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African species of the *Bruchidius centromaculatus* group with
“eyed” female pygidium
(Coleoptera: Bruchidae: Bruchinae)

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ABSTRACT. The *Bruchidius centromaculatus* group is defined. Six African species of the group with the female pygidium with eye-like foveae are revised. *B. meridionalis* from Angola, Burundi, Central African Republic, Rwanda, South Africa, Zaire, and Zambia, *Bruchidius raddianae* from Algeria, Burkina Faso, Egypt, India, Iran, Israel, Jordan, Lybia, Mali, Morocco, Mauritania, Niger, Oman, Saudi Arabia, Senegal, Sri Lanka, Sudan, Tunisia, and Yemen, and *B. simulans* from Botswana, Ethiopia, Kenya, Namibia, South Africa, Tanzania, and Zimbabwe, new to science, are described. *B. centromaculatus* (ALLARD, 1868), n. comb., *B. cretaceus* (PIC, 1928), n. comb., and *B. elnairensis* (PIC, 1931), n. comb., are redescribed. The following new synonyms are proposed: *B. aurivillii* (BLANC, 1889) (= *Bruchus mimus* GYLLENHAL, 1833), *Bruchidius centromaculatus* (ALLARD, 1868) (= *Bruchus lanceolatus* MOTSCHULSKY, 1874, = *Bruchidius sahlbergi* SCHILSKY, 1905, = *Bruchus albonotatus* PIC, 1930), *Bruchidius cretaceus* (PIC, 1928) (= *Bruchus zacheri* PIC, 1933), and *Bruchidius elnairensis* (PIC, 1931) (= *Bruchidius acaciaephilus* ANTON, 2000). Female pygidium and genitalia are figured. Data on distribution and host plants are provided.

Key words: entomology, taxonomy, new species, host plants, *Acacia*, *Coleoptera*, *Bruchidae*, *Bruchidius*, Africa, Asia.

INTRODUCTION

The *Bruchidius centromaculatus* group (type species: *Bruchus centromaculatus* ALLARD, 1868: 107, preserved in MNHN, Paris) is distributed in the tropical Old World and comprises nine species. It has the following combination of characters: integument essentially yellowish to reddish-brown, antenna without sexual dimor-

phism and with segments 5-10 serrate, eyes bulging, pronotum campaniform and with greatest width at base, elytra with three teeth at base of striae 2-4 and with or without protuberance at base of interstriae 3-4, legs without sexual dimorphism, hind femur with preapical denticle, hind tibia with ventral, lateral and dorsomesal carinae complete, and lateroventral carina incomplete, hind tibial apex with mucro longer and lateroapical denticles shorter than lateral denticle, abdomen simple, male sternite 1 with basocentral area of thinner semierected setae, pygidium vertical, female pygidium simple or modified, median lobe of moderate length, ventral valve subtriangular, internal sac with spines and a pair of longitudinal rows of denticle-like sclerites, lateral lobes separate and simple, tegminal strut with median carina, bursa copulatrix with or without ovoid dentate sclerite.

As a rule, members of this group develop in the seeds of various species of *Acacia*. Records of different plant genera are very rare and need confirmation. Among the studied material of bruchids we found only two specimens of *B. centromaculatus* from a doubtful species of *Cassia* in Egypt and 4 specimens of *B. raddianae* from *Dichrostachys* in India.

Apart from the following species of the *B. centromaculatus* group, *Bruchidius andrewesi* (PIC, 1932) from S. India, *B. aurivillii* (BLANC, 1889) and *B. arabicus* DECELLE, 1979, from Africa and Arabian Peninsula have a simple, unmodified female pygidium. Six African species have a unique female pygidium with a pair of lateral eye-like foveae or areas near apex and are discussed here: *B. centromaculatus* (ALLARD, 1868), *Bruchidius cretaceus* (PIC, 1928), *B. elnairiensis* (PIC, 1931), *B. meridionalis* n. sp., *B. raddianae* n. sp. and *B. simulans* n. sp. Regarding taxonomy, host plants and faunistics, some recent papers are relevant to the present work (DECELLE 1975, 1979, NONGONIERMA 1978, VARAIGNE-LABEYRIE et al. 1981, VAN TONDER 1985, BOROWIEC & ANTON 1993, ANTON 1994 a, 1994 b, 1999, 2000, ANTON et al. 1997).

The following remarks apply to the descriptions of the new species: body length is measured from apex of pronotum to apex of elytra; terminology follows in most parts KINGSOLVER (1970) and NILSSON & JOHNSON (1993); genitalia of some types are mounted on microscope slides, partially in toluol-soluble "Canada-Balsam" (e.g. specimens in prepared by J. DECELLE), partially in water-soluble polyvinyl-pyrrolidon (specimens prepared by K.-W. ANTON). The figures of genitalia have been made from slide preparations.

Abbreviations:

- BMNH: The Natural History Museum, London (Great Britain);
- CKWA: Collection K.-W. Anton, Emmendingen (Germany);
- IFAN: Institut Fondamental d'Afrique Noire, Dakar (Senegal);
- HNHM: Hungarian National History Museum, Budapest (Hungary);
- LBUW: Landbouwniversiteit, Wageningen (The Netherlands);
- MNHN: Muséum National d'Histoire Naturelle, Paris (France);
- MNHU: Museum für Naturkunde der Humboldt-Universität, Berlin (Germany);

MRAC: Musée Royale de l'Afrique centrale, Tervuren (Belgium);
 NHMB: Naturhistorisches Museum, Basel (Switzerland);
 NHRS: Naturhistoriska Riksmuseet, Stockholm (Sweden);
 NCIP: National Collection of Insects, Pretoria (South Africa);
 ONHM: Oman Natural History Museum, Masqat (Oman)
 SMNS: Staatliches Museum für Naturkunde, Stuttgart (Germany);
 TAU: Zoological Museum, Tel Aviv University (Israel);
 ZMFK: Zoologisches Forschungsinstitut Alexander Koenig, Bonn (Germany);
 ZMUM: Zoological Museum, University of Moscow (Russia).

REVIEW OF SPECIES

***Bruchidius centromaculatus* (ALLARD, 1868), comb. nov.**

Bruchus centromaculatus ALLARD, 1868: 20.

Acanthoscelides centromaculatus – SCHILSKY, 1905: 41 LL .

Acanthoscelides centromaculatus [sic] – BLACKWELDER 1946: 759.

Bruchus lanceolatus MOTSCHULSKY, 1874: 211, **syn. nov.**

Bruchidius lanceolatus - SCHILSKY 1905: 41 II.

Bruchidius sahlbergi SCHILSKY, 1905: no. 94, **syn. nov.**

Bruchus albonotatus PIC, 1930: 13, **syn. nov.**

Bruchidius senegalensis (PIC) - NONGONIERMA (1978), VARAIGNE-LABEYRIE & LABEYRIE (1981), misidentification.

TYPES EXAMINED

Bruchus centromaculatus: male holotype, “Bruchus / centromaculatus / Alexandrie / Roux” [round blue label, handwritten], “Type”, “Museum Paris / coll. / de Marseul”, MNHN. *Bruchus lanceolatus*: female lectotype (by present designation), “Bruchus / lanceolatus / Motsch. / Aegypt” [green label, handwritten by Motschulsky], - [red label, without data], ZMUM. *Bruchus sahlbergi*: male lectotype (by present designation), “Cairo”, “Heliopolis”, “J. Sahlb.”, “184”, “Typus”, “Sahlbergi / *Schils.”, “Lectotypus male / Bruchidius / sahlbergi Schilsky / J. Decelle det. 1977”. Paralectotypes (by present designation): female, “Heliopolis”, “J. Sahlb.”, “Typus”, “Allolectotypus female / Bruchidius / sahlbergi Schilsky / J. Decelle det. 1977”; male, “Cairo”; male, “Cairo”, “Heliopolis”, “J. Sahlb.”; all ZMHB. *Bruchus albonotatus*: male lectotype (by present designation), “Sudan Govt / Sennar / G. Aylmer / 21.4.21 / 2”, “Ent. coll. / C7395”, “gardez” [handwritten by M. Pic], “Syntype” [white round label with blue border], BMNH. Paralectotypes (by present designation): female, “Africa / 1/250,000/ 55k”, “Sudan Govt / Sennar / G. Aylmer / 21.4.21 / 2”, “paratype” [red label], “centromaculatus / ... [illegible] coll. Brisout à macule humérale foncée nette” [handwritten by M. Pic], “Bruchidius / albonotatus Pic” [handwritten by J. Decelle]; female, “Sudan Govt / Sennar / G. Aylmer / 21.4.21 / 2”, “Ent. Coll. / C7396”, “sp. près centromaculatus”, “albonotatus n. sp.” [both handwritten by Pic], “Paratype”

[red label], MNHN. The designation of lectotypes is made in order to clearly and permanently fix the status of the taxon.

ADDITIONAL MATERIAL

3 males and 2 females, without data, coll. Schilsky, labelled as types, ZMHB. Female, "Sahlbergi / Schil.", labelled as paratype, MNHN. BURKINA FASO: Ouagadougou, 1967, *Acacia nilotica* var. *tomentosa*, leg. A. Nongonierma, MRAC; Ouagadougou, i.1969, *Acacia sieberiana*, leg. A. Nongonierma, MRAC; Ouagadougou, 15.ii.1974, *Acacia sieberiana*, leg. A. Nongonierma, CKWA and MRAC; without locality, i.1969, *Acacia campylacantha*, leg. A. Nongonierma, MRAC. EGYPT: Aegyptus, CKWA and HNHM; Aegyptus, "Cassia colutaefolia" [?], CKWA and HNHM; Aegyptus, Kairo, "sahlbergi Schil., coll. Reitter", HNHM; Aegyptus, "gilvus ab. glycyrrhizae Fahr., coll. Reitter", HNHM; Luxor, "Bruchidius sahlbergi Schil., J. Decelle det. 1979", MRAC; Meadi [presently El Ma'adi], 13. + 26.vi., 4. + 10. + 18. + 23.vii., 1. + 15. + 24.viii, 9.x., xii.1933, leg. Dr. H. Priesner, CKWA and NHMB; Bahareya, ex gosses *Acacia nilotica tomentosa*, 21.xii.2000, leg. G. Fédière, MNHN; Maadi (Le Caire), graines *Acacia n. tomentosa*, 22.xii.2000, leg. G. Fédière; Assuan (Elephantine and Philae Islands), ex gosses *Acacia nilotica*, 6.v.2002, leg. G. Fédière. ISRAEL: Jericho, 27.ix.1940, ex *Acacia farnesiana*, leg. S. Y. Hussein, TAUI; Jericho, Jordan valley, 250 m, 26.xi.1957, leg. J. Klapperich, "Bruchidius aurivillii Blanc, A. Hoffmann det.", HNHM; Jericho, 250 m, 12.vi.1957, leg. J. Klapperich, CKWA and SMNS. MAURITANIA: Moghen, 23.v.1972, *Acacia sieberiana*, leg. A. Nongonierma, CKWA and MRAC. SAUDI ARABIA: Bani Rizam, 2230 m, 9.ix.1984, NHMB. SENEGAL: Dagana, 23.v.1972, *Acacia sieberiana*, leg. A. Nongonierma, MRAC; M'Bambey, 9.vi.1940, leg. M. Risbec, MRAC; Sindia, 20.iv.1967, *Acacia sieberiana*, leg. A. Nongonierma, CKWA and MRAC; Ngazobil, 19.xi.1995, ex *A. sieberiana*, leg. H. & A. Delobel, MNHN; Ngazobil, 30.iii.1996, ex *A. sieberiana*, leg. H. & A. Delobel, MNHN; Diama, 7.ii.1998, *A. nilotica adansonii*, leg. M. Sembène, MNHN; Yayeme, 28.ii.1998, *A. nilotica adansonii*, leg. C. Bass, MNHN; M'Bour, ex *A. nilotica adansonii*, 18.i.1995, leg. H. & A. Delobel, MNHN; 13 km nord de Ross Béthiot, ex *A. nilotica adansonii*, 20.v.1995, leg. Delobel, MNHN; Ross Béthiot, 20.v.1995, ex *A. nilotica tomentosa*, leg. H. & A. Delobel, MNHN; Ngueye Ngueye, sur gousse de *Faidherbia albida*, 16.iii.1996, leg. Delobel, MNHN. SUDAN: Bahr el Abiad, Dabba Ibrahim, Sharalk. verte [?] 19.ii.1910, MNHN; Bahr el Abiad, Moro verte, 20.ii.1910, ex "*Acacia verringena*" [?], ZMFK. ZAIRE: Garamba N.P., Mabanga, 24.iii.1952, leg. H. De Saeger, "Bruchidius grandemaculatus Pic, J. Decelle det. 1958", "senegalensis Pic" [handwritten by J. Decelle], MRAC.

