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## Bees of Natural Forests, Teak Plantations and Agricultural Fields in Thailand

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**Abstract.** Twenty species of bees collected in tropical natural forests, Teak plantations and agricultural fields in various areas in Thailand from 2006 to 2008 are reported. Eighteen species are recorded from Thailand for the first time.

**Keywords.** taxonomy, Hymenoptera, bees, Thailand, new record.

### Introduction

One of the authors, Tasen, has studied pollination biology in tropical natural forests, Teak plantations and agricultural fields in various areas in Thailand from 2006 to 2008 and has accumulated bee specimens. Although precise identification of bee specimens was important for biological studies, taxonomy of bees in Thailand was poorly investigated except for several genera, such as *Apis* and *Trigona* (Sakagami, 1978). Tadauchi visited the National Museum of Natural History (Naturalis) in Leiden, the Netherlands and studied Tasen's bee collection.

In this paper we report 20 species as listed below, based on investigation during Tadauchi's stay in Naturalis. Some specimens which remain unidentified at present are under investigation for the future article. Information about distributions in the list are summarized mainly from a reference database file TABR (Tadauchi *et al.*, 2007) based on tropical Asian bees in Kyushu University. Most of the examined specimens will be kept in the Faculty of Forestry, Kasetsart University, Thailand.

### Collecting area

Tasen and his colleague visited the following natural forests, Teak plantations, and agricultural landscape for

collecting bees.

Natural forests: Sakaerat forest at Nakhonratchasima Province, Chiang Dao forest at Chiang Mai Province and Phu Keaw-Nam nao forest complex covering four Provinces in Chaiphaphum, Phetchabun, Loei and Khonkaen Provinces. These areas hold diverse and significant habitat in tropical rain forest ecosystems, containing hill evergreen forest, dry evergreen forest, dry deciduous forest, mixed deciduous forest, and secondary forests. Each study site was visited at least two times between 2006 and 2007.

Teak (*Tectona grandis* L.f.) plantation; Maegar Silvicultural Research Station at Phayao Province (19° 10' N, 99° 55' E, 340 m msl), Maetha Silvicultural Research Station at Lampang Province (18° 11' N, 99° 34' E, 336 m msl), Larn-sang Silvicultural Research Station at Tak Province (16° 48' N, 99° 2' E, 373 m msl), Dong-larn Silvicultural Research Station at Khonkaen Province (16° 48' N, 101° 58' E, 363 m msl) and Kao Soi-dao Silvicultural Research Station at Chantaburi Province (12° 58' N, 96° 17' E, 250m msl). The above five areas are mainly managed for teak seed plantation grown at 12x12 m spacing. Observation and collecting were conducted during peak blooming season, from July to August 2007 and 2008.

Agriculture fields: Chiang Mai, Saraburi, Phetchabun and Chaiphaphum Provinces, maize fields and fruit

orchards were selected for collecting sites for bees. Observation and collecting were conducted during April 2006 to August 2008.

**Abbreviation.** Dist.: District; Prov.: Province; NT.: Northern part of Thailand; NET.: Northeastern part of Thailand; ET.: Eastern part of Thailand; S.S.: Silvicultural Research Station.

## Family Megachilidae

### *Anthidiellum (Pycanthidium) smithi* (Ritsema, 1874)

(Fig. 1)

*Anthidium smithii* Ritsema, 1874, Rev. Mag. Zool. (Ser. 3), 2: 111 [male].

*Anthidiellum (Pycanthidium) smithi*: Pasteels, 1972, Bull. Ann. Soc. r. Belg. Ent., 108: 89.

*Anthidium minutissium* Bingham, 1903, Fasc. Malay. Zool., 1: App. 6 [male].

*Anthidium javanicum* Friese, 1909, Ann. Mus. Hung., 7: 257 [male].

*Specimens examined.* [Thailand] 1 female, Phukhieo, Chaiphaphum Prov., NET., 2. iv. 2006 (W. Tasen); 1 male, Chiang Dao Dist., Chiang Mai Prov., NT., 4. i. 2007 (W. Sangnummon).

