

Four new species of the genus *Sclerum* Dejean (Coleoptera: Tenebrionidae: Opatrini) from South East Asia

ROLAND GRIMM

Abstract

The following new species of the genus *Sclerum* Dejean, 1834 are described: *S. impressicolle* **n. sp.**, *S. impressifrons* **n. sp.**, *S. laoticum* **n. sp.**, and *S. sinuatocolle* **n. sp.** New synonym: *Sclerum elongatulum* (Chatanay, 1917) **n. syn.** = *S. ferrugineum* (Fabricius, 1801). Lectotypes are designated for *Opatrum ferrugineum* Fabricius, 1801, *Scleron denticolle* Fairmaire, 1882, *Scleron discicolle* Reitter, 1904, and *Scleron elongatulum* Chatanay, 1917. New faunistic data of *Sclerum ferrugineum* (Fabricius, 1801) are given.

Key words: Tenebrionidae, Opatrini, *Sclerum*, Asia, new species, lectotype designation, new synonym, new records.

Zusammenfassung

Folgende neue Arten der Gattung *Sclerum* Dejean, 1834 werden beschrieben: *S. impressicolle* **n. sp.**, *S. impressifrons* **n. sp.**, *S. laoticum* **n. sp.** und *Sclerum sinuatocolle* **n. sp.** Neues Synonym: *Sclerum elongatulum* (Chatanay, 1917) **n. syn.** = *S. ferrugineum* (Fabricius, 1801). Lectotypen werden für *Opatrum ferrugineum* Fabricius, 1801, *Scleron denticolle* Fairmaire, 1882, *Scleron discicolle* Reitter, 1904 und *Scleron elongatulum* Chatanay, 1917 designiert. Neunachweise für *Sclerum ferrugineum* (Fabricius, 1801) werden gegeben.

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1 Introduction

The Oriental species of the genus *Sclerum* Dejean, 1834 (Tenebrioninae Latreille, 1802, Opatrini Brullé, 1832) were treated by KASZAB (1942) under the preoccupied name *Scleron* Hope, 1840. Newly collected material in Southeast Asia included different species related to *S. elongatulum* in the sense of KASZAB (1942: fig. 2). The comparison with type specimens revealed that KASZAB (1942) misinterpreted *S. elongatulum* (Chatanay, 1917). In the present paper four new species of *Sclerum* are described, a new synonym is proposed, and new faunistic data of *Sclerum ferrugineum* (Fabricius, 1801) are given. Photographs of the discussed species including their aedeagi are added and an identification key is provided.

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(München) for assistance in loaning type specimens of *Sclerum elongatulum* (Chatanay) from MNHN and JOHANNES REIBNITZ (Stuttgart) for producing the photographs and arranging them on plates. Dr. OTTÓ MERKL (Budapest) and Dr. WOLFGANG SCHAWALLER (Stuttgart) reviewed the manuscript.

Acronyms of depositories

CML	Collection MARTIN LILLIG, Saarbrücken, Germany
CRG	Collection Dr. ROLAND GRIMM, Neuenbürg, Germany
HNHM	Hungarian Natural History Museum, Budapest, Hungary (Dr. OTTÓ MERKL)
MNHN	Muséum National d'Histoire Naturelle, Paris, France (Dr. ANTOINE MANTILLERI)
NBCN	Naturalis Biodiversity Center, Leiden, The Netherlands (Drs. RON FELIX, PASQUALE CILIBERTI)
NHMB	Naturhistorisches Museum Basel, Switzerland (Dr. EVA SPRECHER)
NHMW	Naturhistorisches Museum Wien, Austria (Dr. HARALD SCHILLHAMMER)
SMNS	Staatliches Museum für Naturkunde, Stuttgart, Germany (Dr. WOLFGANG SCHAWALLER)
ZMUC	Zoological Museum of the University Copenhagen, Copenhagen, Denmark (Drs. ALEXEY SOLODOVNIKOV, SREE G. SELVANTHARAN)
ZSM	Zoologische Staatssammlung Munich, Germany (Dr. MICHAEL BALKE)

2 The species

Sclerum ferrugineum (Fabricius, 1801) (Figs. 4, 6)

- Opatrum ferrugineum* Fabricius, 1801 (FABRICIUS 1801: 118)
Opatrum tuberculatum Besser, 1832 (BESSER 1832: 18); GEBIEN
 (1938: 419, syn.)
Scleron denticolle Fairmaire, 1882 (FAIRMAIRE 1882: 219); GEBIEN
 (1906: 217, syn.)
Scleron discicolle Reitter, 1904 (REITTER 1904: 125); GEBIEN (1906:
 217, syn.)
Scleron elongatum Chatanay, 1917 (CHATANAY 1917: 235), **n. syn.**

Type material studied

The type series of *Opatrum ferrugineum* Fabricius, 1801 consists of three specimens with the following labels: First specimen: 19. *ferrugineum* [handwritten on white paper with black frames], *Opatrum ferrugineum* [handwritten by FABRICIUS on white paper], designated herewith as lectotype (ZMUC, formerly Kiel collection). – Second specimen (paralectotype): Java., Mus: T. Lund, *Opatrum ferrugineum* F. [handwritten on white paper with black frames], Type [printed on red label], green square label without text, ZMUC 00508640 [printed on white label]. – Third specimen (paralectotype): Type [printed on red label], green square label without text, ZMUC 00508641 [printed on white label].