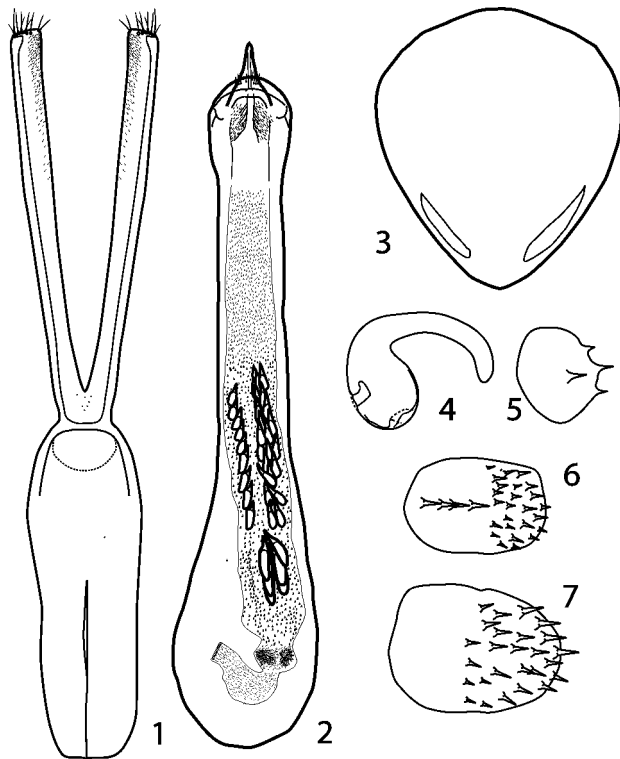
DIAGNOSIS

A small-sized species with rather variable colour, from almost uniformly light yellowish- to reddish-brown with darker and paler spots to distinctly chequered with blackish-brownish and whitish spots, yellowish antennae and legs, three teeth

and frequently shallow protuberance at base of elytra, long mucro at apex of hind tibiae, a pair of oblong eye-like foveae without shiny margin near apex of female pygidium, male genitalia as shown in Figs 1-2.

REDESCRIPTION

Length: 2.1-3.1 mm, width: 1.4-2.3 mm. Body short, oval. Integument reddish-brown, with the following parts more or less darkened: frons and vertex, apical pronotal margin, humeral edge, scutellum, suture of elytra, beyond half of elytral interstriae 1-2, about middle of interstriae 6-9 (frequently enlarged to humeral edge); frequently darkened before half of interstria 4, before apex on interstriae 1, 3-5, 7 and 9, parts of abdomen and near pygidial base; antennae and legs yellowish, often apical antennal segments darker. Vestiture dense, generally covering integument, recumbent; a few areas with denser white hair: sides of pronotum, meso- and metasternites, a small triangle at base of pygidium; pronotal



1-7. *Bruchidius centromaculatus*. 1. lateral lobes and tegminal strut, ventral view; 2. median lobe, ventral view; 3. female pygidium; 4. spermathecal body; 5, 6, 7 ovoid sternite of the bursa copulatrix, variation

disc with ill-defined median longitudinal whitish band, sometimes with small medial white spot on each side of it; elytra varying from light yellowish- to reddish-brown, with oblong whitish marks, darker spots on humeral callus, at about one fourth to one third of elytral length on interstriae 2, 4, 6 and 8 (short mark), slightly beyond half of interstriae 1-2 (long mark) and about middle of interstriae 4, 6, 8 (short mark), apical end of stria 1, slightly before apex of striae 1, on interstriae 3-5, 7 and 9; abdomen ventrally with whitish setae reaching distinctly beyond the apex of the sternites; frequently male pygidium with ill-defined median longitudinal whitish to yellowish band, often with parallel whitish to yellowish band at each side of pygidium, disc before half of length with small obscure paired square area nearly hairless or darker.

Male: Head short, constricted behind eyes; eyes bulging, maximum head width about 1.4 times width behind eyes; ocular sinus deep; eye width about equal to minimum distance between eyes; postocular lobes short; diffuse carina on frons, vertex with diffuse interocular tubercle. Antenna reaching to pronotal base; antennal segments 1-3 cylindrical, segment 4 subserrate, segments 5-10 serrate, segment 11 oval; segment 1 about 1.6 times as long as segments 2, segment 3 slightly longer and narrower than 2 and 4, segments 5-8 becoming gradually wider, segments 8-10 about 1.4 times as wide as long, segment 11 about 1.2 times as long as wide.

Pronotum campaniform, about 1.2 times as wide as long, greatest width at base, sides slightly bisinuate, disc feebly convex, oblique depression near hind edge; punctures on disc double, coarse punctures irregularly spaced, setous; distances between punctures varying from 0 to 1 diameter; cuticle between coarse puncturation with fine punctures and rather coarse microreticulation. Scutellum of moderate size, as long as wide, bifid.

Elytra short, about 1.1 times as long as their combined width; sides regularly convex; disc flattened to scarcely convex, without or with shallow basal protuberance at base of interstriae 3-4; a tooth at extreme base of each of striae 2, 3-4, teeth of striae 3-4 basally combined and slightly distant from base of elytra; striae on disc shallow, punctate; punctures with setae and wider than striae, distances between punctures about equal to their diameter; interstriae flat, with strong micropuncturation and irregular row of flat, barely distinguishable coarser punctures.

Legs without sexual dimorphism; hind femora moderately incrassate, at their widest 1.5 times wider than mid femora; mesoventral margin with obtuse but sharp minute preapical denticle; hind tibiae simple, with ventral, lateral and dorsomesal carinae complete, and lateroventral carina incomplete, tapering off towards middle of tibia, frequently barely distinguishable, apex of tibiae with mucro about 1.3 times as long as lateral denticle, dorsolateral denticles distinctly shorter than lateral denticle.

Abdomen simple; sternite 1 with basocentral pear-shaped area of dense semierect thinner setae, reaching beyond middle of sternite; sternite 5 emarginate to about one third its length; pygidium 1.1 times as long as wide, convex, convexity becoming steadily stronger towards apex, frequently disc with shallow median longitudinal depression.

Genitalia: Median lobe of moderate length; ventral valve subtriangular, with semicircular row of 8-11 setae in basal half and acute apical tip; internal sac with 4 median longitudinal rows (two longer dorsally and two shorter ventrally) of 19-44 large sharp denticles, basal 5-9 denticles slightly larger than remaining denticles, denticles with base about twice as long as their point, area of denticles with numerous short and broad spines, spines varying in size, basally of denticles area with numerous slimmer spines (Fig. 2). Lateral lobes simple, separated to about 0.8 of their length, with 8-12 (mostly 8-9) setae at apex; tegminal strut partly membranous, with small, often indistinct median carina (Fig. 1).

Female: Pilosity of pygidium thinner; antennal segment 5 instead of segment 4 subserrate, the following segments slightly wider, pygidium about 1.2 times as long as wide, pygidial disc without longitudinal depression, near pygidial apex a striking pair of preapical oblong flat eye-like foveae with central area finely micropunctate, without margin (Fig. 3), sternite 5 not emarginate. Genitalia: vagina long and membranous; bursa copulatrix with numerous minute spines, with an ovoid dentate sclerite varying in size (Figs 5-7); spermathecal body ovoid, with apical diverticulum long, almost evenly curved, not constricted but broad at base, becoming steadily thinner towards end of basal third, not pointed at tip (Fig. 4); opening of the spermathecal gland duct lateral, remote from spermathecal duct opening.

AFFINITIES

Bruchidius centromaculatus is distinguished from the closely related *B. arabicus* by having broader apical antennal segments, no or only shallow protuberance at base of elytra, apically broader male pygidium, paired foveae at apex of female pygidium, distinctly lower number of denticles in internal sac, dentate sclerite in bursa copulatrix (habitus and male genitalia of *B. arabicus* see DECELLE 1979, figs. 1a-c).

HOST PLANTS

Examined Westafrican specimens bear labels with data of *Acacia polyacantha* WILLD. subsp. *campylacantha* (A. RICH.) BRENNAN, *A. macrostachya* DC., *A. nilotica* (L.) DEL. ssp. *tomentosa* (BENTH.) BRENNAN, *A. sieberiana* DC.; dubious species: "*A. verringena*" from Sudan and "*Cassia colutaefolia*" from Egypt. NONGONIERMA (1978) also cites *A. nilotica* (L.) DEL. f. typ., *A. nilotica* subsp. *adasoni* (GUILL. et PERR.) O. KTZE., and *A. dudgeoni* HOLLAND [syn. *senegal* (L.) WILLD. subsp. *samoryana* (A. CHEV.) ROBERTY]. In Israel reared from seeds of *A. farnesiana* (L.) WILLD., *A. tortilis* (FORSSKAL) HAYNE and *A. tortilis* subsp. *raddiana* (SAVI) BRENNAN (ANTON *et al.* 1997).

DISTRIBUTION

Burkina Faso, Egypt, Israel, Mauritania, Saudi Arabia, Senegal, Sudan, Zaire.

REMARK

Erroneously cited as *Bruchidius senegalensis* (PIC) in NONGONIERMA (1978, vol. 2, t. 177) and VARAIGNE-LABEYRIE & LABEYRIE (1981, p. t. 6), based on identifications by J. DECELLE. *B. senegalensis* is a replacement name given by PIC (1912) for *B. mimus* GYLLENHAL, 1833. The only specimen of *B. mimus* presently available is a male deposited in NHRS. This male is in fact a specimen of *B. aurivillii* (BLANC). GYLLENHAL's description indicates that the type of *mimus* was transmitted to him from the CHEVROLAT collection. The specimen in the NHRS collection bears the labels: "B. mimus Sch./Senegallia", in accordance with the original description, and "Mus. Rey. Gall.". As we were unable to trace any other possible type, we consider this specimen to be the holotype of *B. mimus*. We propose the following synonymy: *B. aurivillii* (BLANC, 1889) = *B. mimus* (GYLLENHAL, 1833) (**syn. nov.**).

The material collected by A. NONGONIERMA with labels "sur Acacia ..." and "s/A. ..." was reared from seeds of *Acacia* species, which is also true for the material of the next species, *Bruchidius elnairensis* and *B. raddianae*.

***Bruchidius cretaceus* (PIC, 1928), comb. nov.**

Bruchus cretaceus PIC, 1928: 20.

Bruchus zacheri PIC, 1933: 20, **syn. nov.**

Bruchidius zacheri - ZACHER (1952).