*Distribution.* Indonesia, Malaysia, Thailand (new record).

### *Pseudoanthidium orientale* (Bingham, 1897) (Fig. 2)

*Anthidium orientale* Bingham, 1897, Faun. Brit. India Incl. Ceylon & Burma, Hym. 1: 496 [female].

*Pseudoanthidium orientale*: ITIS, 2008, <http://www.itis.gov>.

*Specimens examined.* [Thailand] 1 female, Chiang Dao Dist., Chiang Mai Prov., NT., 18. xii. 2006 (W. Sangnummon).

*Distribution.* Myanmar (Tenasserim), Thailand (new record).

### *Pachyanthidium lachrymosum* (Smith, 1879) (Fig. 3)

*Anthidium lachrymosum* Smith, 1879, New Sp. Hym. B. M.: 87 [female & male]; Dalla Torre, 1896, Cat. 10: 463; Bingham, 1897, Faun. Brit. India Incl. Ceylon & Burma, Hym. 1: 492.

*Pachyanthidium lachrymosum*: ITIS, 2008, <http://www.itis.gov>.

*Specimens examined.* [Thailand] 1 female, Phukhieo, Chaiphaphum Prov., NET., 2. iv. 2006 (W. Tasen).

*Distribution.* Myanmar (Tenasserim), India (Bombay, Malabar), Thailand (new record).

### *Megachile hera* Bingham, 1897 (Fig. 4)

*Megachile hera* Bingham, 1897, Faun. Brit. India Incl. Ceylon & Burma, Hym. 1: 489 [female & male]; Friese, 1914, Tijdschr. Ent. 57: 9; Cockerell, 1920, Philippine Jour. Sci., 16: 147.

*Specimens examined.* [Thailand] 1 female, Chiang Dao Dist., Chiang Mai Prov., NT., 1. iii. 2006 (W. Sangnummon), 1 female, Maetha S.S., Lampang, Prov., NT., 3. viii. 2008 (W. Tasen); 1 female, Dong-larn S.S., KohnKaen Prov., NT., 4. viii. 2008 (W. Tasen); 1 male, Banthaen Dist., Chaiphaphum Prov., NET., 24. vi. 2006 (W. Tasen).

*Distribution.* Myanmar (Tenasserim); Indonesia (Java); Philippines (Culasi, Panay), Thailand (new record).

### *Megachile ornata* Smith, 1853 (Fig. 5)

*Megachile ornata* Smith, 1853, Cat. Hym. Ins. Brit. Mus. I: 183 [female]; Smith, 1858, J. Proc. Linn. Soc. Zool., 2: 42; Smith, 1871, J. Proc. Linn. Soc. Zool., 11: 388.

*Specimens examined.* [Thailand] 1 female, Chiang Dao Dist., Chiang Mai Prov., NT., 27. xi. 2006 (W. Sangnummon).

*Distribution.* Indonesia (Borneo), India, Nepal, Thailand (new record).

### *Megachile semivestituta* (Smith, 1853) (Fig. 6)

*Chalicodoma semivestituta* Smith, 1853, Cat. Hym. Ins. Brit. Mus. I: 148 [male]

*Megachile semivestituta*: Bingham, 1897, Faun. Brit. India Incl. Ceylon & Burma, Hym. 1: 474.

*Specimens examined.* [Thailand] 1 male, Chiang Dao Dist., Chiang Mai Prov., NT., 19. x. 2006 (W. Sangnummon); 1 female, Chaing Dao Dist., Chaing Mai

Prov., 14. vi. 2006 (W. Tasen).

*Distribution.* India, Thailand (new record).

***Megachile fraterna* Smith, 1853**

(Fig. 7)

*Megachile semivestitula* Smith, 1853, Cat. Hym. Ins. Brit. Mus. I: 178 [female]; Smith, 1871, J. Proc. Linn. Soc. Zool., 11: 387; Bingham, 1897, Faun. Brit. India Incl. Ceylon & Burma, Hym. 1: 478.