Two syntypes of *Scleron denticolle* Fairmaire, 1882 have the following labels: First specimen: type [handwritten on white label], *Scleron denticolle* “n. sp.? [illegible]” [handwritten on white label by FAIRMAIRE], Sum. Exp., Rawas, 5/78 [handwritten on round, white label], Ravas, 5/78 [handwritten on white, square label with black frames], red square label without text; designated herewith as lectotype (NBCN). – Second specimen (paralectotype): type [handwritten on white label], J.C. VAN HASSELT, Boenga Maes, Palemb. [handwritten on round, white label], red square label without text (NBCN).

Five syntypes of *Scleron discicolle* Reitter, 1904 have the following labels: First specimen: Fieber, Mulmein, 1871. [handwritten on white label], *Scleron discicollis* [sic!] m. 1903 [handwritten on white label by REITTER], designated herewith as lectotype (NHMW). – Second specimen (paralectotype): Fieber, Mulmein, 1871. [handwritten on white label], *Scleron discicollis* [sic!] m. 1903 [handwritten on white label by REITTER] (NHMW). – Third specimen (paralectotype): Knb, b [handwritten on white label], *Scleron discicollis* [sic!] m. 1903 [handwritten on white label by REITTER] (NHMW). – Fourth specimen (paralectotype): *Scleron discicollis* [sic!] m. 1903 [handwritten on white label by REITTER] (NHMW). – Fifth specimen (paralectotype): *Tuberculatum*, Ind. Or., Ziegl. [handwritten on white label] (NHMW).

Two syntypes of *Scleron elongatum* Chatanay, 1917 have the following labels: First specimen: Rangoon [handwritten on white mounting card], Type [printed on red label], Museum Paris, Coll. J. CHATANAY 1914 [printed on white label with black frame], *Scleron elongatum* n. sp. [handwritten on white mounting card], designated herewith as lectotype (MNHN). – Second specimen (paralectotype): Rangoon [handwritten on white mounting card], Paratype [printed on red label], Museum Paris, Coll. J. CHATANAY 1914 [printed on white label with black frame], *Scleron elongatum* n. sp. [handwritten on white mounting card] (MNHN).

Additional material studied

Oman, Al Misfah, 23°14'N 58°82'E, 28.III.1996, H. J. BREMER leg., 2 ex. (ZSM). – [India], Andaman Is., Port Blair, South Point, 24.XII.1978, OXELLE [?] leg., 1 ex. (HNHM). – Nepal, Lumbini Dumkibas, Binai River, 27°34'36"N 83°52'18"E, 150 m, 14.VII.2001, A. WEIGEL leg., 2 ex. (SMNS). – Nepal centr., Sauraha, Nat. Park Chitwan, 20.–25.V.1992, I. JENIŠ leg., 1 ex. (CRG). – [Myanmar], Da Yenang Young, Mandalay, 21.–26.V.1885, Fea leg., 2 ex. (HNHM). – Myanmar (labelled as Birmania), Bhamo, III.1885, Fea leg., 6 ex. (HNHM). – Same data, but VIII.1885, Fea leg., 1 ex. (HNHM). – Myanmar (labelled as Birma), Rangoon, Imyalate, 30.VIII.1978, X. BELLÉS leg., 1 ex. (HNHM). – [Myanmar], Tenasserim, Mus. Pragae, Coll. HELFER, 2 ex. (HNHM). – Myanmar (labelled as Birma), Pegu, no date and collector stated, 1 ex. (ZSM). – [Myanmar], Pegu, no date and collector stated, 1 ex. (SMNS). – Myanmar centr. (labelled as Burma), Mandalay, 20.IX.1984, D. GROHMANN leg., 1 ex. (SMNS). – Myanmar (labelled as Burma), Mandalay Division, Bagan (Pagan), Nyaung-u, 29.–31.V.1997, J. REJSEK leg., 3 ex. (SMNS). – Myanmar (labelled as Burma), W Mandalay Division, Bagan, Nyaung-u, 29.–31.V.1997, J. KALÁB leg., 1 ex. (ZSM). – C Myanmar, Mandalay Div., Old Bagan City, V.2005, M. HACKEL & B. BRZINA leg., 1 ex. (SMNS). – Myanmar, SW Shan State, N of Inle Lake, Nyaungshwe, 7.–16.VI.1997, J. KALÁB leg., 1 ex. (ZSM). – Myanmar, SW Shan State, Taunggyi, 1.–18.VI.1997, J. REJSEK leg., 3 ex. (SMNS). – Myanmar, SW Shan State, Taunggyi, 20°50'N 97°00'E, 1.–18.VI.1997, J. KALÁB leg., 12 ex. (CML). – NW Thailand, Mae Hong Son, 18.–19.XI.1998, R. GRIMM leg., 6 ex. (CRG). – Same data, but 17.–18.V.1999, R. GRIMM leg., 2 ex. (CRG). – Same data, but 14.–16.V.2006, R. GRIMM leg., 1 ex. (CRG). – Same data, but 29.IV.1992, J. HORÁK leg., 1 ex. (ZSM). – NW Thailand, Mae Hong Son Prov., Mae Sariang, 20.XI.1998, R. GRIMM leg., 1 ex. (CRG). – NW Thailand, Mae Hong Son Prov., Ban Huai Po, 1600–2000 m, 9.–16.V.1991, J. HORÁK leg., 15 ex. (ZSM), 2 ex. (CRG). – NW Thailand, Mae Hong Son Prov., Huai Suai Tao, 11.–17.V.1992, L. DEMBICKÝ leg., 1 ex. (ZSM). – NW Thailand, Mae Hong Son Prov., Soppong (Pangmapa), 4.V.2004, R. GRIMM leg., 4 ex. (CRG), 2 ex. (SMNS). – NW Thailand, Mae Hong Son Prov., Soppong, 750 m, 19°27'N 98°20'E, 10.–13.V.1993, L. BOČÁK leg., 1 ex. (CML), 2 ex. (SMNS). – Same data, but V. KUBÁŇ leg., 14 ex. (SMNS). – NW Thailand, Mae Hong Son Prov., Soppong-Pai, 19°27'N 98°20'E, 1500 m, 7.–12.V.1996, J. HORÁK leg., 5 ex. (ZSM). – NW Thailand, Mae Hong Son Prov., 6 km E Pai, 16.XI.1998, R. GRIMM leg., 8 ex. (CRG), 10 ex. (SMNS). – NW Thailand, Mae Hong Son Prov., 5 km E Pai, 700 m, 19.IV.2004, W. SCHAWALLER leg., 2 ex. (SMNS). – NW Thailand, Mae Hong Son Prov., Pai, 16.–17.XI.1998, R. GRIMM leg., 13 ex. (CRG), 13 ex. (CML), 1 ex. (ZSM). – Same data, but 17.–19.IV.2004, R. GRIMM leg., 1 ex. (CRG). – Same data, but 15.–16.V.1999, R. GRIMM leg., 1 ex. (CRG). – Same data, but 18.V.2006, R. GRIMM leg., 1 ex. (CRG). – NW Thailand, Mae Hong Son Prov., Pai, Thapai Hot Springs, 6.V.2004, R. GRIMM leg., 5 ex. (CRG), 2 ex. (SMNS). – N Thailand, Chiang Rai, 25.XI.1998, R. GRIMM leg., 1 ex. (CRG). – Same data, but 20.–21.V.1999, R. GRIMM leg., 1 ex. (CRG). – NW Thailand, Chiang Mai Prov., Ban San Pakia, 1700 m, 25.IV.–7.V.1996, S. BILÝ leg., 5 ex. (ZSM). – Thailand, Chiang Mai Prov., Doi Inthanon, Bang Khu Klong, 1200 m, 21.V.–5.VI.1983, MALICKÝ leg., 1 ex. (CRG). – Thailand, Chiang Mai Prov., N Chiang Mai, 8 km NE Mae Malai, W Cho Lae, 14.V.1991, R. GRIMM leg., 3 ex. (CRG). – Thailand, Chiang Mai Prov., 41 km N Chiang Mai, 18.VIII.1995, R. GRIMM leg., 6 ex. (CRG). – Thailand, Chiang Mai Prov., NNW Chiang Mai, W Mae Taeng, Ban Huai Bong, 15.V.1999, R.