Bruchidius zecheri [sic] - SHOMAR (1963).

Bruchidius senegalensis (PIC) - VAN TONDER (1985), misidentification (pro parte).

TYPES EXAMINED

Bruchus cretaceus: male holotype, "Ac.-N. / 23", "W. Frank / Kemoes / Bechuanal'd. / 18.10.1917", "Pres. by / Imp. Bur. Ent. / Brit. Mus. / 1928-347", "desiré", "Bruchus / cretaceus / n. sp.", [last two labels handwritten by M. Pic], BMNH. *Bruchus zacheri*: male lectotype (by present designation), "Gifa / 19.3.33", "paratype" [red label], "zacheri", "zascheri n. n." [last two labels handwritten by M. Pic], gen. prep. n° Br. Pic 21 [by J. Decelle], MNHN; 1 specimen, "Windhuk S.W.A. / Sept. 33 No. 4.", "Bruchus / zacheri Pic" [handwritten by M. Pic], MRAC. Designation of a lectotype is made in order to clearly and permanently fix the status of the taxon.

ADDITIONAL MATERIAL

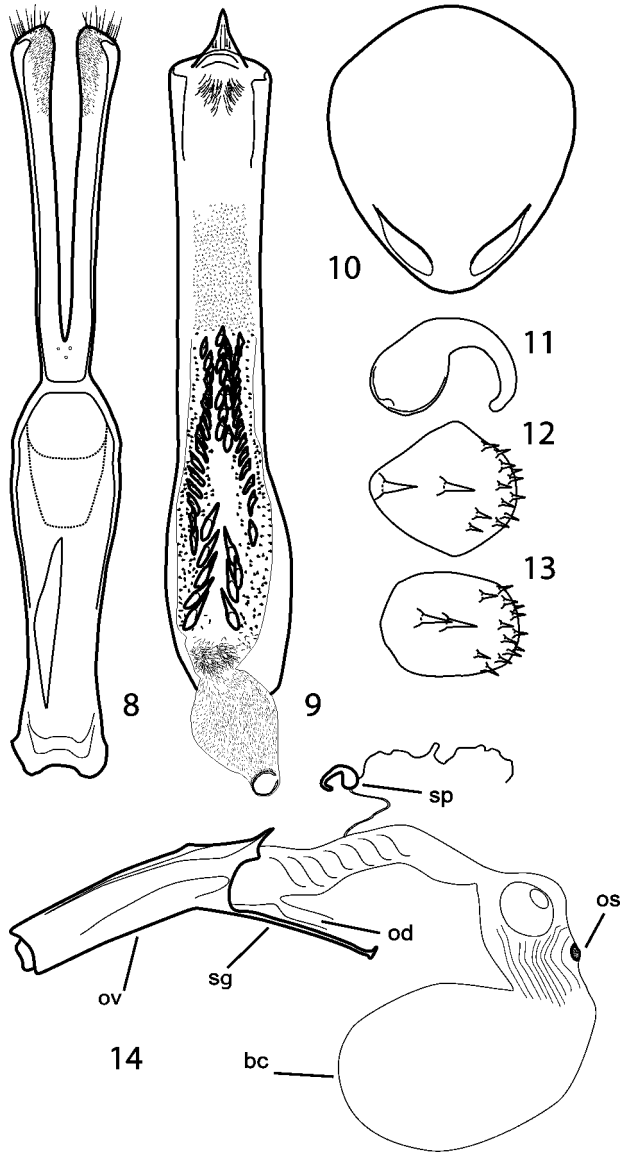
BOTSWANA: Dikeletsane, leg. W. H. O. Ernst, ex *Acacia erioloba*, MRAC; Kanye, 1987, leg. W. H. O. Ernst, ex *A. hebeclada*, MRAC; 60 km N of Maun, 29.i.1995, leg. K. Werner, CKWA; Ghanzi, 28.i.1995, leg. K. Werner, CKWA. NAMIBIA: Caprovi-Zipfel, Katima, Mulilo, 15.-24.i.1995, leg. M. Snížek, CKWA; Hardap Dam, 6.ii.1995, leg. K. Werner, CKWA; Gobabeb, 23°34'S 15°03'E, iii.1966, leg. D. Goode, ex *Acacia giraffae*, MRAC; Gobabeb, 23° 35' S 15° 00' E, 408

m, 13.iii.1972, leg. H. Roer, MRAC; Gobabis, 1933, Dr. Maag, MRAC; Koes, vii.1976, ex *Acacia erioloba*, R. L. Kluge, MRAC; Namib, 14.i.1969, leg. H. Roer, MRAC; Arandis, 27.x.1985, R. Jocque, MRAC; Okahandja, 12.-18.xii.1927, leg. R. E. Turner, MRAC; Okahandja, 1440 m, 10.i.1983, leg. Wiesner & Worm, "Bruchidius sahlbergi Schilsky J. Decelle det. 1989", CKWA; Okaunda near Okahandja, 23.vii.1933, leg. W. Krieg, MRAC; Okaunda near Okahandja, 29.x.1933, leg. W. Krieg, MNHN; Farm Neitsas, Bez. Grootfontein, leg. G. Fock, 20.xi.1908, MNHN; Windhoek, 19.ix.1933, MNHN; Otjiwarongo, 8.vii.1976, ex *Acacia erioloba*, R. L. Kluge, MRAC; "Windhuk S.W.A. / Sept. 33 No. 4.", "Bruchus / zacheri Pic" [handwritten by M. Pic], MRAC; Windhuk, 23.ix.32, ex coll. Pic, MRAC; Windhuk, 18.x.32, ex *Acacia hebeclada*, MRAC; Windhuk env., i.1936-xii.1937, leg. K. Hartmann, MRAC; Windhuk, vii.1995, ex "Kameldorn", leg. C. Gack, CKWA; "Aus.", xii.1929, leg. R. E. Turner, MRAC; Namibia 2000, 24°07'S 15°54.3'E, Namib Restcamp, leg. B. & M. Uhlig, ex seeds of *Acacia erioloba*, "Bruchidius zacheri Pic, det. H. Wendt 2000", MNHU; Namibia 2000, 22°26'S 16°53'E, Daan Viljoen GR, leg. B. & M. Uhlig, ex seeds of *Acacia erioloba* seeds, MNHU; Windhoek, viii.1977, ex *Acacia erioloba*, AcPL1843, V.C. Moran leg, NCIP; Koes, vii.1976, ex *Acacia erioloba*, AcPL 1756, R.L. Kluge leg, NCIP; Otjiwarongo, 8.vii.1976, ex *Acacia erioloba*, AH 131, R. Kluge leg., NCIP; Grunau, v.1977, ex *Acacia hebeclada*, S. J. van Tonder leg., NCIP. SOUTH AFRICA: 15 km SW of Andriesvale, 760 m, 1984, leg. W. Wittmer, NHMB; Barberspan, 13.viii.1955, leg. G. Rudebeck, MRAC; Kimberley, 9.ii.1990, leg. C. R. Owen, CKWA and MRAC; Kimberley 16 km R29, 21.x.1988, leg. W. Wittmer, CKWA and NHMB; 5 km W of Kuruman, 1070 m, 6.ix.1985, leg. W. Wittmer, NHMB; Kuruman, 5.ix.1989, leg. W. Wittmer, CKWA; 86 km E of Pofadder R64, 3.x.1990, leg. W. Wittmer, NHMB; Potgietersrus, ex *Acacia erioloba*, 1.v.1976, leg. M. van Tonder, MRAC; Schweizer Reineke, 14.vi.1970, leg. M. I. Russel, CKWA; Thabazimbi, 6.-8.xi.1994, leg. K. Werner, CKWA; Upington, 10.iii.1983, leg. Hellmann, "Bruchidius sahlbergi Schilsky J. Decelle det. 1985", CKWA; Natal, Cedara, 13.xi.1917, leg. S. H. Skaife, MNHN; Transvaal, 77 km S of Vryburg, 3.x.1990, leg. W. Wittmer, NHMB; Transvaal, 10 km W of Delareyville, 1350 m, 11.ix.1984, leg. W. Wittmer, CKWA and NHMB; Lutyput C.P., ex *Acacia haematoxylon*, AcXP88, AcPL 1750, "Bruchidius senegalensis (Pic), det. S. J. van Tonder 1980", NCIP; Kimberley C.P., 17.viii.1971, ex *Acacia hebeclada*, ACX2674; T.W. Drinkwater leg., "Bruchidius senegalensis (Pic)", NCIP; C.P., Griekwastad, 28.51S 23.15E, v.1977, S. J. van Tonder, ex seeds of *Acacia haematoxylon*, AcPL 1751, "Bruchidius senegalensis (Pic), det. S. J. van Tonder 1980", NCIP.

DIAGNOSIS

A small-sized species with rather variable colour, from almost uniformly light greyish- to reddish-brown with darker and paler spots to distinctly chequered with blackish-brownish and whitish spots, yellowish to yellowish-red antennae and

legs, three teeth and frequently shallow protuberance at base of elytra, long mucro at apex of hind tibiae, a pair of oblong eye-like foveae with shallow medial margin near apex of female pygidium, male genitalia as shown in Figs 8-9.



8-14. *Bruchidius cretaceus*. 8. lateral lobes and tegminal strut, ventral view; 9. median lobe, ventral view; 10. female pygidium; 11. spermathecal body; 12, 13. ovoid sternite of the bursa copulatrix, variation; 14. female genitalia, side view (ov: ovipositor; sg: spiculum gastrale; od: oviduct; sp: spermatheca; os: ovoid sclerite; bc: bursa copulatrix)

REDESCRIPTION

Length: 2.1-3.5 mm, width: 1.3-2.3 mm. Body short, oval. Integument reddish- to blackish-brown, paler specimens with the following parts more or less darkened: frons and vertex, apical pronotal margin, humeral edge, scutellum, suture of elytra, beyond half of elytral interstriae 1-2, about middle of interstriae 6-9 (sometimes enlarged to humeral edge), sometimes darkened before half of interstria 4, before apex on interstriae 1, 3-5, 7 and 9, medial and lateral parts of abdomen and pygidium; darker specimens nearly uniformly blackish-brown, with reddish-brown parts below greyish marks of vestiture; legs yellowish, antennae yellowish with apical segments darker. Vestiture dense, generally covering integument, recumbent; a few areas with denser white hair: sides of pronotum, meso- and metasternites, a small triangle at base of pygidium; pronotal disc with ill-defined median longitudinal whitish band, with small medial white spot on each side of it; elytra varying from light yellowish- to blackish-brown, with oblong whitish marks, darker spots on humeral callus, at about one fourth to one third of elytral length on interstriae 2, 4, 6 and 8 (short mark), slightly beyond half of interstriae 1-2 (long mark) and about middle of interstriae 4, 6, 8 (short mark), apical end of stria 1, somewhat before apex of striae 1, on interstriae 3-5, 8-9; abdomen ventrally with whitish setae reaching distinctly beyond the apex of sternites; frequently male pygidium with ill-defined median longitudinal whitish to yellowish band, parallel whitish to yellowish bands on each side of pygidium, disc with obscure paired square nearly hairless or dark brown area before half of length and oblong pair preapically.

Male: Head short, constricted behind eyes; eyes bulging, maximum head width about 1.4 times width behind eyes; ocular sinus deep; ratio of eye width to minimum distance between eyes about 1.0-1.1; postocular lobes short; diffuse carina on frons, vertex with diffuse interocular tubercle. Antenna reaching to pronotal base; antennal segments 1-3 cylindrical, segment 4 subserrate, segments 5-10 serrate, segment 11 oval; segment 1 about 1.5 times as long as segments 2, segment 3 slightly longer and narrower than 2 and 4, segments 5-8 becoming steadily wider, segments 8-10 about 1.3-1.4 times as wide as long, segment 11 about 1.1-1.2 times as long as wide.