*Specimens examined.* [Thailand] 1 female, Chiang Dao Dist., Chiang Mai Prov., NT., 1. iii. 2006 (W. Sangnummon); 1 female, Dong-larn S.S., Khonkaen Prov., NET., 4. viii. 2008 (W. Tasen).

*Distribution.* India, Myanmar (Tenasserim), Thailand (new record).

***Megachile amputata* Smith, 1858**

(Fig. 8)

*Megachile amputata* Smith, 1858, J. Proc. Linn. Soc. Lond., Zool., 2: 45 [female]; Smith, 1871, J. Proc. Linn. Soc. Lond., Zool., 11: 389; Bingham, 1897, Faun. Brit. India Incl. Ceylon & Burma, Hym., 1: 484.

? *Megachile fulvo-fasciata* Radoszkowsky, 1882, Wiadom. z. nauk Przyrod. pt. 2: 81.

*Megachile amputata* var. *rufescens* Friese, 1905, Zeitschr. Hym. Dipt. 5: 17 [female].

*Specimens examined.* [Thailand] 1 female, Chaing Dao Dist., Chaing Mai Prov., NT., 14. vi. 2006 (W. Tasen).

*Distribution.* Sikkim, Myanmar (Tenasserim), Indonesia (Borneo, Sumatra), Thailand (new record).

***Coelioxys capitata* Smith, 1854**

(Fig. 9)

*Coelioxys capitata* Smith, 1854, Cat. Hym. Ins. Brit. Mus. Part II: 267 [female & male].

*Specimens examined.* [Thailand] 1 female and 1 male, Chiang Dao Dist., Chiang Mai Prov., NT., 1. iii. 2006 (W. Sangnummon).

*Distribution.* India (north, Bengal), Sri Lanka, Thailand (new record).

***Coelioxys confusa* Smith, 1875**

(Fig. 10)

*Coelioxys confuses* Smith, 1875, Trans. Ent. Soc. London, 1875:50 [female]; Dalla Torre, 1896, Cat. 10: 484; Bingham, 1897, Faun. Brit. India Incl. Ceylon & Burma, Hym., 1: 514.

*Specimens examined.* [Thailand] 1 male, Maegar S.S., Phayao Prov., NT., 2. viii. 2008 (W. Tasen).

*Distribution.* India (Lucknow, Barrackpore), Myanmar (Tenasserim), Sri Lanka, Thailand (new record).

***Coelioxys decipiens* Spinola, 1838**

(Fig. 11)

*Coelioxys decipiens* Spinola, 1838, Ann. Soc. Ent. Fr., 7: 532 [female & male]; Dalla Torre, 1896, Cat. 10: 485; Smith, 1854, Cat. 2: 267; Bingham, 1897, Faun. Brit. India Incl. Ceylon & Burma, Hym., 1: 510.

*Coelioxys apicata* Smith, 1854, Cat. 2: 267,

*Specimens examined.* [Thailand] 1 female, Chiang Dao Dist., Chiang Mai Prov., NT., 1. iii. 2006 (W. Sangnummon).

*Distribution.* Egypt, Aden, India (Bengal, South, Punjab: North-West Provinces), Myanmar (Tenasserim), Thailand (new record).