- GRIMM leg., 1 ex. (CRG). – Thailand, Chiang Mai Prov., NNE Chiang Mai, Mae Ngad Dam, 20.VIII.1995, R. GRIMM leg., 2 ex. (CRG). – Thailand, Chiang Mai Prov., NNE Chiang Mai, 5 km E Mae Ngad Dam, 20.VIII.1995, R. GRIMM leg., 20 ex. (CRG), 2 ex. (CML), 2 ex. (ZSM). – Thailand, Chiang Mai Prov., NNE Chiang Mai, 9 km E Mae Ngad Dam, 20.VIII.1995, R. GRIMM leg., 1 ex. (CRG). – Thailand, Chiang Mai Prov., NE Chiang Mai, Ban Mae Che-di, 21.VIII.1995, R. GRIMM leg., 3 ex. (CRG). – Thailand, NWW Chiang Mai, Doi Suthep, 1200 m, 27.–29.IV.2004, R. GRIMM leg., 1 ex. (CRG). – Thailand, Chiang Mai, 18.–25.VI.1988, MALICKY leg., 1 ex. (CRG). – Thailand, Chiang Mai Prov., Amphoe Samoeng, Doi Daen, 100 m, 22.XII.1988, TRAUTNER & GEIGENMÜLLER leg., 1 ex. (SMNS). – Thailand, Chiang Mai, 250 m, 21.–24.XII.1988, TRAUTNER & GEIGENMÜLLER leg., 1 ex. (SMNS). – Thailand, Chiang Mai, 17.V.1987, K. AKIYAMA leg., 2 ex. (HNHM). – Same data, but 26.XII.1994, R. GRIMM leg., 2 ex. (CRG). – Thailand, Chiang Mai Prov., 10 km E Chiang Mai, 24.XII.1994, R. GRIMM & A. RACHINSKY leg., 1 ex. (CRG). – Thailand, Chiang Mai Prov., Chom Thong, 24.–27.IV.1991, J. HORÁK leg., 6 ex. (ZSM), 1 ex. (CRG). – Thailand, Lampang Prov., NW Lampang, Elephant Conservation Centre, 25.XII.1994, R. GRIMM & A. RACHINSKY leg., 2 ex. (CRG). – Thailand, 80 km SE Lampang, 17°37'55"N 99°14'16"E, 15.IV.2003, J. SCHÖNFELD leg., 1 ex. (SMNS). – Thailand, NE San Kamphaeng, Roong Aroon Hot Springs, 28.V.1999, R. GRIMM leg., 2 ex. (CRG). – Thailand, Kamphaeng Phet, 5.XII.2001, R. GRIMM leg., 3 ex. (CRG). – W Thailand, Uthai Thani Prov., 3 km W Ban Rai, 1.I.1992, THIELEN leg., 24 ex. (CRG). – Thailand, Phrae Prov., Amphoe Wang Ching, Ban Den, 200 m, 26.–29.XII.1988, TRAUTNER & GEIGENMÜLLER leg., 1 ex. (SMNS). – Thailand, Sukhotai Prov., Old Si Sanchanalai, 25.V.1999, R. GRIMM leg., 1 ex. (CRG). – Thailand, Sukhotai Prov., Old Sukhotai, 26.V.1999, R. GRIMM leg., 2 ex. (CRG). – Thailand, Sukhotai, 25.–26.V.1999, R. GRIMM leg., 1 ex. (CRG). – Thailand, Ayuthaya, Wat Srisanpeth, 14°21'2"N 100°33'34"E, 14.IV.2003, J. SCHÖNFELD leg., 1 ex. (SMNS). – Thailand, Nakhon Ratchasima Prov., Pak Thong/Khao Yai, 14°50'N 102°44'E, 25.VIII.1996, M. HAUSER leg., 3 ex. (SMNS). – Thailand, NW Nakhon Sawan, Khao Noh, 29.XI.2001, R. GRIMM leg., 4 ex. (CRG), 1 ex. (CML). – Thailand, Chaiyaphum Prov., Tad Tone Nat. Park, 4.XII.2001, R. GRIMM leg., 1 ex. (CRG). – W Thailand, Kanchanaburi, 31.III.–1.IV.1994, J. HORÁK leg., 10 ex. (ZSM). – Thailand, Kanchanaburi, 150 m, 14°02'N 99°31'E, 3.–7.IV.1991, V. KUBÁŇ leg., 1 ex. (ZSM). – Same data, but S. BILÝ leg., 1 ex. (CRG). – W Thailand, Kanchanaburi Prov., Sangkhlaburi, XI.1994, J. REJSEK leg., 3 ex. (SMNS). – Thailand, Kanchanaburi Prov., Erawan Nat. Park, Erawan Waterfall, 14.II.1994, S. & L. MAHUNKA leg., 1 ex. (HNHM). – N Thailand, Nan, 23.–24.XI.1998, R. GRIMM leg., 11 ex. (CRG), 3 ex. (CML), 21 ex. (SMNS), 1 ex. (ZSM). – Same data, but 22.–24.V.1999, R. GRIMM leg., 2 ex. (CRG), 2 ex. (CML). – Same data, but 24.–26.XI.2001, R. GRIMM leg., 1 ex. (CRG). – Same data, but 2.–4.V.2003, R. GRIMM leg., 2 ex. (CRG). – N Thailand, Nan Prov., NWW Nan, 30.IV.–2.V.2004, R. GRIMM leg., 7 ex. (CRG), 6 ex. (SMNS). – N Thailand, Nan Prov., 50 km NNE Nan, Doi Phu Kha Nat. Park, 28.VI.–1.VII.1997, J. KALÁB leg., 1 ex. (ZSM). – N Thailand, Nan Prov., Doi Phu Kha Nat. Park, 50 km NNE Nan, 28.VI.–1.VII.1997, J. REJSEK leg., 1 ex. (SMNS). – Thailand, Nakhon Nayok Prov., Wang Takrai Park, 4.–7.IX.1978, H. J. BREMER leg., 1 ex. (HNHM), 1 ex. (ZSM). – NE Thailand, Khon Kaen, 20.–25.III.1980, S. SAOWAKONTHA leg., 4 ex. (ZSM). – Same data, but 19.–21.VI.1980, S. SAOWAKONTHA leg., 1 ex. (HNHM), 2 ex. (ZSM). – Same data, but 22.X.1980, S. SAOWAKONTHA leg., 3 ex. (ZSM). – Same data, but 23.XI.1980, S. SAOWAKONTHA leg., 7 ex. (HNHM), 2 ex. (ZSM). – Same data, but 19.VI.1997, C. W. & B. O'BRIEN leg., 1 ex. (HNHM). – Same data, but 10.