Pronotum campaniform, about 1.2-1.3 times as wide as long, greatest width at base, sides slightly bisinuate, disc feebly convex, oblique depression near hind edge; punctures on disc double, coarse punctures densely spaced, setous; distances between punctures varying from 0 to 0.5 diameter; cuticle between coarse puncturation with fine punctures and rather coarse microreticulation. Scutellum of moderate size, hardly longer than wide, bifid.

Elytra short, about 1.1 times as long as their combined width; sides regularly convex; disc flattened to scarcely convex, without or with shallow basal protuberance at base of interstriae 3-4; a tooth at extreme base of striae 2, 3 and 4, teeth of striae 3-4 basally combined and distant from base of elytra by distance equal to about three quarter of second interstitial width, frequently all three teeth on

shallow pecten; striae on disc shallow, punctate; punctures with setae and wider than striae, distances between punctures about equal to their diameter; interstriae flat, with strong micropuncturation and irregular row of flat, barely distinguishable coarser punctures.

Legs without sexual dimorphism; hind femora moderately incrassate, at their widest 1.5 times wider than mid femora; mesoventral margin with obtuse but sharp minute preapical denticle; hind tibiae simple, with ventral, lateral and dorsomesal carinae complete, and lateroventral carina incomplete, tapering off towards apical third of tibia, frequently well distinguishable, apex of tibiae with mucro about 1.3 times as long as lateral denticle, dorsolateral denticles distinctly shorter than lateral denticle.

Abdomen simple; sternite 1 with basocentral pear-shaped area of dense semierect thinner setae, not reaching to middle of sternite; sternite 5 emarginate to about one third its length; pygidium 1.1 times as long as wide, convex, convexity becoming steadily stronger towards apex, sometimes disc with shallow median longitudinal depression.

Genitalia: Median lobe of moderate length; ventral valve subtriangular, with semicircular row of 5-10 setae in basal half and acute apical tip; internal sac with 3-4 median longitudinal rows of 32-67 large sharp denticles, basal 6-11 denticles larger, mostly paired and with base about twice as long as their point, remaining denticles smaller, arranged in partially indistinct 3-4 longitudinal rows and with base about 3.5 times as long as their point, area of denticles with numerous short and broad spines, spines little varying in size, basally of denticle area with numerous slimmer spines (Fig. 9). Lateral lobes simple, separated to about 0.8 of their length, with 8-12 (mostly 8-10) setae at apex; tegminal strut partly membranous, with small, distinct median carina (Fig. 8).

Female: Pilosity of pygidium thinner; antennal segment 5 instead of segment 4 subserrate, the following segments slightly wider, pygidium about 1.2 times as long as wide, pygidial disc without longitudinal depression, near pygidial apex a striking pair of preapical oblong flat eye-like foveae with shallow mesal margin and central area finely micropunctate (Fig. 10), sternite 5 not emarginate. Genitalia: vagina long and membranous (Fig. 14); bursa copulatrix with numerous minute spines, with ovoid dentate sclerite varying in size (Figs 12-13); spermathecal body subovoid, with apical diverticulum long, almost evenly curved, not constricted but broad at base, becoming steadily thinner towards end of basal third, not pointed at tip; opening of the spermathecal gland duct lateral, remote from spermathecal duct opening (Fig. 11).

AFFINITIES

B. cretaceus is distinguished from the closely related *B. centromaculatus* by having on average larger size and darker integument, larger interocular tubercle, slimmer apical antennal segments, longer elytra, smaller basocentral area of dense setae on male sternite 1, mesal margin surrounding pygidial foveae of female, on average higher number of denticles in internal sac, basal denticles distinctly larger

than remaining ones, larger ratio of base to point of smaller denticles, and longer spines basally of denticles.

HOST PLANTS

Acacia erioloba E. MEYER [syn. *giraffae* WILLD.], *A. haematoxylon* WILLD., *A. hebeclada* DC., *A. stuhlmannii* TAUBERT.

DISTRIBUTION

Angola, Botswana, Namibia, South Africa.

REMARK

Erroneously cited as *Bruchidius senegalensis* (PIC) in VAN TONDER (1985, p. 144), based on identifications made by J. DECELLE.

***Bruchidius elnairensis* (PIC, 1931), comb. nov.**

Bruchus elnairensis PIC, 1931: 35.

Bruchidius voltaicus DECELLE, **nom. nud.** - NONGONIERMA (1978), VARAIGNE-LABEYRIE & LABEYRIE (1981).

Bruchidius acaciaephilus ANTON, 2000: 246, **syn. nov.**

TYPES EXAMINED

Bruchus elnairensis: female holotype, "Brit. Coll. / c 8915", "Wad el Nair / G. Aylmer / 10.12.29 / Attacking seeds of / *A. seyal* var. *fistula* / Sudan Govt.", "Pres. by / Imp. Inst. Ent. / Brit. Mus. / 1930-577.", "gardez" [handwritten by M. Pic], "An oblique depression / either side of pyg. / D. J. Atkinson det. 1951", "Bruchus / elnairensis / n. sp." [handwritten by M. Pic], BMNH; male and female paratypes, with same locality data as holotype, MRAC. *Bruchidius acaciaephilus*: male holotype, "Saudi Arabia / Abha III.1992", BMNH, genitalia slide no. 090897 II; 5 females paratypes, with same data as holotype, CKWA and BMNH; 2 males and 4 females paratypes, Saudi Arabia; SW Reg., loc. 2, 1992, leg. M. Abdullah, CKWA and MRAC; male paratype, Saudi Arabia, Wadi Turabah, Camp 2, 1580 m, 7.X.1979, leg. W. Büttiker, NHMB; male paratype, Saudi Arabia, Bani Rizam, 2230 m, 2.IX.1984, leg. W. Büttiker, NHMB.

ADDITIONAL MATERIAL

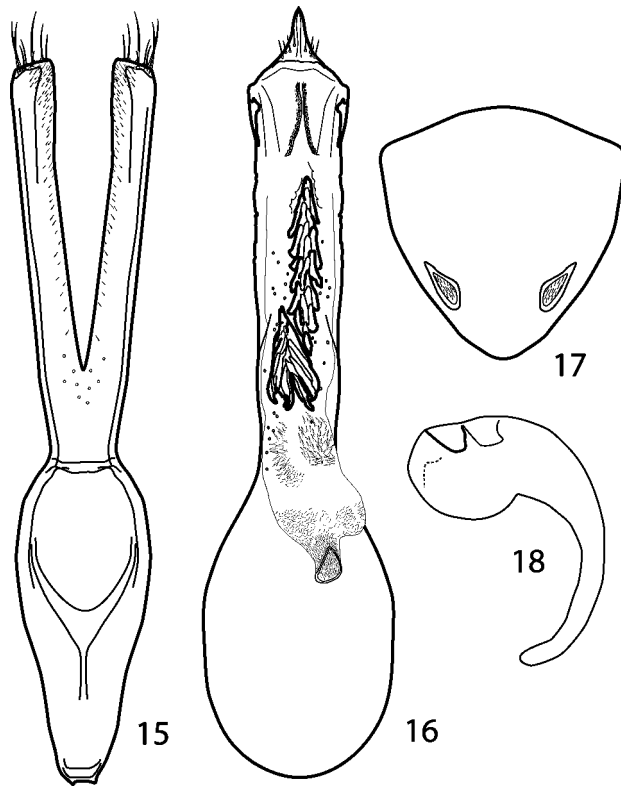
BURKINA FASO: Région de Fada, 8.i.1989, *Acacia* sp., leg. A. Nongonierma, labelled as paratypes of "Bruchidius voltaicus n. sp., J. Decelle det. 1972", MRAC; Fada N'Gourma, i.1969, *Acacia hebecladoides*, leg. A. Nongonierma, labelled as paratypes of "Bruchidius sahelicus n. sp., J. Decelle det. 1972", MRAC; Fada N'Gourma, i.1969, *Acacia ehrenbergiana*, A. Nongonierma, labelled as paratype, MRAC; 20 specimens, Sourkoudingan, Bobo-Dioubassa, 21.iii.1973, *Acacia macrothyrsa*, leg. A. Nongonierma, CKWA and MRAC. GHANA: Mpoho, 5.-6.i.1969, leg. B. Entz, HNHM.

DIAGNOSIS

A small-sized species with brown-red and partially darkened integument, pubescence distinctly chequered with brownish and whitish spots, yellowish antennae and legs, three teeth and a protuberance at base of elytra, long mucro at apex of hind tibiae, a pair of setous eye-like foveae with shiny margin near apex of female pygidium, male genitalia as shown in Figs 15-16.

REDESCRIPTION

Length: 2.0-2.5 mm, width: 1.2-1.6 mm. Body short, oval. Integument brown-red, with following parts darkened: at least apical and basal pronotal margins, humeral edge, epipleura, suture and apical margin of elytra darkened, often vertex, middle of intervals 9-11 and abdomen ventrally; basal antennal segments and legs yellowish, apical antennal segments red-brown. Vestiture dense, generally covering integument, recumbent; a few areas with denser yellowish to white setae: sides of pronotum, meso- and metasternites, a small triangle at base of pygidium;



15-18, *Bruchidius elnairensis*. 15. lateral lobes and tegminal strut, ventral view; 16. median lobe, ventral view; 17. female pygidium; 18. spermathecal body

pronotal disc with ill-defined median longitudinal yellowish-whitish band, sometimes with small white spot on each side of it; elytra often with oblong yellowish, whitish and brownish marks, with two irregular transverse whitish bands and striking longitudinal whitish mark in middle of interval 3, sometimes elytra predominantly yellowish with indistinct paler spots; pygidium whitish with two basal yellowish spots; abdomen ventrally with whitish setae reaching distinctly beyond the apex of sternites.

Male: Head short, constricted behind eyes; eyes bulging (maximum head width about 1.4 times width behind eyes); ocular sinus deep; ratio of eye width to minimum distance between eyes 1.2; postocular lobes short; diffuse carina on frons, vertex with interocular tubercle. Antenna reaching to pronotal base; antennal segments 1-3 cylindrical, segment 4 subserrate, segments 5-10 serrate, segment 11 oval; segment 1 about 1.6 times as long as segments 2-4, segments 5-10 becoming steadily wider, segments 8-10 about 1.2 times as wide as long, segment 11 about 1.3 times as long as wide.

Pronotum campaniform, about 1.3 times as wide as long, greatest width at base, sides bisinuate, disc feebly convex, oblique depression near hind edge; punctures on disc double, coarse punctures irregularly spaced, setous; distance between punctures varying, less than their diameter; cuticle between them with fine punctures and rather coarse microreticulation. Scutellum of moderate size, as long as wide, bifid.

Elytra short, about as long as their combined width; sides convex with mid third parallel; disc flattened to scarcely convex; indistinct basal protuberance at interstriae 3-4 sharply double-toothed; a minute tooth at stria 2, teeth of striae 3-4 distant from base of elytra by a distance equal to half of second interstitial width; striae distinct, narrow, flat, punctate; punctures with setae and wider than striae, distances between punctures less than their diameter; interstriae flat, with micropuncturation and indistinct irregular rows of flat, barely distinguishable coarser punctures. Legs without sexual dimorphism; hind femora moderately incrassate, at their widest 1.9 times wider than mid femora; mesoventral margin with minute blunt preapical denticle; hind tibiae simple, with ventral, lateral and dorsomesal carinae complete, lateroventral carina incomplete, tapering off towards apex, apex of tibiae with mucro twice as long as lateral denticle, dorsolateral denticles distinctly shorter than lateral denticle. Abdomen simple; sternite 1 with basocentral circular area of dense semierect thinner setae, diameter of area about one third of sternal length; sternite 5 emarginate to one third its length; pygidium about as long as wide, convex, convexity becoming steadily stronger towards apex.