**Family Halictidae**

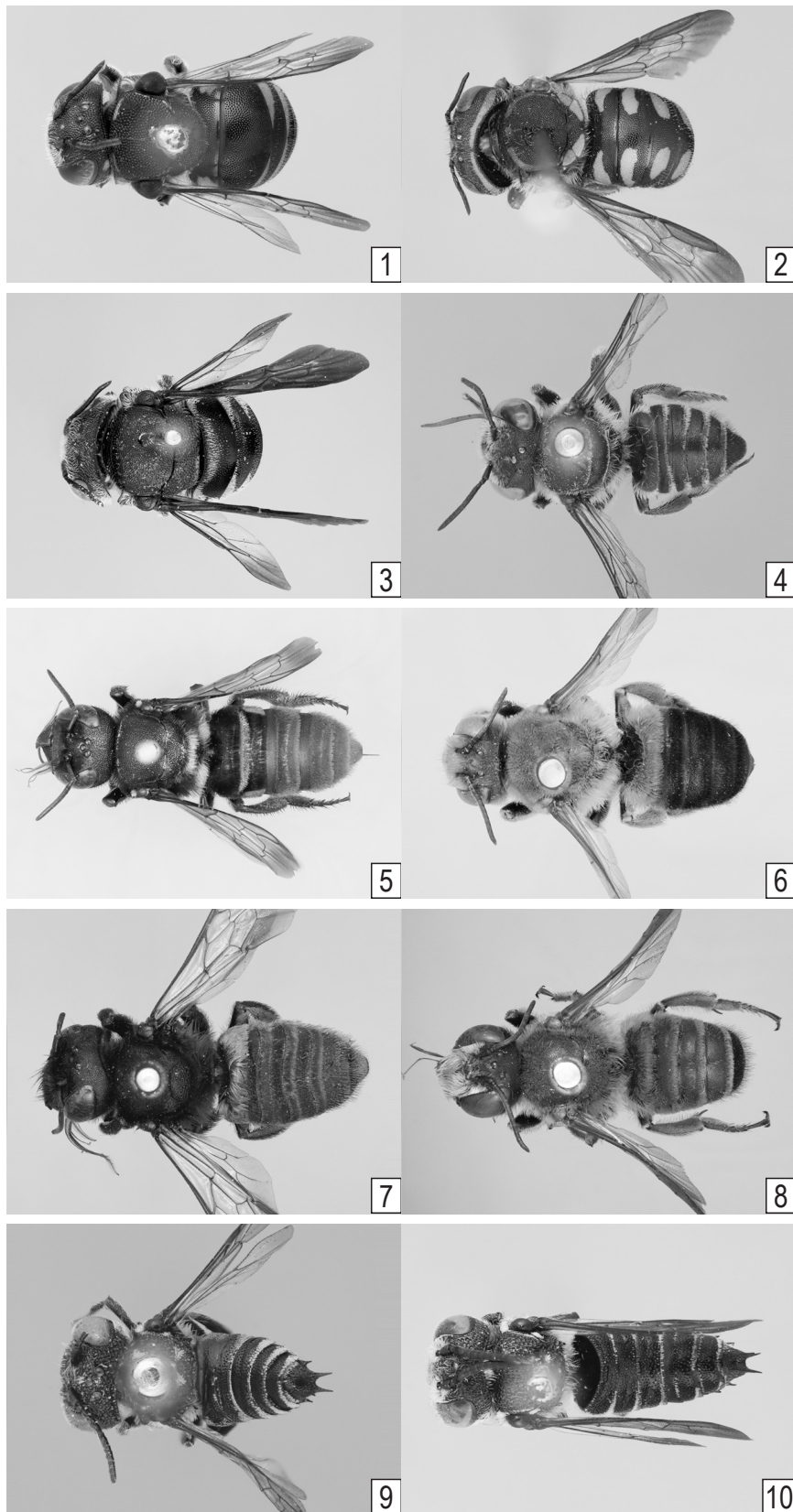
***Nomia clypeata* Smith, 1875**

(Fig. 12)

*Nomia clypeata* Smith, 1875, Trans. Ent. Soc. London, 1875: 54 [female & male]; Dalla Torre, 1896, Cat. 10: 165; Bingham, 1897, Faun. Brit. India Incl. Ceylon & Burma, Hym. 1: 456.

*Specimens examined.* [Thailand] 2 females and 1 male, Dong-larn S.S., KhonKaen Prov., NET., 4. viii. 2008 (W. Tasen); 1 female, Chiang Dao Dist., Chiang Mai Prov., NT., 1. iii. 2006 (W. Sangnummon); 1 male, same locality and collector as above, 4. i. 2007.