–15.IX.1978, H. J. BREMER leg., 1 ex. (HNHM), 7 ex. (ZSM). – Same data, but 26.V.1979, S. AUPHAMSIRI leg., 1 ex. (HNHM). – NE Thailand, Loei, 30.XI.–2.XII.2001, R. GRIMM leg., 3 ex. (CRG). – Same data, but 6.–7.V.2003, R. GRIMM leg., 1 ex. (CRG). – NE Thailand, Loei Prov., 32 km S Loei, 1.XII.2001, R. GRIMM leg., 6 ex. (CRG). – Thailand, Roi Et Prov., Kaset Wisai, 150 m, 14.XII.1988, TRAUTNER & GEIGENMÜLLER leg., 1 ex. (SMNS). – E Thailand, Roi Et, 3.XII.2001, R. GRIMM leg., 3 ex. (CRG). – SE Thailand, Chanthaburi Prov., 80 km N Chanthaburi, Rakam env., 22.–24.V.2003, O. ŠAFRÁNEK leg., 3 ex. (SMNS). – SE Thailand, Chanthaburi Prov., Khao Soi Dao, 5.–6.V.1998, J. HORÁK leg., 3 ex. (ZSM). – S Thailand, Surat Thani Prov., Khao Sok rainforest, 38 km E Tukua Pa, 21.XI.1995, J. REJSEK leg., 1 ex. (SMNS). – S Thailand, Chumphon Prov., Pha to env., 9°48'N 98°47'E, 27.II.–14.IV.1996, K. MAJER leg., 1 ex. (SMNS). – Thailand, Nakhon Pathom Prov., Kampangsaen Nat. Bio. Contr. Res. Center, 9.X.1995, W. SUASA-ARD leg., 9 ex. (HNHM). – Same data, but 5.XI.1995, W. SUASA-ARD leg., 8 ex. (HNHM). – Thailand, Phetcha Buri Prov., Kaeng Krachan Nat. Park, Reservoir, 6.–10.II.1994, S. & L. MAHUNKA leg., 8 ex. (HNHM). – Same data, but headquarters, 8.II.1994, S. & L. MAHUNKA leg., 2 ex. (HNHM). – Laos, Dong Dok, 20.III.1990, E. KONDOROSY leg., 3 ex. (HNHM). – Laos, Vientiane, 19.–20.III.1998, O. MERKL & G. CSORBA leg., 3 ex. (HNHM). – Same data, but 9.–10.IV.1998, O. MERKL & G. CSORBA leg., 1 ex. (HNHM). – Laos, Vientiane Prov., Vang Vieng, 31.III.1998, O. MERKL & G. CSORBA leg., 1 ex. (HNHM). – Laos, Vientiane Prov., 55 km NE Vientiane, Lao Pako env., 200 m, 1.–4.V.2004, J. BEZDĚK leg., 8 ex. (SMNS). – Laos, Champassak Prov., 25 km SE of Pakxe, 200 m, 14°58'N 105°55'E, 30.III.1998, O. MERKL & G. CSORBA leg., 1 ex. (HNHM). – Laos, Bolikhamsay Prov., Phou Khao Kouay Nat. Biod. Cons. Area, Tad Leuk Waterfall, 280 m, 11.–12.IV.1998, O. MERKL & G. CSORBA leg., 4 ex. (HNHM). – C Laos, Khammouan Prov., Ban Khoun Ngeum, 200 m, 18°07'N 104°29'E, 24.–29.IV.2001, L. DEMBICKÝ leg., 2 ex. (SMNS). – C Laos, Khammouan Prov., Ban Khoun Ngeum, 300 m, 17.V.–6.VI.2007, M. ŠTRBA leg., 8 ex. (SMNS). – Laos, Borikhan Prov., 20 km N Muang Pakxan, Borikhan env., 16.–20.V.2003, O. ŠAFRÁNEK leg., 6 ex. (SMNS). – C Laos, Boli Kham Xai Prov., 8 km E Ban Nape, 500 m, 18°21'N 105°08'E, 1.–18.V.2001, L. DEMBICKÝ leg., 2 ex. (SMNS). – Same data, but 19.–31.V.2001, L. DEMBICKÝ leg., 2 ex. (SMNS). – S Vietnam, 40 km S An Keh, Buon Luoi, 620–750 m, 14°10'N 108°30'E, 28.III.–12.IV.1995, P. PACHOLÁTKO & L. DEMBICKÝ leg., 14 ex. (ZSM), 3 ex. (CRG). – S Vietnam, Nam Cat Tien Nat. Park, 1.–15.V.1994, P. PACHOLÁTKO & L. DEMBICKÝ leg., 3 ex. (ZSM). – S Vietnam, Dalai city, 18.–24.IV.1994, J. ZACHARDA leg., 1 ex. (ZSM). – S Vietnam, 13 km SW Bao Loc, 13.–22.V.1994, J. ZACHARDA leg., 1 ex. (ZSM). – Philippines, no location and date stated, "HEYN." leg., 1 ex. (ZSM). – Philippines, Luzon, Kian-gan/Ifugao, III.1983, MARGRAF leg., 4 ex. (SMNS). – Borneo, Sabah, Ranau, 1500 m, 1.VIII.1985, K. AKIYAMA leg., 1 ex. (HNHM). – Borneo, Malaysia, Sabah, Mt. Kinabalu Nat. Park, Serinsim substation, 6°12'N 116°33'E, 180–250 m, 30.VIII.1998, D. BARTSCH & C. HAUSER leg., 1 ex. (SMNS). – Borneo, Sabah, Poring Hot springs, 450–600 m, 9.–11.III.2007, W. SCHAWALLER leg., 1 ex. (SMNS). – Borneo, E Malaysia, Sabah, Crocker Range, Gunung Emas, 15.–27.IV.1993, JENIŠ & ŠTRBA leg., 3 ex. (ZSM). – Borneo, E Malaysia, Sabah, Keningau, 300 m, 26.–28.I.2010, R. GRIMM leg., 2 ex. (CRG). – Borneo, E Malaysia, Sabah, Tambunan, 500 m, 28.–31.III.2007, R. GRIMM leg., 3 ex. (CRG). – Same data, but 30.I.2010, R. GRIMM leg., 1 ex. (CRG). – Same data, but 4.–8.II.2014, R. GRIMM leg., 1 ex. (CRG). –

