

Synopsis of Thai Passalidae (Insecta: Coleoptera)

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ABSTRACT.—A checklist and keys to the subfamilies, genera and species of the Thai Passalidae (Insecta: Coleoptera) are provided.

KEY WORDS: Passalidae; Thailand; key; checklist

Gravely (1918) provided guides to the identification of Passalidae of the world. For the Thai Passalidae, no other identification guide has been published since Gravely's (1918) monograph. Thus, the authors herewith provide a checklist and keys to the subfamilies, genera and species of the Thai Passalidae. The authors hope that this makes the Thai Passalidae easily identifiable.

The authors refer to Hincks and Dibb (1935; 1958) and some subsequent works for synonyms and distribution records (Kon and Araya, 1994; Kon and Johki, 1995; Kon et al., 1998; Iwase, 1998). In the keys, the authors adopt the terminology of Gravely (1914) and Lindoroth (1957).

Checklist of the Thai Passalidae

I. Subfamily Aulacocyclinae

1. *Ceracupes* Kaup

Ceracupes chingkini Okano

Ceracupes chingkini Okano, 1988, Entomo Shirogane, 1, p. 2.

Distribution.—Taiwan, Thailand, Vietnam, China, Myanmar.

Ceracupes fronticornis (Westwood)

Passalus fronticornis Westwood, 1842, Ann. Mag. Nat. Hist., VIII, p. 124.

Ceracupes fronticornis: Kaup, 1871, Berl. Ent. Zeitschr., XV, suppl., p. 17.

Distribution.—Eastern Himalayas, Myanmar, Thailand, Vietnam.

2. *Taeniocerus* Kaup

Taeniocerus bicuspis (Kaup)

Aulacocyclus bicuspis Kaup, 1868, Coleopt. Hafte, III, p. 5.

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Taeniocerus bicuspis: Kaup, 1897, Berl. Ent. Zeitschr., XV, suppl., p. 21.

Distribution.—Eastern Himalayas, Thailand, Malay Peninsula, Sumatra, Borneo.

II. Subfamily Passalinae

3. *Leptaulax* Kaup

Leptaulax bicolor (Fabricius)

- Passalus bicolor* Fabricius, 1801, Syst. Eleuth., II, p. 256.
Leptaulax bicolor: Kaup, 1868, Coleopt. Hafte, III, p. 14.
Passalus innocuus Dej., 1837, Cat. Col. 3rd ed., p. 195.
Passalus vicinus Percheron, 1844, Mag. Zool., XIV, p. 11.
Leptaulax eschscholtzi Kaup, 1868, Coleopt. Hafte, III, p. 14.
Leptaulax manillae Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 188.
Leptaulax batchianae Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 188.
Leptaulax consequens Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 188.
Leptaulax cicatricosus Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 189.
Leptaulax incipiens Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 189.
Leptaulax differentispina var. *subsequens* Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 189.
Leptaulax abdominisculptus Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 189.
Leptaulax abdominisculptus var. *calcuttae* Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 189.
Leptaulax separandus var. *maxillonotus* Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 190.
Leptaulax separandus var. *medius* Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 190.
Leptaulax dindigalensis Kuwert, 1898, Nov. Zool., V, p. 287.
Leptaulax sumatrae Kuwert, 1898, Nov. Zool., V, p. 290.
Leptaulax geminus Kuwert, 1898, Nov. Zool., V, p. 292.
Leptaulax sequens Kuwert, 1898, Nov. Zool., V, p. 292.
Leptaulax niae Kuwert, 1898, Nov. Zool., V, p. 294.
Leptaulax tenesserimensis Kuwert, 1898, Nov. Zool., V, p. 295.
Leptaulax evidens Kuwert, 1898, Nov. Zool., V, p. 295.
Leptaulacides rugulosus Zang, 1905, Deutsche Ent. Zeitschr., 1905, p. 100.
Leptaulacides fruhstorferi Zang, 1905, Deutsche Ent. Zeitschr., 1905, p. 102.
Leptaulacides andamanarum Zang, 1905, Deutsche Ent. Zeitschr., 1905, p. 166.
Leptaulacides palawanicus Zang, 1905, Deutsche Ent. Zeitschr., 1905, p. 232.
Leptaulacides anaulax Zang, 1905, Deutsche Ent. Zeitschr., 1905, p. 235.
Leptaulacides nietneri Zang, 1905, Deutsche Ent. Zeitschr., 1905, p. 246.
Leptaulacides analis Zang, 1906, Nova Guinea, V, p. 24.

