.10 (29.86–36.25), PL 0.8 mm (0.7–0.8 mm) PW 1.2 mm (1.1–1.3 mm); PI 66.89 (64.31–69.36); EL 3.1 mm (2.9–3.2 mm); EW 1.7 mm (1.5–1.9 mm).

**Differential diagnosis** (for more details see the key below). *Socotralia reitteri* sp. nov. differs from similar species *S. montana* sp. nov., *S. vybirali* sp. nov. and *S. brunnea* mainly in having antennomere 11 distinctly longer than antennomere 3, while *S. montana* sp. nov., *S. vybirali* sp. nov. and *S. brunnea* have antennomere 11 shorter than antennomere 3. *S. reitteri* sp. nov. differs from the similar species *S. intermedia* sp. nov. mainly in having space between eyes broader than length of antennomere 2, while *S. intermedia* sp. nov. has space between eyes distinctly shorter than length of antennomere 2. *S. reitteri* sp. nov. differs from the similar species *S. major* in having antennomeres 3–10 distinctly serrate, while *S. major* has antennomeres 3–10 narrower. *S. reitteri* sp. nov. differs from the similar species *S. minor* in having sides of pronotum conically narrowing, while *S. minor* has rounded sides of pronotum.

**Etymology.** Named in honour of Edmund Reitter (1845–1920), world famous expert in Coleoptera.

**Collecting circumstances.** Members of this species were collected only at night when they were attracted to light. They were not found during the day on herb or shrub vegetation.

**Distribution.** Yemen: Socotra Island.

***Socotralia vybirali* sp. nov.**

(Figs. 16–20)

**Type locality.** Yemen, Socotra Island, Homhil area.**Type material.** HOLOTYPE: ♂ (NMPC), labelled: 'YEMEN, SOCOTRA Island / Homhil area, 400-510 m / 12°34'25"N 54°18'53"E / 9.-10.i.2010, at light / L. Puchart & J. Vybiral lgt.'. PARATYPES: 5 ♂♂ 4 ♀♀, same data as holotype (1 ♀ NMPC, 2 ♂♂ 2 ♀♀ LPCB, 3 ♂♂ 1 ♀ VNCP); 2 ♀♀, 'YEMEN, SOCOTRA Island / Shibhon plateau / ESERHE, 13.vi.2012 / *Croton socotranus* shrubland / 12°25.2'N, 53°56.6'E, 547 m // SOCOTRA expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Puchart leg.' (1 ♀ NMPC, 1 ♀ LPCB).**Description. Male** (holotype). Habitus as in Fig. 16. Body small, elongate, from pale brown to dark blackish-brown, with pale brown setation, BL 4.5 mm. Widest near two thirds of elytral length; BL/EW 2.65.

Head (Fig. 17). Relatively narrow, small, brown, with long, pale brown setation and microgranulation, slightly shiny, punctation conspicuous, punctures relatively large. HW 0.9 mm; HW/PW 0.56; HL 0.4 mm. Eyes dark, very large, transverse, deeply excised, space between eyes approximately as long as antennomere 2; OI equal to 20.05.

Antennae (Fig. 18). Shorter, relatively narrow; pale brown with microgranulation, punctation and pale brown setation, slightly shiny; AL 2.4 mm, AL/BL 0.53. Antennomere 2 shortest, antennomere 3–10 distinctly broadest at apex. Antennomere 3 and 4 distinctly longer than each of antennomeres 5–11. RLA (1–11): 0.61: 0.57: 1.00: 1.06: 0.98: 1.04: 0.97: 1.06: 0.98: 0.95: 0.96. RL/WA (1–11): 1.61: 1.97: 3.45: 2.87: 2.58: 2.48: 2.26: 2.26: 2.09: 1.86: 2.26.

Maxillary palpus. Pale brown with pale brown setation and microgranulation. Palpomeres 2–4 distinctly broadened from base to apex, slightly shiny. Ultimate palpomere broadly triangular.