Borneo, Malaysia, Sabah, Batu Punggul Resort, 24.VI.–1.VII.1996, J. KODADA leg., 2 ex. (SMNS). – Indonesia, Sulawesi (labelled as Celebes), location illegible, no date stated, O. BECCARI leg., 2 ex. (ZSM). – Indonesia, Sulawesi, Pandang, 5.VII.1996, SCHÜLE & STÜBEN leg., 2 ex. (SMNS). – Indonesia, Java centr., 30 km SW Yogyakarta, secondary forest, 15.III.1995, H. J. BREMER leg., 2 ex. (ZSM). – Indonesia, Bali, Margarena, 15 km E Gilimanuk, 22.II.1994, BOLM leg., 1 ex. (SMNS). – Indonesia, Bali, Sanur, 9.–22.XII.2007, R. GRIMM leg., 1 ex. (CRG). – Indonesia, Lombok, Senaro, N slope of Rinjani, 1100 m, 2.–5.II.1994, BOLM leg., 8 ex. (SMNS). – Indonesia, NE Sumbawa, Calabai, Tambora Nat. Park, 11.–13.II.1994, BOLM leg., 2 ex. (SMNS). – [Indonesia], Saleyer, XII.1880, H. E. D. ENGELHARD leg., 1 ex. (NBCN). – [Indonesia, Java], Jakarta (labelled as Batavia), SYTHOFF leg., 1 ex. (NBCN). – [Indonesia, Java], Jakarta (labelled as Batavia), II.1949, C. v. NIDEK leg., 1 ex. (NBCN). – [Indonesia, Java, Ardjoena, HEKMEYER leg., 2 ex. (NBCN). – [Indonesia], Poeloe-Katela, 23.–28.XI.1880, H. E. D. ENGELHARD leg., 1 ex. (NBCN). – [Indonesia], Java, Banjoe-wangi, 1909, MACGILLAVRY leg., 2 ex. (NBCN). – [Indonesia], Java, Djokjakarta, 1933, H. OVERBECK leg., 2 ex. (NBCN). – [Indonesia], Kisser-Ins. [I. Kisar NE Timor], V.1901, 1 ex. (HNHM).