Distribution.—Sri Lanka, India, Eastern Himalayas, Myanmar, Thailand, Vietnam, Cambodia, Malay Peninsula, Sumatra, Java, Borneo, Philippines, Sulawesi, Moluccas, New Guinea, Australia.

Leptaulax dentatus (Fabricius)

- Passalus dentatus* Fabricius, 1792, Ent. Syst., I(2), p. 241.
Leptaulax dentatus: Kaup, 1868, Coleopt. Hafte, III, p. 14.
Passalus quadridentatus Sturm, 1826, Cat. Ins. Samml., I, p. 182.
Passalus vicinus Percheron, 1844, Mag. Zool., XIV, p. 11.
Leptaulax ribbei Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 188.
Leptaulax saigonius Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 189.
Leptaulax celebensis Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 189.
Leptaulax darjeilingi Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 190.

- Leptaulax abdominibarbat* Kuwert, 1898, Nov. Zool., V, p. 293.
Leptaulax malitiosus Kuwert, 1898, Nov. Zool., V, p. 296.
Leptaulax submedius Kuwert, 1898, Nov. Zool., V, p. 296.
Leptaulax exteris Kuwert, 1898, Nov. Zool., V, p. 297.
Leptaulax indicus Kuwert, 1898, Nov. Zool., V, p. 297.
Leptaulax mixtus Kuwert, 1898, Nov. Zool., V, p. 298.
Leptaulax interponendus Kuwert, 1898, Nov. Zool., V, p. 299.
Leptaulax bornensis Kuwert, 1898, Nov. Zool., V, p. 299.
Leptaulax geminatus Kuwert, 1898, Nov. Zool., V, p. 300.
Leptaulax tonkinensis Zang, 1905, Deutsche Ent. Zeitschr., 1905, p. 102.
Leptaulax glabriventris Gravely, 1914, Mem. Ind. Mus., III, p. 255.

Distribution.—India, Eastern Himalayas, Myanmar, Thailand, Vietnam, Cambodia, China, Taiwan, Malay Peninsula, Sumatra, Java, Borneo, Philippines, Sulawesi, Lesser Sundas, Moluccas, New Guinea, Australia.

Leptaulax planus (Illiger)

- Passalus planus* Illiger in Wiedemann, 1800, Archiv Zool., I, p. 104.
Leptaulax planus: Stoliczka, 1873, J. As. Soc. Beng., XLII, 2, p. 155.
Leptaulacides planus: Zang, 1905, Tijdschr. Ent., XLVII, p. 185.

Distribution.—Myanmar, Thailand, Malay Peninsula, Sumatra, Java, Borneo, Sulawesi.

Leptaulax riekoae Iwase

- Leptaulax riekoae* Iwase, 1998, Jpn. J. syst. Ent., 4, p. 193.

Distribution.—Thailand.

4. *Macrolinus* Kaup

Macrolinus sikkimensis (Stoliczka)

- Basilianus sikkimensis* Stoliczka, 1873, J. As. Soc. Beng., XLII, 2, p. 161.
Tiberius sikkimensis: Kuwert, 1898, Nov. Zool., V, p. 188.
Macrolinus sikkimensis: Gravely, 1914, Mem. Ind. Mus., III, p. 243.
Macrolinus sikkimensis tavoyanus Gravely, 1914, Mem. Ind. Mus., III, p. 243.

Distribution.—Eastern Himalayas, Myanmar, Indochina.