Genitalia: Median lobe of moderate length; ventral valve subtriangular, with semicircular row of about eight setae in basal half and acute apical tip; internal sac with subapical median longitudinal agglomeration of about twelve large blunt denticles, at mid part with paired oblique, apically combined agglomerations of eight moderate, sharp denticles each, basally followed by paired oval agglomerations of about 20 small needles each (Fig. 16). Lateral lobes simple, separated to half of

their length, with about eight setae at apex; tegminal strut moderate, with short median carina (Fig. 15).

Female: Similar to male, but antennal segment 5 instead of segment 4 subserrate, following segments slightly wider, pygidium slightly longer than in male, with striking pair of preapical deep eye-like foveae with shiny margin and setous central area (Fig. 17), sternite 5 not emarginate. Female genitalia: vagina long and membranous; bursa copulatrix with numerous minute spines, without sclerite; spermathecal body ball-shaped, with apical diverticulum long, evenly curved, not constricted but broad at base, becoming steadily thinner towards middle of its length, not pointed at tip; opening of the spermathecal gland duct basolateral (Fig. 18).

AFFINITIES

Bruchidius elnairensis is distinguished from the closely related *B. aurivillii* by having vestiture predominantly yellowish, broader pygidium, paired foveae near apex of female pygidium, paired and only apically combined agglomerations of denticles in mid part of internal sac, larger paired agglomeration of higher number of needles in basal part of internal sac, lateral lobes slimmer and less separated.

HOST PLANTS

Examined West African specimens bear labels with rearing records from *Acacia ehrenbergiana* HAYNE, *A. gerrardii* BENTH. [syn. *hebecladoides* HARMS], *A. amythetophylla* A. RICH. [syn. *macrothyrsa* HARMS]; in Sudan from *A. seyal* DEL., *A. seyal* DEL. var. *fistula* (SCHWEINF.) Oliver. NONGONIERMA (1978) also records *A. hockii* DE WILD.

DISTRIBUTION

Burkina Faso, Ghana, Saudi Arabia, Senegal, Sudan.

REMARK

The description of the species *B. voltaicus* DECELLE cited in NONGONIERMA (1978, vol. 2, t. 183) and VARAIGNE-LABEYRIE & LABEYRIE (1981, t. 5) was never published. The name is therefore a nomen nudum. The situation is similar with *B. sahelicus*; see also remarks on *B. raddiana*.

***Bruchidius meridionalis* n. sp.**

Bruchidius senegalensis (PIC) - DECELLE (1975), misidentification.

Bruchidius senegalensis (PIC) - VAN TONDER (1985), misidentification (pro parte).

TYPE MATERIAL

Holotype: Male, "Récolté sur / Acacia", "Coll. Mus. Congo / Urundi: Kihanga / (Ruziz) 12-IV-1957 / J. Decelle", MRAC; gen. prep. no. "Br. T. 121". Paratypes:

14 males and 11 females, same data as holotype, CKWA, MNHN and MRAC; male and 3 females, "sur Acacia / Decelle", "Urundi / Kihanga / 12-IV-57", CKWA and MRAC; female, "Musée du Congo / Urundi / Kanna / 26/28-I-1926 / Dr. H. Schouteden", MRAC; 2 males and 2 females, "Rwanda. VIII.1980 / ex gr. Acacia / Melle Gomez", CKWA and MRAC; male, "Rwanda Kibungu / Gako 1400 m / 7.10.1984 / leg. Mühle", "Bruchidius / sahlbergi Schilsky / J. Decelle det. 1986", CKWA; 2 males and 2 females, "I.R.S.A.C.-Mus.Congo / Kivu: Kavimvira (Uvira) / (à la lumière) X-1955 / G. Marlier", CKWA and MRAC; female, "Musée du Congo / Kivu: Luvungi / -XII-1932 / L. Burgeon", MRAC; female, "Fort Crampel [presently Kaga-Bandoro] / Ubanghi [presently Central African Republic] / Sept. 54", "Coll. Mus. Congo / ex coll. Breuning", MRAC; 3 males and 5 females, "Zambia - Lusaka / Kafue City - Kafue River / m. 1200 - 22.XI. / 2.XII. 1987 / R. Mourglia legit", CKWA, MRAC and NHMB; 6 males, "Coll. Mus. Tervuren / Angola: Banguela / Baia Farta. VI.1963 / Ald. Vitorino leg.", "Bruchidius / senegalensis (Pic) / J. Decelle det. 1973", CKWA and MRAC.

ADDITIONAL MATERIAL

SOUTH AFRICA: 3 males, 1 female, "Kruger nat. Park / Numbi Gate, 25.09S / 31.11E. 3.vi.1976 / S. J. van Tonder", "ex seeds of *Acacia sieberiana* var. *woodii*", "National coll. of Insects / Pretoria, S. Afr. / AcPL 1833", "Bruchidius / senegalensis (Pic) [handwritten by J. Decelle] / J. Decelle det. 1979", NCIP.

DIAGNOSIS

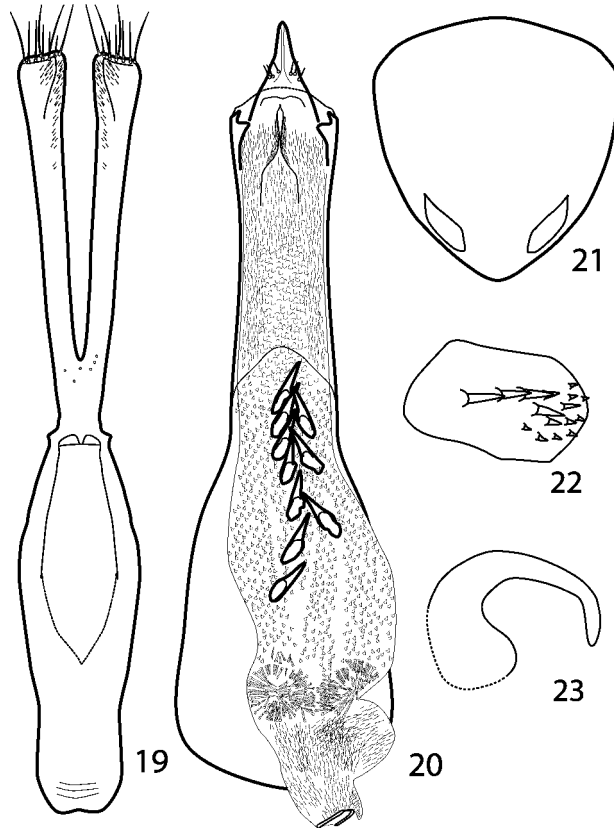
A small-sized species with little colour variation, yellowish to reddish-brown with darker and paler spots to distinctly chequered with blackish-brownish and whitish spots, yellowish-reddish legs, three teeth and shallow protuberance at base of elytra, long mucro at apex of hind tibiae, a pair of oblong eye-like foveae without shiny margin near apex of female pygidium, male genitalia as shown in Figs 19-20.

DESCRIPTION

Length: 1.8-2.7 mm, width: 1.1-1.7 mm. Body short, oval. Integument reddish-brown, with the following parts more or less darkened: frons and vertex, pronotal margins, humeral edge, scutellum, suture of elytra, beyond half of elytral interstriae 1-2, about middle of elytral interstriae 6-9 (very frequently enlarged to humeral edge); frequently darkened before apex of elytral interstriae 3-5, 7-9, abdomen and pygidial disc medially and apically; antennae and legs yellowish-reddish, very frequently apical antennal segments darker. Vestiture dense, generally covering integument, recumbent; a few areas with denser white hair: sides of pronotum, meso- and metasternites, a small triangle at base of pygidium; pronotal disc with ill-defined median longitudinal whitish band, often with small medial white spot on each side of it; elytra varying from yellowish to reddish-brown, with oblong whitish marks, darker spots on humeral callus, at about one fourth to one

third of elytral length on interstriae 2, 6 and 8 (short mark), slightly beyond half of interstriae 1-2 (long mark) and about middle of interstriae 4, 6, 8 (short mark), apical end of stria 1, slightly before apex on interstriae 3-5, 7 and 9; abdomen ventrally with whitish setae reaching distinctly beyond the apex of the sternites; frequently male pygidium with ill-defined median longitudinal whitish to yellowish band, less frequently with parallel whitish to yellowish band at each side of pygidium, disc before half of length with obscure paired small square, nearly hairless area.

Male: Head short, constricted behind eyes; eyes bulging, maximum head width about 1.4 times width behind eyes; ocular sinus deep; ratio eye width to minimum distance between eyes about 1.1; postocular lobes short; diffuse carina on frons, vertex with diffuse interocular tubercle. Antenna reaching to pronotal base; antennal segments 1-3 cylindrical, segment 4 subserrate, segments 5-10



19-23, *Bruchidius meridionalis*. 19. lateral lobes and tegminal strut, ventral view; 20. median lobe, ventral view; 21. female pygidium; 22. ovoid sternite of the bursa copulatrix; 23. spermathecal body

serrate, segment 11 oval; segment 1 about 1.6 times as long as segments 2, segment 3 slightly longer and narrower than 2 and 4, segments 5-8 becoming steadily wider, segments 8-10 about 1.4 times as wide as long, segment 11 about 1.2 times as long as wide.

Pronotum campaniform, about 1.3 times as wide as long, greatest width at base, sides slightly bisinuate, disc feebly convex, oblique depression near hind edge; punctures on disc double, coarse punctures irregularly spaced, setous; distances between punctures varying from 0 to 1 diameter; cuticle between coarse puncturation with fine punctures and rather coarse microreticulation. Scutellum of moderate size, as long as wide, bifid.

Elytra short, about 1.1 times as long as their combined width; sides regularly convex; disc flattened to scarcely convex; shallow basal double-toothed protuberance at base of interstriae 3-4; a tooth at base of striae 2, 3 and 4, teeth of striae 3-4 basally combined and slightly distant from base of elytra; striae on disc shallow, punctate; punctures with setae and wider than striae, distances between punctures about equal to their diameter; interstriae flat, with strong micropuncturation and irregular row of flat, barely distinguishable coarser punctures.

Legs without sexual dimorphism; hind femora moderately incrassate, at their widest 1.5 times wider than mid femora; mesoventral margin with obtuse but sharp minute preapical denticle; hind tibiae simple, with ventral, lateral and dorsomesal carinae complete, and distinct lateroventral carina incomplete, tapering off towards apical third of tibia, frequently well distinguishable, apex of tibiae with mucro about 1.3 times as long as lateral denticle, dorsolateral denticles distinctly shorter than lateral denticle.

Abdomen simple; sternite 1 with basocentral pear-shaped area of dense semierect thinner setae, reaching to middle of sternite; sternite 5 emarginate to about one third its length; pygidium 1.1 times as long as wide, convex, convexity becoming steadily stronger towards apex, disc without median longitudinal depression.

Genitalia: Median lobe of moderate length; ventral valve subtriangular, with semicircular row of 6-9 setae in basal half and acute apical tip; internal sac with two median longitudinal rows of 10-17 large sharp denticles, denticles with base about as long as their point, area of denticles with numerous short and broad spines, spines varying in size, basally of denticles area with numerous slim spines (Fig. 20). Lateral lobes simple, separated to about 0.8 of their length, with 8-11 setae at apex; tegminal strut partly membranous, with small, often indistinct median carina (Fig. 19).