Synonymy

CHATANAY (1917) separated *Sclerum elongatum* (Chatanay, 1917) from *Sclerum ferrugineum* (Fabricius, 1801) mainly by the small body size. The body size of *Sclerum ferrugineum* (Fabricius, 1801) is highly variable: body length 5.2–7.1 mm, body width 2.3–3.1 mm. The study of type-specimens of *S. elongatum* revealed that these are smaller (body length 5.7–6.0 mm, body width 2.3–2.6 mm) specimens of FABRICIUS' (1801) *S. ferrugineum*, so *S. elongatum* is considered as a junior synonym of *S. ferrugineum*.

Distribution

India; Indonesia: Java, Sumatra, Sumbawa; Myanmar; Nepal; Philippines: Mindoro, Luzon; "S. China"; Taiwan; Vietnam (CHATANAY 1917, FABRICIUS 1801, FAIRMAIRE 1882, 1893, KASZAB 1942, LÖBL & SMETANA 2008, REITTER 1904, SCHAWALLER 2012). E Malaysia; Indonesia: Bali, Kisar, Sulawesi, Selayar; Oman; Thailand (new records).

Sclerum impressicollis n. sp. (Figs. 3, 7)

Holotype ♂: NW Thailand, Mae Hong Son, 18.XI.1998, R. GRIMM leg. (CRG).

Paratypes: Same data as holotype, but 17.–18.V.1999, R. GRIMM leg., 2 ♀♀ (CRG). – Thailand, Doi Mae Ya, 19°16'N 98°35'E, 19.V.1993, V. KUBÁŇ leg., 1 ex. (SMNS). – Thailand, Soppong, 750 m, 19°29'N 98°18'E, 13.V.1993, L. BOČÁK leg., 2 ex. (CML). – Thailand, Soppong, 1500 m, 19°27'N 98°20'E, 10.–13.V.1993, L. BOČÁK leg., 2 ex. (CRG), 11 ex. (SMNS). – Same data, but V. KUBÁŇ leg., 3 ex. (CRG), 3 ex. (HNHM), 25 ex. (SMNS). – NW Thailand, Mae Hong Son Prov., Soppong-Pai, 19°27'N 98°20'E, 1500 m, 7.–12.V.1996, J. HORÁK

leg., 4 ex. (ZSM). – NW Thailand, Mae Hong Son Prov., Ban Huai Po, 1600–2000 m, 9.–16.V.1991, J. HORÁK leg., 6 ex. (ZSM), 1 ex. (CRG). – NW Thailand, Chiang Mai Prov., Ban San Pakia, 1700 m, 25.IV.–7.V.1996, S. BILÝ leg., 2 ex. (ZSM). – Thailand, Chiang Mai Prov., Chom Thong, 24.–27.IV.1991, J. HORÁK leg., 1 ex. (ZSM). – [India], Calcutta, no date and collector stated, 1 ex. (HNHM).

Etymology

Impressus (Lat.) = impressed combined with *collum* (Lat.) = neck (refers in this case to the pronotum).

Description

Oblong, subparallel-sided, ferruginous, whole surface rather densely micro-granulate, matt to faintly shining. Body length 4.8–5.5 mm, body width 2.1–2.5 mm.

Head widest at middle of rounded genae and here somewhat wider than at eye level; anterior border of clypeus arcuate from gently notched clypeo-genal meeting to V-shaped emargination in the middle; between clypeus and frons with transversal elevation, behind this broadly, transversely furrowed; at the inner border of eyes with high elevation; in the middle between the eye elevations with elevation composed of high tubercles. Surface predominantly granulate, except of transversal furrow. Each granule bearing scale-like seta.

Pronotum transverse, with disc transversely convex; sides broadly explanate in about apical three-fifths; widest behind middle, thence at first subparallel then arcuate towards anterior angles, deeply emarginate towards posterior angles, so that the explanation is narrow basally. Lateral border of strongly explanate part basally blunt. Base wider than apex, slightly notched in the middle, nearly straight towards, but emarginate before posterior angles. Apex in the middle with transverse bulge. Anterior angles subrectangular, protruding beyond apical border. Posterior angles acute, tooth-like. Convex disc latero-basally with deep, round impression. Surface covered with setigerous granules as on head.

Elytra elongate, subparallel-sided for about two-thirds of their length, then broadly arcuate towards apices. Intervals predominantly with one row of small setigerous granules, only basally thickened parts of elevated intervals partly with two rows. 3rd, 5th, and 7th intervals elevated and somewhat thickened at base; intermediate intervals less prominent. Seriate setigerous punctures large and deep; between 7th interval and lateral border with 3 rows of punctures.

Legs: Tarsi laterally compressed.

Aedeagus see Fig. 7.

Differential diagnosis

Sclerum impressicollis n. sp., *S. impressifrons* n. sp., and *S. sinuatocolle* are similar in body size and shape. In *S. impressifrons* n. sp. and *S. sinuatocolle* n. sp., how-



Figs. 1–5. *Sclerum* spp., dorsal view. – 1. *S. sinuatocolle* n. sp., ♂ holotype (NHMB). 2. *S. impressifrons* n. sp., ♂ holotype (CRG). 3. *S. impressicolle* n. sp., ♂ holotype (CRG). 4. *S. ferrugineum* (Fabricius), non-type (CRG). 5. *S. laoticum* n. sp., ♂ holotype (SMNS).