5. *Ophrygonius* Zang

Ophrygonius cantori (Percheron)

- Passalus cantori* Percheron, 1844, Mag. Zool., XIV, p. 3.
Aceraius cantori: Kaup, 1868, Coleopt. Hefte., III, p. 28.
Basilianus cantori: Kaup, 1871, Berl. Ent. Zeitschr., XV, suppl., p. 57.
Ophrygonius cantori: Gravely, 1914, Mem. Ind. Mus., III, p. 193.

Distribution.—Eastern Himalayas, Myanmar, Thailand, Vietnam.

Ophrygonius singapurae Gravely

- Ophrygonius singapurae* Gravely, 1914, Mem. Ind. Mus., III, p. 226.

Distribution.—Laos, Thailand, Malay Peninsula, Borneo.

6. *Aceraius* Kaup

Aceraius grandis (Burmeister)

- Passalus grandis* Burmeister, 1847, Handb. Ent., V, p. 463.

- Aceraius grandis*: Kaup, 1868, Coleopt. Hefte., III, p. 27.
Acerajus addendus Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 163.
Acerajus rectidens Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 163.
Acerajus hirsutus Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 163.
Acerajus ceylonicus Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 163.
Aceraius grandis var. *rectidens* Kuwert, 1898, Nov. Zool., V, p. 343.
Aceraius prosternisulcatus Kuwert, 1898, Nov. Zool., V, p. 343.
Aceraius magnus Kuwert, 1898, Nov. Zool., V, p. 344.
Aceraeus palawanus Zang, 1905, Notes Leyden Mus., III, p. 235.

Distribution.—Eastern Himalayas, Myanmar, Thailand, Cambodia, Vietnam, Taiwan, Malay Peninsula, Sumatra, Java, Borneo, Philippines.

Aceraius helferi Kuwert

- Acerajus helferi* Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 163.
Aceraius helferi: Kuwert, 1898, Nov. Zool., V, p. 346.
Aceraius assamensis Kuwert, 1898, Nov. Zool., V, p. 347.
Aceraius himalayensis Gravely, 1914, Mem. Ind. Mus., III, p. 236.
Aceraius tavoyanus Gravely, 1914, Mem. Ind. Mus., III, p. 237.

Distribution.—Eastern Himalayas, Myanmar, Malay Peninsula, Thailand, Cambodia, Vietnam, China.

Aceraius laevicollis (Illiger)

- Passalus laevicollis* Illiger in Wiedemann, 1800, Archiv Zool., I, p. 103.
Aceraius laevicollis: Gravely, 1914, Mem. Ind. Mus., 3, p. 230.
Passalus emarginatus Weber, 1801, Obs. Ent., p. 81.
Acerajus meyeri Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 163.
Aceraius pontifex Kuwert, 1898, Nov. Zool., V, p. 345.
Aceraius luzonicus Kuwert, 1898, Nov. Zool., V, p. 345.

Distribution.—Thailand, Malay Peninsula, Sumatra, Java, Borneo, Philippines.

7. *Pelopides* Kuwert

Pelopides monticulosus (Smith)

- Passalus monticulosus* Smith, 1852, Nomencl. Coleopt. Ins. Coll. Brit. Mus., VI, p. 6.
Eriocnemis monticulosus: Kaup, 1868, Coleopt. Hefte., III, p. 38.
Gnaphalocnemis monticulosus: Gravely, 1914, Mem. Ind. Mus., III, p. 249.
Pelopides monticulosus: Gravely, 1918, Mem. Ind. Mus., VII, p. 95.
Eriocnemis dispar Kuwert, 1891, Deutsche Ent. Zeitschr., 1891, p. 168.
Eriocnemis ignotus Kuwert, 1898, Nov. Zool., V., p. 323.

Distribution.—Thailand, Malay Peninsula, Sumatra, Borneo.