*Distribution.* India (Bengal), Myanmar, Thailand (new record).



**Figs. 1-10.** General habitus in dorsal view of Thai bees in this paper. 1: *Anthidiellum (Pycanthidium) smithi*; 2: *Pseudoanthidium orientale*; 3: *Pachyanthidium lachrymosum*; 4: *Megachile hera*; 5: *Megachile ornata*; 6: *Megachile semivestituta*; 7: *Megachile fraterna*; 8: *Megachile amputata*; 9: *Coelioxys capitata*; 10: *Coelioxys confusa*.



***Nomia albofasciata* Smith, 1875**

(Fig. 13)

*Nomia albofasciata* Smith, 1875, Trans. Ent. Soc. London, 1875: 57 [female]; Dalla Torre, 1896, Cat. 10: 163; Bingham, 1897, Faun. Brit. India Incl. Ceylon & Burma, Hym., 1: 452; Friese, 1914, Tijdschr. Ent., 57: 6, 31.

*Specimens examined.* [Thailand] 2 females, Donglarn S.S., KhonKaen Prov., NET., 4. viii. 2008 (W. Tasen); 2 females, Chiang Dao Dist., Chiang Mai Prov., NT., 25. x. 2006 (W. Sangnummon).

*Distribution.* Indonesia (Java), Myanmar (Tenasserim), Thailand (new record).

**Family Apidae**

***Thyreus himalayensis* Radoszkowski, 1893**

(Fig. 14)

*Crocisa himalayensis* Radoszkowski, 1893, Bull. Soc. Imp. Nat. Moscou, Année 1893, new ser. 7: 171 (male).

*Specimens examined.* [Thailand] 1 female, Chiang Dao Dist, Chiang Mai Prov., NT., 1. iii. 2006 (W. Sangnummon).

*Distribution.* Himalaya; Thailand (new record).

***Ceratina dentipes* Friese, 1914**

(Fig. 15)

*Ceratina dentipes* Friese, 1914, Tijdschr. Ent., 57: 7, 32 [male]; Cockerell, 1915, Entomologist, 48: 109; Cockerell, 1916, Philip. J. Sci., 11: 308; Cockerell, 1918, Philip. J. Sci., 13: 143; Cockerell, 1920, Philip. J. Sci., 16: 207; Hedicke, 1926, Deutsch. Ent. Zeitschr., 1926: 419; Van der Vecht, 1952, Zool. Verh., 16: 27; Baltazar, 1966, Pac. Ins. Monogr., 8: 389.

*Specimens examined.* [Thailand] 1 female, Banthaen Dist., Chaityaphum Prov., NET., 24. vi. 2006 (W. Tasen).

*Distribution.* Indonesia (Java), Thailand, Philippines.

***Ceratina cladula* Cockerell, 1919**

(Fig. 16)

*Ceratina cladula* Cockerell, 1919, Proc. U. S. Natl. Mus., 55: 173 [female]; Van der Vecht, 1952, Zool. Verh., 16: 39; Baltazar, 1966, Pac. Ins. Monogr., 8: 390.

*Specimens examined.* [Thailand] 1 female, Donglarn S.S., Khonkaen Prov., NET., 4. viii. 2008 (W. Tasen).

*Distribution.* Indonesia (Java), Thailand (new record), Philippines.

***Amegilla cingulata* (Fabricius, 1775)**

(Fig. 17)

*Apis cingulata* Fabricius, 1775, Syst. Ent.: 378.

*Anthophora cingulata*: Bingham, 1897, Faun. Brit. India Incl. Ceylon & Burma, Hym. 1: 526; Friese, 1911, Deutsch. Entomol. Ztschr., 1911: 450; Ashmead, 1914, J. New York Ent. Soc., 12: 2; Meade-Waldo, 1914, Ann. Mag. Nat. Hist., (8)13: 58; Dover, 1924, Entomologist, 57: 228.

*Anthophora zonata* var. *cingulata*: Dours, 1869, Mem. Soc. Linn. Nord. Fr., 2: 59.