Figs. 6–10. *Sclerum* spp., aedeagi, dorsal (left) and lateral (right) views. – 6. *S. ferrugineum* (Fabricius), non-type (CRG). 7. *S. impressicolle* n. sp., paratype (CRG). 8. *S. impressifrons* n. sp., holotype (CRG). 9. *S. laoticum* n. sp., holotype (SMNS). 10. *S. sinuatocolle* n. sp., holotype (NHMB).

ever, the posterior corner of the broadly explanate part of the pronotum is not blunt, but is forming an angulation (*S. impressifrons* n. sp.) or is tooth-like (*S. sinuatocolle* n. sp.). The three species can also be recognized by the distinctly different shape of the aedeagus (compare Figs. 7, 8, 10).

Sclerum impressifrons n. sp.
(Figs. 2, 8)

Holotype ♂: Thailand, Mae Hong Son Prov., Soppong (Pangmapa), 4.V.2004, R. GRIMM leg. (CRG).

Paratypes: Same data as holotype, 3 ex. (CRG). – Thailand, Mae Hong Son, 26.–27.IV. 2003, R. GRIMM leg., 1 ♂ (SMNS).

Etymology

Impressus (Lat.) = impressed combined with *frons* (Lat.) = forehead, front.

Description

Oblong, subparallel-sided, ferruginous, whole surface rather densely micro-granulate, matt to faintly shining. Body length 4.5–4.7 mm, body width 1.9–2.1 mm.

Head widest at basal part of genae and here wider than at eye level; anterior border of clypeus arcuate from gently notched clypeo-genal meeting to U-shaped emargination in the middle; between clypeus and frons with transversal elevation, behind this broadly, transversely furrowed; at the inner border of eyes with high elevation; in the middle between the eye elevations with elevation composed of high tubercles. Surface predominantly granulate, except of transversal furrow. Each granule bearing scale-like seta.

Pronotum transverse, with disc transversely convex; sides broadly explanate in about apical three-fifths; widest behind middle, thence at first shallowly emarginate then arcuate towards anterior angles, deeply emarginate towards posterior angles, so that the explanation is narrow basally. Lateral border of strongly explanate part basally forming a blunt tooth. Base about as wide as apex, bisinuate. Apex in the middle with transverse elevation. Anterior angles acute, protruding beyond apical border. Posterior angles acute, tooth-like. Convex disc latero-basally with impression. Surface covered with setigerous granules as on head.

Elytra elongate, subparallel-sided for about two-thirds of their length, then broadly arcuate towards apices. Intervals predominantly with one row of small setigerous granules, only 2nd interval on basally thickened part and on apical declivity partly with two irregular rows. Intervals nearly equal, only 2nd interval slightly more elevated, especially basally. Seriate setigerous punctures large and deep; between 7th interval and lateral border with 3 rows of punctures.

Legs: Tarsi laterally compressed.

Aedeagus see Fig. 8.

Differential diagnosis

Sclerum impressifrons n. sp. shares with *S. sinuatocolle* n. sp. the distinct posterior corner basally of the broadly explanate part of the pronotum which is tooth-like in *S. sinuatocolle* n. sp., but only angulate in *S. impressifrons* n. sp. In *S. sinuatocolle* n. sp. the body is wider on average (body width 2.1–2.7 mm) than in *S. impressifrons* n. sp. (body width 1.9–2.1 mm). Both species differ distinctly in the shape of the aedeagus (Figs. 8, 10).

Sclerum sinuatocolle n. sp.

(Figs. 1, 10)

Holotype ♂: Thailand, Umphang, 500 m, 16°04'N 98°53'E, 26.IV.–6.V.1991, D. KRÁL leg. (NHMB).

Paratypes: Same data as holotype, 5 ex. (NHMB), 1 ex. (CRG). – Thailand, Lansang Nat. Park, 500 m, 16°48'N 98°57'E, 18.–24.IV.1991, D. KRÁL leg., 3 ex. (NHMB). – Nepal, Sauraha, Chitwan Nat. Park, 20.–25.V.1992, I. JENIŠ leg., 1 ex. (CRG). – Same data, but J. MORAVEC leg., 1 ex. (NHMB). – C Laos, Boli Kham Xai Prov., 8 km NE Ban Nape, 600 m, 18°21'N 105°08'E, 1.–18.V.2001, L. DEMBICKÝ leg., 3 ex. (SMNS). – Laos, Vientiane Prov., 55 km NE Vientiane, Lao Pako env., 200 m, 1.–4.V.2004, J. BEZDĚK leg., 1 ex. (SMNS). – Laos, Oudom Xay Prov., Muang Pak Ben env., 4.–8.V.2003, O. ŠAFRÁNEK leg., 1 ex. (SMNS). – NE Laos, Vientiane, Suka, 1.II.1986, KABAKOV leg., 1 ex. (HNHM). – Myanmar, Shwegu (labelled as Birmania, Schwegoo Myo), no date and collector stated, 1 ex. (SMNS). – Myanmar (labelled as Birma), Inya Lake, 30.VIII.1978, X. BELLÉS leg., 3 ex. (HNHM). – [India], I. Andaman, 1877, DEYROLLE leg., 2 ex. (HNHM).

Etymology

Sinuatus (Lat.) = sinuate, combined with collum (Lat.) = neck (refers in this case to the pronotum).