Key to the subfamilies

- Anterior coxae projecting beyond the surface of intercoxal portion of prosternum which is hidden; anterior margin of head simpleAulacocyclusinae
 Anterior coxae approximately level with the surface of intercoxal portion of prosternum which is visible between them; anterior margin of head with tuberclesPassalinae

I. Subfamily Aulacocyclinae

Key to the Thai genera

- Upper tooth of mandible and central tubercle extremely developed*Ceracupes* Kaup
 Upper tooth of mandible and central tubercle normal*Taeniocerus* Kaup

1. *Ceracupes* Kaup

Key to the Thai species

- Anterior intermediate area of metasternum punctured and hairy; body length 20-28mm
*fronticornis* (Westwood)
 Anterior intermediate area of metasternum impunctate and hairless; body length 25-28 mm
*chingini* Okano

2. *Taeniocerus* Kaup

- The single Thai species is diagnosed as follows: supraorbital ridge long, angular at anterior angle; anterior tip of central tubercle pointed upward and forward; body length 18-21 mm
*bicuspis* (Kaup)

II. Subfamily Passalinae

Key to the Thai genera

1. Antenna with 3 lamellae; head symmetrical*Leptaulax* Kaup
 Antenna with 6 lamellae; head asymmetrical in some genera2
 2. Supraoccipital ridge extending beyond posterior end of supraorbital ridge; head symmetrical
*Macrolinus* Kaup
 Supraoccipital ridge not extending beyond posterior end of supraorbital ridge, or outer tubercles asymmetrical3
 3. Mentum with scars; left outer tubercle not longer than right one*Pelopides* Kuwert
 Mentum without scar; left outer tubercle, more or less, longer than right one4
 4. Dentition of both mandibles complete*Ophrygonius* Zang
 Lowest terminal and anterior lower teeth of right mandible absent, or represented by very minute denticles*Aceraius* Kaup

3. *Leptaulax* Kaup

Key to the Thai species

1. Parietal ridge connected with supraorbital ridge; punctures of lateral grooves of elytra simple
2
 Parietal ridge not connected with supraorbital ridge; punctures of lateral grooves of elytra oblong; body length 18-32 mm*dentatus* (Fabricius)
 2. Abdominal sternites entirely covered with fine and shallow punctures; width of frontal area broader than its length; body flat, rusty red even in mature individuals; body length 12-14 mm*planus* (Illiger)
 Abdominal sternites not entirely punctured3

3. Basal piece of male genitalia shorter than the sum of penis and paramere in ventral view; body length 12-20 mm*bicolor* (Fabricius)
 Basal piece of male genitalia much longer than the sum of penis and paramere in ventral view; body length 14.5-15 mm*riekoeae* Iwase

4. *Macrolinus* Kaup

The single Thai species is diagnosed as follows: antenna with 6 moderately long lamellae; lateral grooves of elytra with transverse punctures; body length 30-34 mm*sikkimensis* (Stoliczka)

5. *Ophrygonius* Zang

Key to the Thai species

- Supraoccipital ridge extending outward beyond posterior end of supraorbital ridge; antenna with 6 long and slender lamellae; frontal area punctured; body length 29-32 mm*singapurae* Gravely
*singapurae* Gravely
 Supraoccipital ridge not extending outward beyond posterior end of supraorbital ridge; antenna with 6 short lamellae; frontal area impunctate; body length 30-33 mm*cantori* (Percheron)

6. *Aceraius* Kaup

Key to the Thai species

1. Anterior angle of head not prominent forward; body length 30-35 mm*helferi* Kuwert
 Anterior angle of head prominent forward2
 2. body length 45-55 mm*grandis* (Burmeister)
 body length 30-35 mm*laevicollis* (Illiger)

7. *Pelopides* Kuwert

The single Thai species is diagnosed as follows: sixth and seventh grooves of elytra and posterior portion of fifth groove broad, ladder-like; right outer tubercle much broader than left one; ridge separating between intermediate and lateral areas of metasternum distinct; body length 44-48 mm*monticulosus* (Smith)

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- Lindoroth, C. H. 1957. The principal terms used for male and female genitalia in Coleoptera. *Opusc. ent.*, Lund 22: 241-256.

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