Pronotum (Fig. 17) unicoloured dark reddish-brown, transverse, with long, dense, pale brown setation, setae directed backwards, closely covering to body, with punctation, microgranulation not clearly conspicuous. Punctures conspicuous, relatively large and coarse. PL 0.9 mm; PW 1.6 mm; PI equal to 56.25. Borders complete, base bisinuate, on antescutellar area straight. Posterior angles roundly rectangular, anterior angles indistinct, sides slightly rounded, in posterior half parallel.

Ventral side of body. Brown, with pale brown setation. Abdomen dark brown with pale brown setation, microgranulation and punctation, punctures relatively large, sparse.

Elytra unicoloured dark blackish-brown, slightly oval, shiny, covered by dense, long, backward directed, body closely covering, pale brown setation. EL 3.1 mm. Elytra broadest near midlength, EW 1.7 mm. EL/EW 1.82. Elytra with very fine microgranulation and punctation; punctures in elytral striae and elytral interspaces of approximately same diameter, relatively large. Rows of punctures in striae not clearly conspicuous. Scutellum triangular, pale brown, paler than elytra, with sides darker, with microgranulation and long, pale brown setae. Elytral epipleura well-developed, at base pale brown, then brown, with large punctures, pale brown setation and distinct microgranulation, regularly narrowing from pronotal base to abdominal ventrite 1, then continues as parallel.

Legs. Unicoloured pale reddish-brown, with dense, pale brown setation. Tibiae, tarsi narrow, tibiae slightly dilated anteriorly. Penultimate tarsomere of each tarsus very slightly broadened and distinctly lobed. RLT: protarsus: 1.00: 0.90: 0.68: 0.84: 2.00; mesotarsus:

1.00: 0.61: 0.34: 0.42: 0.87; metatarsus: 1.00: 0.28: 0.22: 0.38. Anterior tarsal claws with nine visible teeth.

Aedeagus (Figs. 19, 20). Pale brown, with fine microgranulation, slightly shiny. Basal part rounded in lateral view and in dorsal view regularly narrowing. Apex short, in dorsal view slightly broadening from base towards end of 1/3 then narrowing anteriorly, without sharp tip; in lateral view slightly bent upwards. AEB/AEA 4.82.

**Female.** More oval. Anterior tarsal claws with 5–7 teeth.

RLA (1–11): 0.64: 0.61: 1.00: 1.14: 1.04: 1.07: 1.05: 1.05: 1.00: 0.89: 1.07. RL/WA (1–11): 1.44: 1.42: 1.81: 2.00: 1.71: 1.77: 1.74: 1.79: 1.81: 1.43: 1.82.

BL 4.4 mm; HL 0.4 mm; HW 0.9 mm; OI 24.43; PL 0.8 mm; PW 1.3 mm; PI 61.54; EL 3.2 mm; EW 1.7 mm; HW/PW 0.69; BL/EW 2.59; EL/EW 1.88; AL 2.1 mm; AL/BL 0.48.

**Variability.** Measurements: mean (minimum–maximum). Males (n=6). BL 4.5 mm (4.2–4.6 mm); HL 0.4 mm (0.3–0.5 mm); HW 0.8 mm (0.8–0.9 mm); OI 21.01 (17.34–26.35), PL 0.9 mm (0.8–0.9 mm) PW 1.3 mm (1.2–1.6 mm); PI 66.85 (62.45–70.16); EL 3.1 mm (3.0–3.2 mm); EW 1.7 mm (1.6–1.8 mm). Females (n=4). BL 4.4 mm (4.3–4.7 mm); HL 0.5 mm (0.4–0.6 mm); HW 0.8 mm (0.8–0.9 mm); OI 29.94 (24.43–34.53), PL 0.8 mm (0.8–0.9 mm) PW 1.3 mm (1.2–1.5 mm); PI 62.42 (61.27–64.86); EL 3.1 mm (3.0–3.3 mm); EW 1.8 mm (1.7–1.9 mm).