*Podalirius cingulatus* Dalla Torre, 1896, Cat. 10: 263, 1896.

*Specimens examined.* [Thailand] 1 female, Chiang Dao, Dist., Chiang Mai Prov., NT., 1. iii. 2006 (W. Sangnummon).

*Distribution.* Sikkim; Myanmar (Tenasserim, Pegu Hills), Sri Lanka, Malay Peninsula Australia; Thailand, Philippines.

***Amegilla andrewsi* (Cockerell, 1910)**

(Fig. 18)

*Anthophora cigulata andrewsi* Cockerell, 1910, Ann. Mag. Nat. Hist., (8)5: 412; Cockerell, 1911, Ann. Mag. Nat. Hist., (8)7: 491; Dover, 1924, Entomologist, 57: 229-230.

*Anthophora korotonensis* Cockerell, 1911, Ann. Mag. Nat. Hist., (8)7: 491.

*Anthophora zonata andrewsi* Cockerell, 1910, Ann. Mag. Nat. Hist., (8)5: 412.

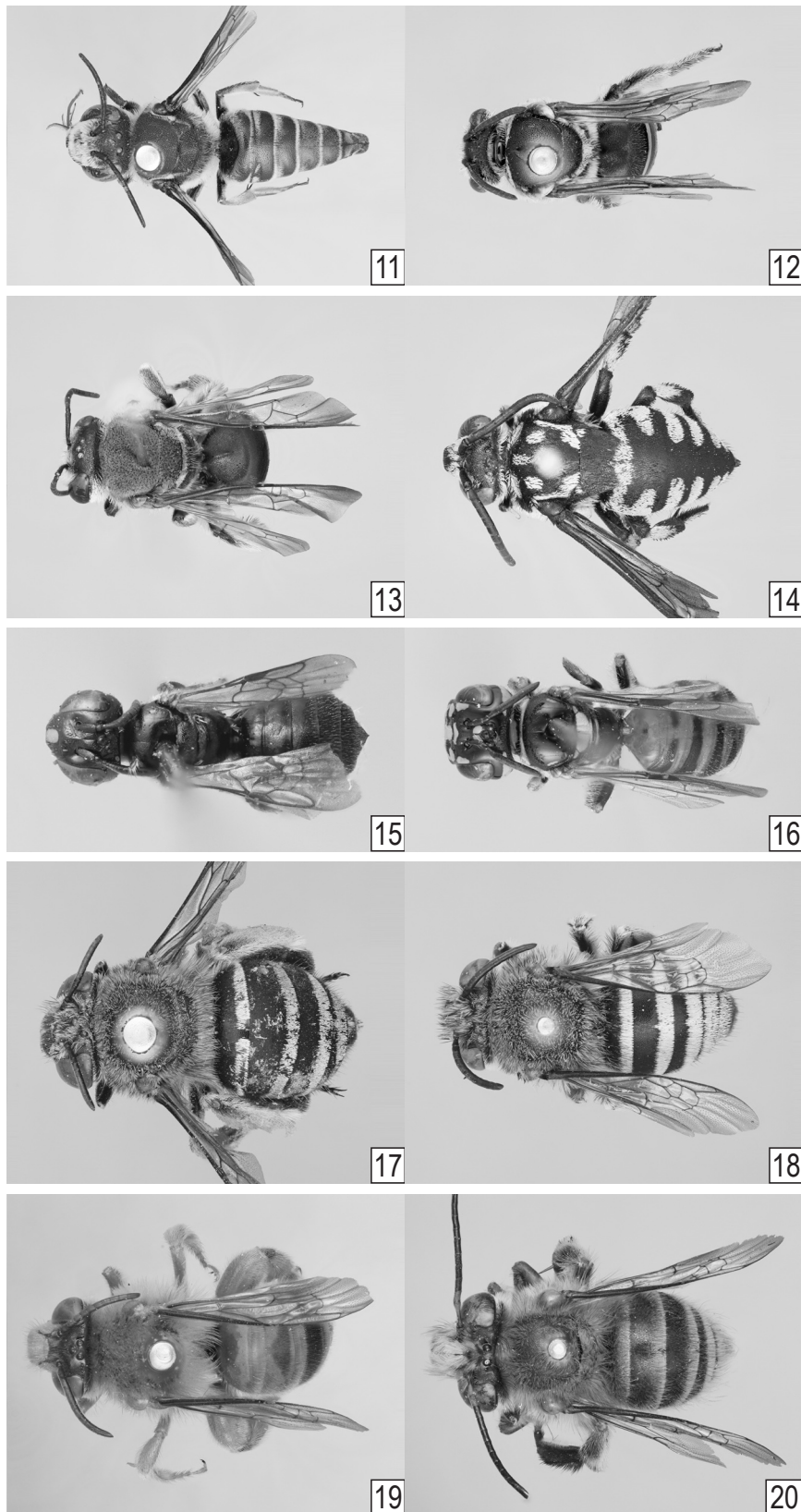
*Specimens examined.* [Thailand] 1 male, Kao Soi-dao S.S., Chanthaburi Prov., 26. vii. 2006 (W. Tasen).