Female: Pilosity of pygidium thinner; antennal segment 5 instead of segment 4 subserrate, the following segments slightly wider, pygidium about 1.2 times as long as wide, near pygidial apex a striking pair of preapical oblong flat eye-like foveae with central area finely micropunctate, without margin (Fig. 21), sternite 5 not emarginate. Genitalia: vagina long and membranous; bursa copulatrix with

numerous minute spines, with ovoid dentate sclerite varying in size (Fig. 22); spermathecal body ovoid, with apical diverticulum long, almost evenly curved, not constricted but broad at base, becoming steadily thinner towards end of basal third, not pointed at tip; opening of the spermathecal gland duct lateral, remote from spermathecal duct opening (Fig. 23).

AFFINITIES

Bruchidius meridionalis is distinguished from the closely related *B. centromaculatus* by having eyes wider separated, protuberance always present at base of elytra, smaller teeth at base of elytral striae 2-4, shorter median lobe, lower number of denticles in internal sac, basal denticles as large as remaining ones, and smaller ratio of base to point of denticles.

ETYMOLOGY

The name refers to the southern distribution in comparison with the closely related species, *Bruchidius centromaculatus*.

HOST PLANT

Acacia sp.; South African specimens were reared from seeds of *Acacia sieberiana* DC. var. *woodii* (BURTT DAVY) KEAY & BRENNAN. They probably correspond to one of the two "*Bruchidius* sp. (undet. species)" reared from *A. sieberiana* in VAN TONDER (1985, t. 1, p. 147).

DISTRIBUTION

Angola, Burundi, Central African Republic, Rwanda, South Africa, Zaire, Zambia.

Bruchidius raddiana n. sp.

Bruchidius sahelicus DECELLE, **nom. nud.** - DECELLE (1979).

Bruchidius albosparsus - DE LUCA (1965), misidentification.

TYPE MATERIAL

Holotype: Male, "Egypte, Ain Sukhna, 15 juin 2001, ex gousses *Acacia tortilis raddiana*, leg. G. Fédière", MNHN. Paratypes: 40 males and 40 females, same data as holotype, MNHN, MRAC, CKWA, BMNH, TAUI, NHMB, ZMUM, IFAN.

ADDITIONAL MATERIAL

ALGERIA: N of Aijer (Tassili), Ft. Gardel, 28.iii.1982, leg. Hellmann, CKWA; Biskra, 6.x.1980, leg. C. Bensebanne, ex *Acacia farnesiana*, MRAC; Tassili du Nord, Sahara Mission Foureau Lamy 1900, coll. Dr. Fournial, MRAC. BURKINA FASO: Saouga, 3.i.1969, *Acacia raddiana*, leg. A. Nongonierma, labelled as paratype of "*Bruchidius sahelicus* n. sp., J. Decelle det. 1973", MRAC; Saouga,

Dori, i.1964, *Acacia tortilis*, leg. A. Nongonierma, with same paratype label, MRAC; Ouagadougou, 1967, ex *Acacia nilotica* var. *tomentosa*, MRAC. EGYPT: "Assuan", MRAC; "Assuan (Amoun Island), ex seeds of *Acacia seyal*, 7.v.2002, leg. G. Fédière", MNHN; "Assuan (Sefuga Island), ex seedsgousses of *Acacia seyal*, 8.v.2002, leg. G. Fédière", MNHN; "Assuan (Philae Island), ex seeds of *Acacia nilotica*, 8.v.2002, leg. G. Fédière", MNHN; "Cairo (Maadi), ex seeds of *Acacia nilotica*, 8.v.2002, leg. G. Fédière", MNHN; "Atalia Oasis, ex seeds of *Acacia tortilis raddiana*, 22.ii.2002, leg. G. Fédière", MNHN; "Ras Mohammed, ex seeds of *Acacia raddiana*, 25.iv.2001, leg. G. Fédière", MNHN. INDIA: Delhi, 17.iii.1983, ex *Dichrostachys cinerea*, leg. C. C. Singh, CKWA and MRAC; 19.iii.1983, ex *A. tortilis*, leg. S. R. Wadhi, MRAC. ISRAEL: N of Arava, 8.xi.1991, leg. J. Halperin, TAUI; Eilat, Negev desert, 30.i.1987, leg. D. Borisch, MRAC; Dead Sea, Ein Gedi, 26.iv.1982, leg. H. Mühle, CKWA; En Gedi, 1.vii.1991, ex *Acacia raddiana*, leg. J. Halperin, TAUI; Evrona, 9.i.1990, 29.iii.1989, 9.i.1990, ex *Acacia raddiana*, leg. J. Halperin, CKWA and TAUI; Hazeva, 5.vi.1958, leg. J. Halperin, TAUI; 30 km N of Hazeva, 9.i.1990, ex *Acacia raddiana*, leg. J. Halperin, CKWA; Samar, 9.i.1990, leg. J. Halperin,



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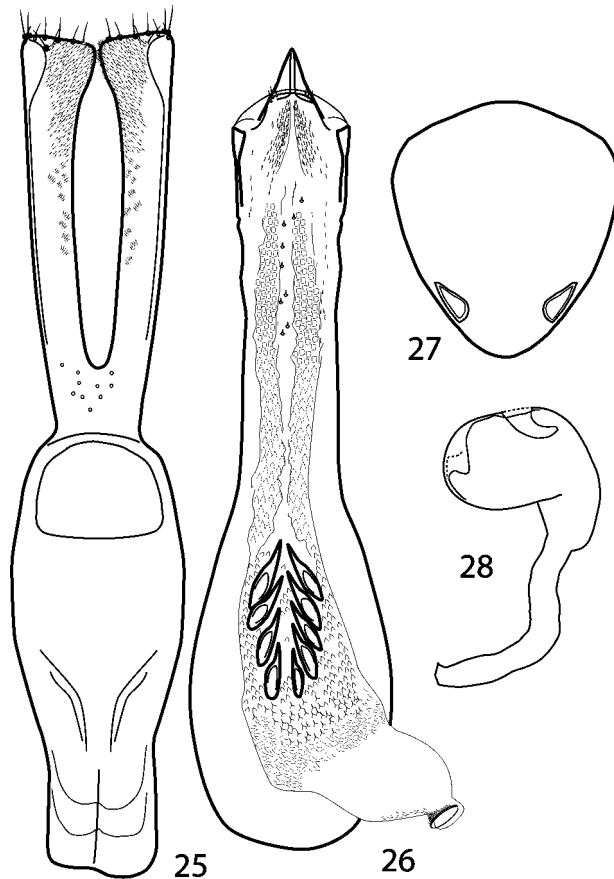
24. *Bruchidius raddianae*: dorsal aspect, male

CKWA and TAUI; Yahel, 9.i.1990, leg. J. Halperin, TAUI; Yahel, 8.xi.1991, ex *Acacia tortilis*, leg. J. Halperin, CKWA; Yotvata, 9.i.1990, 1.vi.1991, leg. J. Halperin, TAUI; Yotvata, Arava val., ex *Acacia raddiana*, 1995, CKWA; N of Zihor, 8.xi.1991, leg. J. Halperin, TAUI; Negev, Wadi Yee'lon, ex *Acacia gerrardii*, x.1997, leg. K. Or, MNHN; Negev, Wadi Saif and Katzra, ex *Acacia raddiana*, 10.vi.1998, leg. K. Or, MNHN; Negev, Wadi Saif, ex *Acacia raddiana*, vii.1998, leg. K. Or, MNHN; Negev, Wadi Bitaron, ex *Acacia raddiana*, vi.1996, leg. K. Or, MNHN; Negev, Wadi Bitaron, ex *Acacia raddiana*, x.1997, leg. K. Or, MNHN. JORDAN: Quweira, Wadi el Yutum, 24.iv.1964, leg. J. Klapperich, CKWA and SMNS. LYBIA: Wadi Zigzah, 10.vi.1982, ex *Acacia tortilis raddiana*, leg. D. Turner, CKWA and MRAC. MALI: Baura Diri, *Acacia seyal*, 19.iv.1969, leg. A. Nongonierma, labelled as paratype of "*Bruchidius sahelicus* n. sp., J. Decelle det. 1973", MRAC; Dembeli, 10.iv.1969, *Acacia tortilis*, leg. A. Nongonierma, with same paratype label, MRAC; N of Hombori, 13.IV.1969, *Acacia ehrenbergiana*, leg. A. Nongonierma, with same paratype label, MRAC; Kerssedougou, 9.iv.1969, *Acacia seyal*, leg. A. Nongonierma, MRAC; Limite, Timbouctou, 20.iv.1969, *Acacia ehrenbergiana*, leg. A. Nongonierma, with same paratype label, MRAC. MAURITANIA: Aleg, 20.v.1972, *Acacia senegal*, leg. A. Nongonierma, labelled as paratype of "*Bruchidius sahelicus* n. sp., J. Decelle det. 1973", MRAC; N of Boghi, 20.v.1972, *Acacia ehrenbergiana*, leg. A. Nongonierma, with same paratype label, MRAC; same locality data, but *Acacia senegal*, with same paratype label, MRAC; NW of Boghi, v.1972, *Acacia tortilis*, leg. A. Nongonierma, with same paratype label, MRAC; S of Bir Moghreïn, 10.v.1972, leg. A. Nongonierma, with same paratype label, MRAC; 36 km SW of Gernelli, 5.v.1972, *Acacia ehrenbergiana*, leg. A. Nongonierma, with same paratype label, MRAC; NE of Zouerate, 10.v.1972, *Acacia tortilis*, leg. A. Nongonierma, with same paratype label, MRAC; Zouerate, 12.v.1972, *Acacia tortilis*, leg. A. Nongonierma, with same paratype label, MRAC. MOROCCO: "Labara, Rio de Oro", v.1972, *Acacia tortilis*, leg. A. Nongonierma, labelled as paratype of "*Bruchidius sahelicus* n. sp., J. Decelle det. 1973", MRAC. NIGER: Niamey, 12.iv.1992, ex *Acacia raddiana*, leg. B. Diallo, MRAC; same data, ex *Acacia seyal*, MRAC. OMAN: Al Khuwayr, 23°36'N 58°26'E, 9 m, 23.ix.1993, leg. M. D. Gallagher, ONHM; Barka env., 23°90'50''N 57°50'40''E, 50 m, 4.-5.viii.1994, leg. M. D. Gallagher, CKWA and ONHM; Baushar, 23°32'N 58°23'E, 18.-19.iv.1988, M. D. Gallagher, NHMB; Jiddah al Harasis, Jalooni, iv.1982, leg. C. F. Dewhurst, MRAC; S of Qalhat, 22°44'N 59°20'E, 30 m, 21.ii.1995, leg. Gallagher & Hughes, ONHM; Qurm, Nat. Res., 23°37'N 58°29'E, 26.iv.1984, M. D. Gallagher, CKWA; N of Sana il Qaylah, 23°21'N 58°03'E, 22.iv.1985, leg. C. Holzschuh, CKWA. SAUDI ARABIA: Kashm al Atash, 10.ix.1981, leg. W. Büttiker, NHMB; Kushm Dibi, 20.iv.1978, W. Büttiker, MRAC. SENEGAL: Bandia V., 3.i.1969, ex *Acacia sieberiana*, leg. A. Nongonierma, labelled as paratype of "*Bruchidius sahelicus* n. sp., J. Decelle det. 1973", MRAC; "Khatali (région de Louga), 29.iv.1995, ex *A. tortilis raddiana*, leg. H. & A. Delobel", MNHN; "Rao (région du Fleuve),

20.v.1995, ex *A. tortilis raddiana*, leg. H. & A. Delobel”, MNHN; “Léona (région de Louga), 28.xii.1996, ex *A. tortilis raddiana*, leg. H. & A. Delobel”, MNHN. SRI LANKA: Dambulla env., 200 m, 19.iv.-9.v.1991, leg. J. Kolibac, CKWA and NHMB. SUDAN: Ed Damer Hudaiba, 28.iv.1962, leg. R. Remane, CKWA. TUNISIA: Hammamet env., 14.iv.-3.v.1988, leg. K. Hemmann, CKWA; Bou Hedma, i., iii., xii.1929, leg. C. Dumont, MRAC; Djerba, Midoum, 14.vi.1983, leg. J. Decelle, MRAC; “Bou Hedna, ex *Acacia tortilis raddiana*, 11.x.2001, leg. Prof. Chaieb”, MNHN.