**Differential diagnosis** (for more details see the key below). *Socotralia vybiralii* sp. nov. differs from similar species *S. intermedia* sp. nov., *S. reitteri* sp. nov., *S. major* and *S. minor* mainly in having antennomere 11 shorter than antennomere 3, while *S. intermedia* sp. nov., *S. reitteri* sp. nov., *S. major* and *S. minor* have antennomere 11 distinctly longer than antennomere 3. *S. vybiralii* sp. nov. differs from similar species *S. montana* sp. nov. and *S. brunnea* mainly in smaller body length and distinctly serrate antennomeres 3–10, while in *S. montana* sp. nov. and *S. brunnea* the body is large and antennomeres 3–10 are narrower.

**Etymology.** Named in honour of Jan Vybíral (Židlochovice, Czech Republic), one of the collectors of the type series.

**Collection circumstances.** Specimens of the new species were collected at night when they were attracted to light. Two specimens (Eserhe) were found also during the day on herb and shrub vegetation.

**Distribution.** Yemen, Socotra Island.

#### Key to the males of *Socotralia* Novák, 2007

- 1 Antennomere 11 shorter or as long as length of antennomere 3. Both anterior tarsal claws with odd number of visible teeth (9, 11 or 15). ..... 2
- Antennomere 11 distinctly longer than length of antennomere 3. Both anterior tarsal claws with even number of visible teeth (8, 10 or 14). ..... 4
- 2 Body small (body length less than 5 mm), antennomeres 3–10 distinctly broadest at apex, finely serrate. Both anterior tarsal claws with 9 visible teeth. .... ***S. vybiralii* sp. nov.**
- Body large (body length greater than 6.5 mm), antennomeres 3–10 narrow, only slightly broader at apex. Both anterior tarsal claws with 11 or 15 visible teeth. .... 3
- 3 Sides of pronotum rounded. Both anterior tarsal claws with 11 visible teeth. ....  
..... ***S. brunnea* Novák, 2007**

- Sides of pronotum parallel. Both anterior tarsal claws with 15 visible teeth. .... *S. montana* sp. nov.
- 4 Space between eyes very narrow, narrower than length of antennomere 2. Both anterior tarsal claws with 10 visible teeth. .... *S. intermedia* sp. nov.
- Space between eyes distinctly broader than length of antennomere 2. Anterior tarsal claws with different number of visible teeth. .... 5
- 5 Antennomeres 3–10 serrate. .... 6
- Antennomeres 3–10 narrow. Both anterior tarsal claws with 14 visible teeth. .... *S. major* Novák, 2007
- 6 Sides of pronotum conically narrowed, pronotum broadest at base. Both anterior tarsal claws with 8 visible teeth. .... *S. reitteri* sp. nov.
- Sides of pronotum finely rounded, pronotum broadest near middle. Both anterior tarsal claws with 14 visible teeth. .... *S. minor* Novák, 2007

### *Alogista* sp.

**Material examined.** 1 spec., 'YEMEN, SOCOTRA Island / Aloove area, HASSAN vill. env. / 12°31.2'N, 54°07.4'E / 221 m / Jiří Hájek leg. 9-10.xi.2010' (NMPC); 1 spec., 'YEMEN, SOCOTRA Island, / Dixam plateau, / Firmihin (*Dracaena forest*) / 12°28.6'N, 54°01.1'E, 490 m, / P. Hlaváč leg., 15-16.xi.2010' (NMPC); 1 spec., same data, but Jiří Hájek leg. (NMPC).

**Remarks.** This is a new record for the genus from the Socotra Archipelago. *Alogista* Fåhraeus, 1870 is a widely distributed genus and with the exception of southern Africa occurs in most parts of Africa, including Madagascar. It contains about 150 species described mainly by Maurice Pic (almost 90 % of all known species). At present it is almost impossible to study all the Pic's types and although it has never been reported from the Socotra Archipelago and the Arabian Peninsula so far, the authors refrain from describing this species as a new one.

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