*Distribution.* Indonesia (Java, N. W. Borneo, Sarawak, Sumatra); New Guinea; Thailand (new record).

***Habropoda impatiens* Lieftinck, 1944**

(Fig. 19)

*Habropoda impatiens* Lieftinck, 1944, Treubia, 1: 80 [female & male].



**Figs. 11-20.** General habitus in dorsal view of Thai bees in this paper. 11: *Coelioxys decipiens*; 12: *Nomia clypeata*; 13: *Nomia albofasciata*; 14: *Thyreus himalayensis*; 15: *Ceratina dentipes*; 16: *Ceratina cladula*; 17: *Amegilla cingulata*; 18: *Amegilla andrewsi*; 19: *Habropoda impatiens*; 20: *Habropoda buconis*.

*Specimens examined.* [Thailand] 1 male, Chiang Dao Dist., Chiang Mai Prov., NT., 1. iii. 2006 (W. Sangnummon).

*Distribution.* Indonesia (Sumatra); Thailand (new record).

***Habropoda buconis* (Friese, 1910)**  
(Fig. 20)

*Anthophora buconis* Friese, 1910, Treubia, 1: 80 [female & male]; Strand, 1913, Suppl. Ent., 2: 51.

*Specimens examined.* [Thailand] 2 males, Chaing Dao Dist., Chaing Mai Prov., NT., 14. vi. 2006 (W. Tansen); 1 female, Chiang Dao Dist., Chiang Mai Prov., NT., 27. xi. 2006 (W. Sangnummon).

*Distribution.* Formosa; Thailand (new record).