DIAGNOSIS

A small-sized species with rather variable colour, from almost uniformly light yellowish- to light reddish-brown with slightly darker and paler spots to distinctly chequered with blackish-brownish and whitish spots, yellowish antennae and legs,



25-28, *Bruchidius raddianae*. 25. lateral lobes and tegminal strut, ventral view; 26. median lobe, ventral view; 27. female pygidium; 28. spermathecal body

three teeth and a protuberance at base of elytra, long mucro at apex of hind tibiae, a pair of eye-like foveae with shiny margin near apex of female pygidium, male genitalia as shown in Figs 25-26.

DESCRIPTION

Length: 1.4-2.7 mm, width: 0.9-1.7 mm. Body short, oval (Fig. 24). Integument light reddish-brown, often with the following parts more or less darkened, especially in females: frons and vertex, apical pronotal margin, humeral edge, scutellum, suture of elytra, middle of elytral interstriae 8-9; antennae and legs mostly yellowish, rarely apical antennal segments homogeneously and elytra beyond half of interstriae 1-2 darker. Vestiture dense, generally covering integument, recumbent; a few areas with denser white hair: sides of pronotum, meso- and metasternites, a small triangle at base of pygidium; pronotal disc with ill-defined median longitudinal whitish band, often with small medial white spot on each side of it; elytra varying from light yellowish- to light reddish-brown, in male with often obscure oblong whitish marks, in female with often darker spots on humeral callus, at about one fourth of elytral length on interstriae 2 and 6, slightly beyond half of interstriae 1-2 (long mark) and interstriae 6-8 (short), somewhat before apex on striae 2 and interstriae 3-5, 8; abdomen ventrally with whitish setae reaching distinctly beyond the apex of the sternites.

Male: Head short, constricted behind eyes; eyes bulging, maximum head width about 1.5 times width behind eyes; ocular sinus deep; ratio of eye width to minimum distance between eyes 1.0-1.1; postocular lobes short; diffuse carina on frons, vertex with diffuse interocular tubercle. Antenna reaching to pronotal base; antennal segments 1-3 cylindrical, segment 4 subserrate, segments 5-10 serrate, segment 11 oval; segment 1 about 1.4 times as long as segments 2, segment 3 slightly longer and narrower than 2 and 4, segments 5-8 becoming steadily wider, segments 8-10 about 1.3 times as wide as long, segment 11 about 1.4 times as long as wide.

Pronotum campaniform, about 1.3-1.4 times as wide as long, greatest width at base, sides slightly bisinuate, disc feebly convex, oblique depression near hind edge; punctures on disc double, coarse punctures irregular spaced, setous; distances between punctures varying from 0 to 1 diameter; cuticle between coarse puncturation with fine punctures and rather coarse microreticulation. Scutellum of moderate size, as long as wide, bifid.

Elytra short, hardly longer than their combined width; sides regular convex; disc flattened to scarcely convex; distinct basal protuberance at striae 3-4 sharply double-toothed; a sharp tooth at extreme base of stria 2, the teeth of striae 3-4 distant from base of elytra by distance equal to about one half of second interstitial width; striae on disc shallow, punctate; punctures with setae and wider than striae, distances between punctures about equal to their diameter; interstriae flat, with strong micropuncturation and irregular row of flat, barely distinguishable coarser punctures.

Legs without sexual dimorphism; hind femora moderately incrassate, at their widest 1.8 times wider than mid femora; mesoventral margin with obtuse but sharp minute preapical denticle; hind tibiae simple, with ventral, lateral and dorsomesal carinae complete, and lateroventral carina incomplete, only at base of tibia, barely distinguishable, apex of tibiae with mucro twice as long as lateral denticle, dorsolateral denticles distinctly shorter than lateral denticle.

Abdomen simple; sternite 1 with basocentral pear-shaped area of dense semierect thinner setae, reaching beyond middle of sternite; sternite 5 emarginate to one third its length; pygidium slightly shorter than wide, convex, convexity becoming steadily stronger towards apex.

Genitalia: Median lobe of moderate length; ventral valve subtriangular, with semicircular row of 6-10 setae in basal half and acute apical tip; internal sac with two median longitudinal rows of 3-6 (mostly 4) large sharp denticles each, denticles with base hardly longer than their point, area of denticles with numerous spines (Fig. 26). Lateral lobes simple, separated to about 0.8 of their length, with 6-9 (mostly 8) setae at apex; tegminal strut partly membranous, with small, often indistinct median carina (Fig. 25).

Female: Pubescence often darker and more striking than in male, with pilosity of pygidium thinner; antennal segment 5 instead of segment 4 subserrate, the following segments slightly wider, pygidium slightly longer than wide, with striking pair of preapical deep eye-like foveae with shiny margin and central area finely micropunctate (Fig. 27), sternite 5 not emarginate. Genitalia: vagina long and membranous; bursa copulatrix with numerous minute spines, without sclerite; spermathecal body pear-shaped, with apical diverticulum basally sharply constricted, long, unevenly curved, pointed at tip; opening of the spermathecal gland duct lateral, remote from spermathecal duct opening (Fig. 28).

AFFINITIES

Bruchidius raddiana is distinguished from the closely related *B. centro-maculatus* by having more remote eyes, weaker teeth at base of elytra, complete shiny margin surrounding deep foveae of female pygidium, shorter median lobe, distinctly lower number of denticles in internal sac, without an ovoid sclerite in bursa copulatrix, and basally constricted apical diverticulum of spermatheca.

ETYMOLOGY

The name refers to larval development in seeds of *Acacia tortilis* (FORSSKAL) HAYNE subsp. *raddiana* (SAVI) BRENAN.

HOST PLANTS

Specimens deposited in MNHN were reared from seeds of *Acacia tortilis raddiana* and *A. gerrardii* BENTH. Other host plants mentioned by various authors include *Acacia ehrenbergiana* HAYNE, *A. farnesiana* (L.) WILLD., *A. gerrardii* subsp. *negevensis* ZOHARY, *A. hockii* DE WILD, *A. nilotica* (L.) DEL. subsp. *tomentosa* (BENTH.) BRENAN, *A. senegal* (L.) WILLD., *A. seyal* DEL., *A. sieberiana* DC., *A.*

tortilis (FORSSKAL) HAYNE and *Dichrostachys cinerea* (L.) WIGHT & AM. It is worth mentioning that numerous samples of *A. senegal*, *A. sieberiana* and *D. cinerea* collected in Senegal did not harbour *B. raddianae*.

DISTRIBUTION

Algeria, Burkina Faso, Egypt, India, Iran, Israel, Jordan, Lybia, Mali, Morocco, Mauritania, Niger, Oman, Saudi Arabia, Senegal, Sri Lanka, Sudan, Tunisia, Yemen.

REMARK

This species was listed in recent papers as *Bruchidius sahelicus* DECELLE (DECELLE 1979, p. 319; NONGONIERMA 1978, vol. 2, t. 176), *B. sahelicus* sensu DECELLE (ANTON 1994a, p. 101; 1994b, p. 111), *B. sahelicus* DECELLE in litt. (BOROWIEC & ANTON 1993, p. 126), *B. sahelicus* in litt. (DECELLE 1979) (ANTON 1999, p. 83), and *Bruchidius* sp. near *arabicus* DECELLE, 1979 (ANTON & al. 1997, p. 64). The description of *B. sahelicus* planned by DECELLE (1979, p. 319) was never published, so that the name is a nomen nudum. We designate here new types and describe the species under a new name, *B. raddianae*, to avoid confusion.

Bruchidius simulans n. sp.

TYPE MATERIAL

Holotype: Male, "Coll. Mus. Tervuren / Kenya: Ngurunit / 30.I.1980 / C. F. Dewhurst", "ex gousses / *Acacia tortilis*", male labelled "albosparsus" [handwritten by J. Decelle], MRAC. Paratypes: 2 males and 3 females, same data as holotype, CKWA and MRAC; 2 males and female, "Coll. Mus. Tervuren / Kenya: Marigat / 16.VI.1980 / C. F. Dewhurst", "ex gousses / *Acacia tortilis*", male and female labelled "albosparsus" [handwritten by J. Decelle], CKWA and MRAC; male and female, "Coll. Mus. Tervuren / Kenya: Kukul OI / Torut 2.VII.1980 / C. F. Dewhurst", "ex gousses / *Acacia tortilis*", CKWA and MRAC; male and female, "Coll. Mus. Tervuren / Kenya: Turkwell / (Lodwar) W. L. Turkana / C. F. Dewhurst", "9.I.1973 / ex gousses / *Acacia tortilis* / *raddiana*", MRAC; female, "Ethiopia, Konso env. / (Gemu Gofa prov.) / iv.1994, lg. K. Werner", CKWA; female, "Ethiopia Ziway / 04.-05.1998 / Malaise-trap / leg. Gemechu Argo", CKWA; 2 males and 3 females, "Ethiopia / Lake / Langano", "sweep-netted / 12.X.1980. No.191 / leg. A. Demeter", CKWA and HNHM; 2 females, "Ethiopia / Lake / Langano", "sweep-netted / 15.X.1980. No.231 / leg. A. Demeter", CKWA and HNHM; male and 2 females, "Ethiopia / Lake Langano / 15.X.1980. No.232 / leg. A. Demeter", CKWA and HNHM; 3 males and 4 females, "Tanzania, N.P. Lake Manyara, I.1996, *Acacia tortilis*, P. Loth", CKWA and LBUW; male and female, "Tanganyika / Dr. Szunyoghy", "Laiwerero / 22.1.1960", CKWA and HNHM; female, "Zimbabwe-SE / N of Chisunbanje [correctly Chisumbanje] /

Nupisi, Niantea riv. / 28.xi.1998, / M. Snížek leg.", CKWA; 5 males and 4 females, " ex gousses / *Acacia tortilis*", "Coll. Mus. Tervuren / Botswana: Gaberones. XI.1985 / W. H. O. Ernst", male labelled "*Bruchidius / sahelicus* Decelle / J. Decelle det. 1986", CKWA, MNHN and MRAC; male, "Coll. Mus. Tervuren / Botswana / ex *Acacia tortilis* / W. H. O. Ernst leg.", MRAC; male and 2 females, "Oranje River / 130 m, 14.IX.", "SWA Namibia / W. Wittmer 1984", CKWA and NHMB; male, "D.SW.-Afrika / Windhoek / Techow S.", "*Bruchidius / sahelicus* n. sp. / J. Decelle det. 1972", MRAC; female, "Windhuk S.W.A. / 19.9.33 F.", MNHN; 2 males, "RSA, N. Cape W. / Garies, Wallenkraal / 17.x.1999 / M. Snížek leg.", CKWA; male, "RSA, N. Cape W. / Springbok, Messelpad / env., 7.xi.1999 / M. Snížek leg.", CKWA; female, "RSA, N. Cape W. / Garies, Nariep / 16.x.1999 / M. Snížek leg.", CKWA; 2 males and 4 females, "Wonderdal Farm / Graaff-Reinet / 800 m, 11.xi.92", "S Africa C.P. / W. Wittmer", CKWA and NHMB; male and female, "22 km Springbok - / Kleinsee 5.X.90", "S Africa / Cape Province / W. Wittmer", NHMB; 2 males, "15 km NE Montagu - / Pietersfont.", "Cape S.Afr. / W. Wittmer 1984", CKWA and NHMB; 23 males and 19 females, "Kenya, Nguruman (712m) / ex *Acacia tortilis* *spirocarpa* / 01°45.837S 36°03.991E / juin 2002 B. Le Ru coll.", MNHN.