Description

Oblong, subparallel-sided, ferruginous to piceous, whole surface rather densely micro-granulate, matt to faintly shining. Body length 4.9–5.8 mm, body width 2.1–2.7 mm.

Head widest at basal part of genae and here slightly wider than at eye level; anterior border of clypeus arcuate from clypeo-genal meeting to V-shaped emargination in the middle; between clypeus and frons with transversal elevation, behind this broadly, transversely furrowed; at inner border of eyes with high elevation; in the middle between the eye elevations with elevation composed of high tubercles. Surface predominantly granulate, except of transversal furrow. Each granule bearing scale-like seta.

Pronotum transverse, with disc transversely convex; sides broadly explanate in about apical three-fifths; widest behind middle, thence at first shallowly emarginate then arcuate towards anterior angles, deeply emarginate towards posterior angles, so that the explanate is narrow basally. Lateral border of strongly explanate part basally tooth-like or at least angulate. Base somewhat wider than apex, bisinuate. Apex in the middle with transverse bulge. Anterior angles subrectangular, protruding beyond apical border. Posterior angles acute, tooth-like. Convex disc latero-basally with impression. Surface covered with setigerous granules as on head.

Elytra elongate, subparallel-sided for about two-thirds of their length, then broadly arcuate towards apices. Intervals predominantly with one row of small setigerous granules, only basally thickened parts of elevated intervals partly with two rows. 3rd, 5th, and 7th intervals elevated and slightly thickened at base; intermediate intervals less

prominent. Seriate setigerous punctures large and deep; between 7th interval and lateral border with 3 rows of punctures.

Legs: Tarsi laterally compressed.

Aedeagus see Fig. 10.

Differential diagnosis

See under *Sclerum impressifrons* n. sp.

Sclerum laoticum n. sp.

(Figs. 5, 9)

Holotype ♂: Laos, S Udomxai Prov., Pak Beng, 450 m, 19°53'37"N 101°07'50"E, 18.–27.V.2001, J. KOLIBÁČ leg. (SMNS).

Paratypes: Same data as holotype, 1 ♀ (SMNS), 1 ♂ (CRG). – Laos, Lao Muang env., V.2004, O. ŠAFRÁNEK leg., 2 ♂♂ (SMNS).

Etymology

The species name refers to Laos where the type series was collected.

Description

Oblong, subparallel-sided, blackish brown to black, whole surface rather densely micro-granulate, faintly shining. Body length 7.2–8.0 mm, body width 3.0–3.4 mm.

Head widest between genae and here only slightly wider than at eye level; anterior border of clypeus arcuate from gently notched clypeo-genal meeting to V-shaped emargination in the middle; between clypeus and frons with transversal elevation, behind this broadly, transversely furrowed; at inner border of eyes with high elevation. Clypeus, transversal elevation, apical slope of genae, elevations at inner border of eyes, frons in the middle and latero-apically granulate. Each granule bearing scale-like seta.

Pronotum transverse, with disc transversely convex; sides explanate in about apical three-quarters; widest behind middle, thence at first subparallel then arcuate towards anterior angles, abruptly and deeply emarginate towards posterior angles. Lateral border of explanate part basally rounded. Base as wide as apex, shallowly bisinuate, in the middle protruding posteriorly and arcuate, only slightly emarginate before posterior angles. Apex feebly bisinuate, in the middle with transverse bulge. Anterior angles acute, protruding beyond apical border. Posterior angles acute, toothlike. Surface covered with setigerous granules as on head.

Elytra elongate, subparallel-sided for somewhat more than half of their length, then broadly arcuate towards apices; with rows of setigerous punctures, and slightly convex intervals with single rows of small setigerous granules. Punctural rows somewhat broader than intervals. 3rd, 5th, and 7th intervals only slightly more raised than remaining

intervals; between 7th interval and lateral border with 3 rows of punctures.

Legs: Tarsi cylindrical.

Aedeagus see Fig. 9.

Differential diagnosis

In *Sclerum laoticum* n. sp. the lateral border of the pronotum behind the middle is deeply emarginate as in *S. impressicollis* n. sp., *S. impressifrons* n. sp., and *S. sinuato-collis* n. sp., but it is distinguished by the larger body size, the cylindrical tarsi which are not depressed laterally, and the shape of the aedeagus (Fig. 9).

3 Key to species of *Sclerum* described and discussed in this paper

- 1 Lateral border of pronotum behind the middle only weakly emarginate; body shape see Fig. 4, aedeagus see Fig. 6. *ferrugineum*
- Lateral border of pronotum behind the middle strongly emarginate. **2**
- 2 Larger, body length over 7 mm; tarsi cylindrical; body shape see Fig. 5, aedeagus see Fig. 9. *laoticum* n. sp.
- Smaller species, body length under 6 mm; tarsi laterally compressed. **3**
- 3 Outer corner of pronotum at base of broadly explanate part blunt, body shape see Fig. 3, aedeagus see Fig. 7. *impressicollis* n. sp.
- Outer corner of pronotum at base of broadly explanate part at least somewhat angulate or tooth-like. **4**
- 4 Outer corner of pronotum at base of broadly explanate part tooth-like; body wider on average (body width 2.1–2.7 mm); body shape see Fig. 1, aedeagus see Fig. 10. *sinuato-collis* n. sp.
- Outer corner of pronotum at base of broadly explanate part forming an angulation; body narrower on average (body width 1.9–2.1 mm); body shape see Fig. 2, aedeagus see Fig. 8. *impressifrons* n. sp.

Author's address:

Dr. ROLAND GRIMM, Unterer Sägerweg 74, 75305 Neuenbürg, Germany;
e-mail: grimm.tenebrio@t-online.de

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