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**References**

- Bingham, C. T., 1897. *The Fauna of British India, including Ceylon and Burma, Hymenoptera*. Vol. I Wasps and Bees. Taylor and Francis, London, xxix+579 pp., 4 pls.
- Baltazar, C. R., 1966. A catalogue of Philippine Hymenoptera (with a bibliography, 1758-1963). *Pacif. Ins. Monogr.* **8**: 1-488.
- Cockerell, T. D. A., 1910. Descriptions and records of bees XXVIII. *Ann. Mag. Nat. Hist.*, (8) **5**: 409-449.
- Cockerell, T. D. A., 1911. Descriptions and records of bees. *Ann. Mag. Nat. Hist.*, (8) **7**: 485-493.
- Cockerell, T. D. A., 1915. Bees from the Philippine Islands. *Entomologist*, **48**: 107-110.
- Cockerell, T. D. A., 1916. The ceratinid bees of the Philippine Islands. *Philippine J. Sci.*, **11**: 301-308.
- Cockerell, T. D. A., 1918. The megachilid bees of the Philippine Islands. *Philippine J. Sci.*, **13**: 127-144.
- Cockerell, T. D. A., 1920. Some bees from Panay. *Philippine J. Sci.*, **16**: 145-149.
- Cockerell, T. D. A., 1920. Malayan bees. *Philippine J. Sci.*, **17**: 615-625.
- Dalla Torre, C. G., de, 1896. *Catalogus Hymenopterorum*, Vol. 1. 10, Apidae (Anthophora). 643 pp. Leipzig: Engelmann.
- Dover, C., 1924. The blue-banded bees of the Anthophora zonata group in the British Museum. *Entomologist*, **57**: 226-232.
- Friese, H., 1911. Zur Bienenfauna von Neuguineas und der benachbarten Gebiete (Hym.) Nachtrag II. *Dt. Ent. Z.*, **1911**: 448-453.
- Friese, H., 1914. Die Bienenfauna von Java. *Tijdschr. Ent.* **57**: 1-61.
- Hedicke, H., 1926. Beiträge zur Apidenfauna der Philippinen. *Dt. Ent. Z.*, **1926**: 413-423.
- ITIS, 2008. [database on the Internet]. Available from: <http://www.itis.gov>.
- Lieftinck, M. A., 1944. Some Malaysian bees of the family Anthophoridae (Hym., Apoidea). *Treubia*, **1**: 57-139.
- Pasteels, J. J., 1969. La systematique generique et subgenerique des Anthidiinae (Hymenoptera, Apoidea, Megachilidae) de l'ancien monde. *Mem. Soc. r. Entomol. Belg.*, **31**: 1-148.
- Pasteels, J. J., 1972. Revision des Anthidiinae (Hymenoptera Apoidea) de la Region Indo-Malaise. *Bull. Ann. Soc. R. Belg. Ent.*, **108**: 72-128.
- Radoszkowski, O., 1893. Revue des armures copulatrices des mâles des genre; *Crocisa* Jur., *Melectra* Lat., ..., *Eulema* Lep., *Acanthopus* Klug. *Bull. Soc. Imp. Nat. Moscou*, **68**: 163-188.
- Sakagami, 1978. Tetragonula stingless bees of the continental Asia and Sri Lanka. *J. Fac. Sci., Hokkaido Univ., ser. VI, Zool.*, **21**: 165-247.
- Smith, F., 1853. *Catalogue of Hymenopterous Insects in the Collection of the British Museum*. Part I, Andrenidae and Apidae. 1-198. London.
- Smith, F., 1854. *Catalogue of Hymenopterous Insects in the Collection of the British Museum*. Part II, Apidae. 199-465. London.
- Smith, F., 1858. Catalogue of the hymenopterous insects collected at Sarawak, Borneo; Mount Ophir, Malacca; and at Singapore, by A. R. Wallace. *J. Proc. Linn. Soc. London, Zool.*, **2**: 42-130.
- Smith, F., 1871. A catalogue of the aculeate Hymenoptera and Ichneumonidae of India and the Eastern Archipelago, with introductory remarks by A.R. Wallace. *J. Proc. Linn. Soc. London, Zool.* **11**: 285-415.
- Smith, F., 1875. Descriptions of new species of bees belonging to the genus Nomia of Latreille. *Trans. Ent. Soc. London*, **1875**: 53-70.
- Smith, F., 1875. Descriptions of new species of Indian Aculeate Hymenoptera, collected by Mr. G. R. James Rothney, Member of the Entomologica Society. *Trans. Ent. Soc. London*, **1875**: 33-51.
- Smith, F., 1879. Descriptions of new species of Hymenoptera in the collection of the British Museum.
- Spinola, M., 1838. Des Hymenopteres recueillis par M. Fischer pendant son voyage en Egypte, et communiqués par M. le Docteur Waltl. *Ann. Soc. Ent. Fr.*, **7**: 437-546.
- Tadauchi, O., K. Mitai & H. Inoue, 2007. Reference database file TABR based on tropical Asian bees. *Esakia*, (47): 21-23.
- Vecht, J. van der, 1952. Preliminary revision of the oriental species of the genus Ceratina. *Zool. Verhand.*, (16): 1-85.