DIAGNOSIS

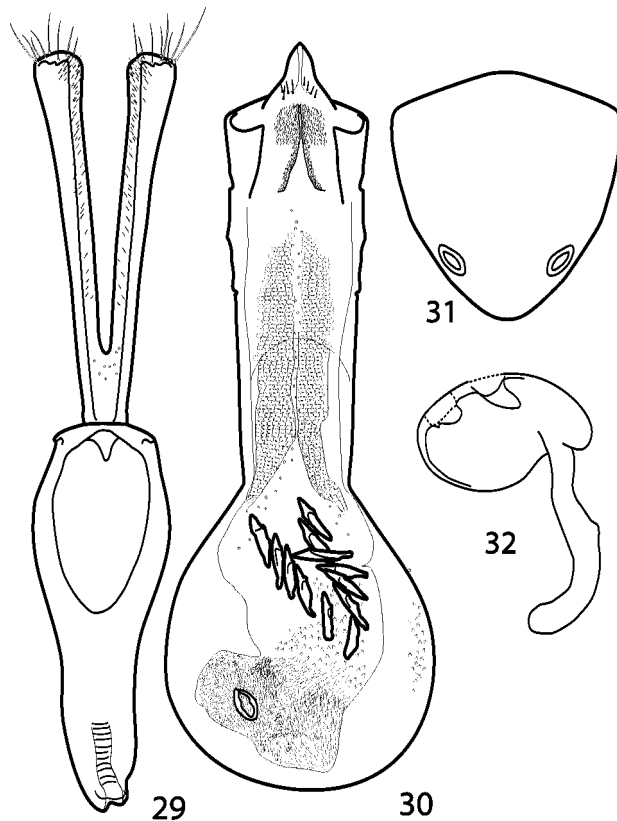
A small-sized species with rather variable colour, from almost uniformly light yellowish to reddish-brown with or without slightly darker and paler spots to distinctly chequered with blackish-brownish and whitish spots, yellowish antennae and legs, three teeth and a protuberance at base of elytra, long mucro at apex of hind tibiae, a pair of eye-like foveae with shiny margin near apex of female pygidium, male genitalia as shown in Figs 29-30.

DESCRIPTION

Length: 1.5-2.9 mm, width: 1.0-1.9 mm. Body short, oval. Integument light reddish-brown, often with the following parts more or less darkened: frons and vertex, apical pronotal margin, humeral edge, scutellum, suture of elytra, middle of elytral interstriae 8-9 and beyond half of interstriae 1-2; antennae and legs mostly yellowish, sometimes elytral sides, abdomen and apical antennal segments darker, except segment 11. Vestiture dense, generally covering integument, recumbent; a few areas with denser white hair: sides of pronotum, meso- and metasternites, a small triangle at base of pygidium; pronotal disc often with ill-defined median longitudinal whitish band and small medial white spot on each side of it; elytra varying from uniformly light yellowish to chequered and reddish-brown, darker form with oblong whitish marks and darker spots on humeral callus, at about one fourth of elytral length on interstriae 2 and 6, slightly beyond basal third of interstriae 1-2 (long mark) and interstriae 6-8 (short), somewhat before apex on striae 2 and interstriae 3-5, 8; abdomen ventrally with whitish setae reaching distinctly beyond the apex of the sternites.

Male: Head short, constricted behind eyes; eyes bulging, maximum head width about 1.4-1.5 times width behind eyes; ocular sinus deep; ratio of eye width to minimum distance between eyes 0.9-1.0; postocular lobes short; diffuse carina on frons, vertex with diffuse interocular tubercle. Antenna reaching to pronotal base; antennal segments 1-3 cylindrical, segment 4 subserrate, segments 5-10 serrate, segment 11 oval; segment 1 about 1.4 times as long as segments 2, segment 3 slightly longer and narrower than 2 and 4, segments 5-8 becoming steadily wider, segments 8-10 about 1.3-1.4 times as wide as long, segment 11 about 1.2-1.3 times as long as wide.

Pronotum campaniform, about 1.4 times as wide as long, greatest width at base, sides slightly bisinuate, disc feebly convex, oblique depression near hind edge; punctures on disc double, coarse punctures irregularly spaced, setous; distance between punctures varying from 0 to 1 diameter; cuticle between coarse puncturation with fine punctures and rather coarse microreticulation. Scutellum of moderate size, as long as wide, bifid.



29-32, *Bruchidius similans*. 29. lateral lobes and tegminal strut, ventral view; 30. median lobe, ventral view; 31. female pygidium; 32. spermathecal body

Elytra short, hardly longer than their combined width; sides regularly convex; disc flattened to scarcely convex; distinct basal protuberance at striae 3-4 sharply double-toothed; a sharp tooth at extreme base of stria 2, the teeth of striae 3-4 distant from base of elytra by distance equal to about one half of second interstitial width; striae on disc shallow, punctate; punctures with setae and wider than striae, distances between punctures about equal to their diameter; interstriae flat, with strong micropuncturation and irregular row of flat, barely distinguishable coarser punctures.

Legs without sexual dimorphism; hind femora moderately incrassate, at their widest 1.7-1.8 times wider than mid femora; mesoventral margin with obtuse but sharp minute preapical denticle; hind tibiae simple, with ventral, lateral and dorsomesal carinae complete, and distinct ventrolateral carina incomplete, tapers off towards apex of tibia, apex of tibiae with mucro 1.5-1.6 times as long as lateral denticle, dorsolateral denticles distinctly shorter than lateral denticle.

Abdomen simple; sternite 1 with basocentral pear-shaped area of dense semierect thinner setae, reaching beyond middle of sternite; sternite 5 emarginate to 0.6 of its length; pygidium about 1.1 times as longer as wide, convex, convexity becoming steadily stronger towards apex.

Genitalia: Median lobe of moderate length; ventral valve subtriangular, with semicircular row of 6-12 setae in basal half and acute apical tip; internal sac with two median longitudinal rows of 3-8 (mostly 5-7) large sharp denticles each, denticles with base about twice as long as their point; area of denticles without spines (Fig. 30). Lateral lobes simple, separated to about 0.8 of their length, with 7-10 (mostly 9-10) setae at apex; tegminal strut partly membranous, with small, often indistinct median carina (Fig. 29).

Female: Pubescence never uniform but chequered, with pilosity of pygidium thinner; antennal segment 5 instead of segment 4 subserrate, the following segments slightly wider, pygidium about 1.2 times longer than wide, with striking pair of preapical deep eye-like foveae with shiny margin and central area finely micropunctate (Fig. 31), sternite 5 not emarginate. Genitalia: vagina long and membranous; bursa copulatrix with numerous minute spines, without sclerite; spermathecal body pear-shaped, with apical diverticulum basally sharply constricted, long, unevenly curved, pointed at tip; opening of the spermathecal gland duct lateral, remote from spermathecal duct opening (Fig. 32).

AFFINITIES

Bruchidius simulans is distinguished from the closely related *B. raddianae* by having longer, distinct ventrolateral carina on hind tibia, slimmer pygidium, on average larger number of denticles in internal sac, distinctly larger base of denticles, no spines in area of denticles, and less sclerotized smaller spines in bursa copulatrix.

ETYMOLOGY

The name refers to the striking similarity in morphological characters, especially the genitalia, with regard to the closest related species, *Bruchidius raddianae*.

Tab. 1: Morphological characters and distribution of the discussed species of *B. centromaculatus* group.

	cretaceus (Pic, 1928)	centromaculatus (Motschulsky, 1874)	meridionalis nov. spec.	raddianae nov. spec.	simulans nov. spec.	elnairensis (Pic, 1931)
Length (mm):	2.1-3.5	2.1-3.1	1.8-2.7	1.4-2.7	1.5-2.9	2.0-2.5
Ratio of eye width to distance between eyes:	1.0-1.1	1.0	1.1	1.0-1.1	0.9-1.0	1.2
Elytral protuberance of striae 3-4:	shallow or absent	shallow or absent	shallow	distinct	distinct	distinct
Ratio of elytral length to elytral width:	1.1	1.1	1.1	1.0	1.0	1.0
Ratio of width of hind femur to mid femur:	1.5	1.5	1.5	1.8	1.7-1.8	1.9
Denticles of internal sac:						
• total number:	32-67	19-44	10-17	6-12	6-16	about 20
• number and location of larger denticles	6-11, basally	5-9, basally	absent	absent	absent	about 12, apically
• ratio of base to point	2.0 (basal ones) 3.5 (remaining)	2.0	1.0	1.0	2.0	variable
• arrangement	3-4 rows	3-4 rows	2 rows	2 rows	2 rows	3 agglomerations
Pygidial foveae:						
• depth	flat	flat	flat	deep	deep	deep
• setation	absent	absent	absent	absent	absent	present
• margin	mesally	absent	absent	complete	complete	complete
Ovoid sclerite in bursa copulatrix:	present	present	present	absent	absent	absent
Spermathecal diverticulum:						
• basal constriction	absent	absent	absent	present	present	absent
• tip	not pointed	not pointed	not pointed	pointed	pointed	not pointed
Distribution:	southern Africa	western Africa, Zaire, Sudan, Egypt, Israel, Saudi Arabia	central Africa, southern Africa	northern Africa, Arabian Peninsula, western Asia	southern Africa, Ethiopia	southern Northafrica, southern Saudi Arabia

HOST PLANT

Acacia tortilis (FORSSKAL) HAYNE, *A. tortilis* subsp. *raddiana* (SAVI) BRENNAN, *A. tortilis* subsp. *spirocarpa* (HOCHST. ex A. RICH.) BRENNAN.

DISTRIBUTION

Botswana, Ethiopia, Kenya, Namibia, South Africa, Tanzania, Zimbabwe.

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We are grateful to Dr. N. BERTI (MNHN), Dr. M. BRANCUCCI and Prof. W. BÜTTIKER (NHMB), Dr. G. FÉDIÈRE (IRD, Cairo), Dr. A. FREIDBERG and J. HALPERIN (TAUI), Dr. M. D. GALLAGHER (ONHM), Dr. Y. JONGEMA (LBUW), Dr. B. LE RU (IRD/ICIPE, Nairobi), Dr. O. MERKL (HNHM), Dr. M. DE MEYER (MRAC), Dr. N. B. NIKITSKY and M. SAVITSKY (ZMUM), Dr. W. SCHAWALLER (SMNS), Dr. M. SCHMITT (ZMFK), Dr. S. L. SHUTE (BMNH), Dr. E. GROBBELAER (NCIP), Dr. H. WENDT (MNHU) and Dr. B. VIKLUND (NHRM), who provided us with type material and bruchid specimens. We thank Dr. Joel CLARY (Lyon) and Dr. Marek WANAT (Wroclaw) for trying to locate type specimens of *B. mimus* and *B. zacheri*. We also thank Dr. Georg GOERGEN (I.T.A., Cotonou, Benin), who took the beautiful photograph of the male of *B. raddianae*.

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