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BEES FROM NEPAL I. *THYREUS* PANZER
(Hymenoptera, Apoidea)¹⁾²⁾³⁾

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During March to July, 1968, the author participated in the Hokkaido University Scientific Expedition to Nepal Himalaya, 1968 and collected various wild bees, partly aided by Dr. Toshio Kumata, chiefly in the areas ranging from 700 to 2,000 m through Midland in Central Nepal Himalaya. The collection was made without special preference for particular groups. Every bee individual was captured on discovery on flowers, and flower visits and approximate time spent for collecting, mainly 30 minutes or one hour but occasionally less than 30 minutes, are recorded each time. Thus the results can be regarded as approximately unbiased, even if not strictly randomized. In addition to these materials a considerable number of bees collected by Mr. Isao Yoneta, a member of Central Nepal Himalaya Geological and Glaciological Expedition in 1965, and by Mr. Takeo Kawamichi in the trips for ecological studies of pikas in 1967-'68, were also used for this study. The total number of forms and individuals collected by these surveys attained 178 and 2237 respectively. Leaving a closer analysis of this collection in future, the present paper deals with the species of *Thyreus* Panzer, a melectine genus parasitic on other anthophorine bees.

The percentage ratio of this genus to the total collection is only 3.9 % in species (5 spp.) and 1.2 % in individual number (26 specimens). The result is presented here prior to other groups, because the identification was greatly facilitated by the excellent monographs recently published by Liefertinck (1962, 1968).⁴⁾

All previously recorded species are cited in the part "Indo-Australian species" in the revision by Liefertinck (1962). He recorded the invasions of two Palearctic species to the Oriental Region, *T. ramosellus* (Lepetetier) from S. and W. India and *T. ramosus* (Cockerell) from Himalaya. But these species are not repre-

- 1) Scientific Results of Hokkaido University Expeditions to Himalaya, Entomology 5.
- 2) Contribution from the Tethys Society, Hokkaido University No. 8.
- 3) Contribution No. 881 from the Zoological Institute, Faculty of Science, Hokkaido University, Sapporo, Japan.
- 4) Liefertinck, M. A. 1962. Revision of the Indo-Australian species of the genus *Thyreus* Panzer (= *Crocisa* Jurine) (Hym., Apoidea, Anthophoridae). Pt. 3. Oriental and Australian species. Zool. Verhandl. Leiden, 53: 1-212.
— 1968. A review of Old World species of *Thyreus* Panzer (= *Crocisa* Jurine) (Hym., Apoidea, Anthophoridae) Pt. 4. Palearctic species. Zool. Verhandl. Leiden, 98: 1-139.

sented in the present collections.

In each species cited below, the original description and the citation by Lief-
tinck are given. The collectors, T. Kumata and T. Matsumura are abbreviated
as TK and TM respectively, and the year 1968 is omitted in the date of col-
lecting. All specimens examined are preserved in the Entomological Institute,
Faculty of Agriculture, Hokkaido University.

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1. *Thyreus decorus* (F. Smith)

Crocisa decora Smith, 1852, Trans. Ent. Soc. London, 2: 41.

Thyreus decorus, Liefstinck, 1962, Zool. Verhandl. Leiden, 53: 72-78.

Specimens examined: 1♂, June 28, Chembu (1,650 m alt.), TM.

Distribution: Manchuria, N. to S. China, Korea, Japan, Formosa, Thailand,
Malaya, C. to E. Himalaya, and Assam.

2. *Thyreus himalayensis* (Radoszkowski)

Crocisa himalayensis Radoszkowski, 1893, Bull. Soc. Imp. Nat. Moscou, Année, 7: 171.

Thyreus himalayensis, Liefstinck, 1962, Zool. Verhandl. Leiden, 53: 121-132.

Specimens examined: 1♂, May 19, Rupakot Tal (750 m), TK; 1♂, June 15,
Godavari (1450 m), TM; 1♂, July 15, Namuto (1400 m), TM; 1♂, Kaurebishital
(1350 m), TM; 2♂♂, July 17, Sanupaka (1600 m), TM.

Distribution: Assam, Sikkim, C. to E. Himalaya, India, Burma, Thailand, Indo-
china, Manchuria, S. China, Formosa, Malaya, Bangka Is., Java, and Karimuhd
jawa Is.

3. *Thyreus histrio* (Fabricius)

Nomada histrio Fabricius, 1775, Syst. Ent.,: 388-389.

Thyreus histrio, Liefstinck, 1962, Zool. Verhandl. Leiden, 53: 11-14.

Specimens examined: 1♀1♂, June 14, Kathmandu (1340 m), TM.

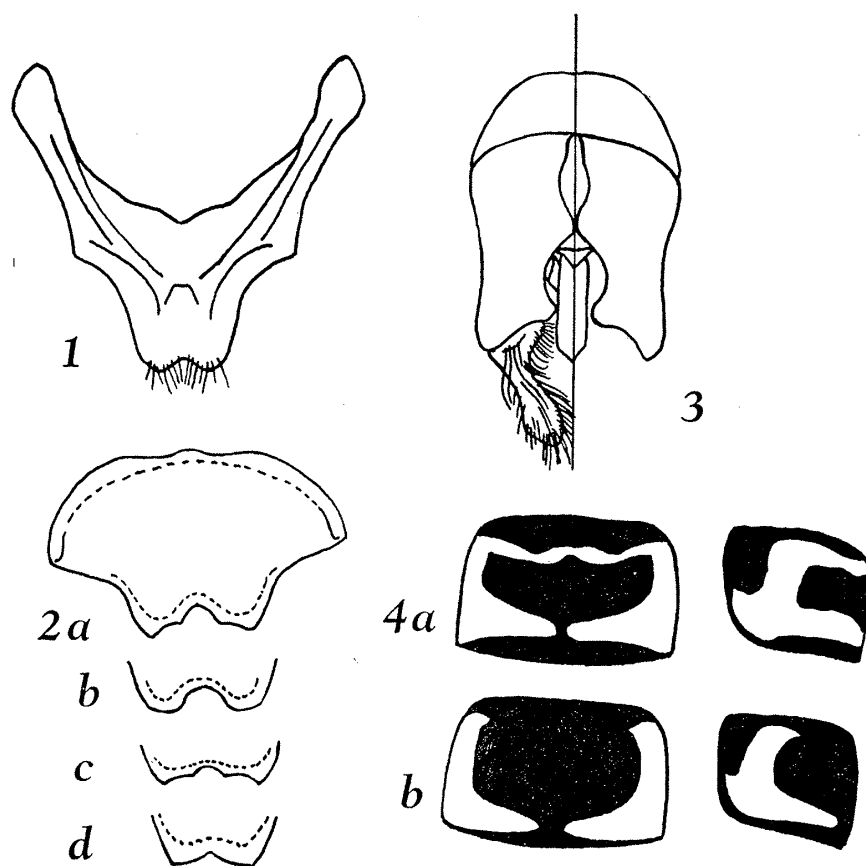
Distribution: India, C. Himalaya, Ceylon, and Burma.

4. *Thyreus massuri* (Radoszkowski)

Crocisa Massuri Radoszkowski, 1893, Bull. Soc. Imp. Nat. Moscou, Année, 7: 169-170.

Thyreus massuri, Liefstinck, 1962, Zool. Verhandl. Leiden, 53: 89-96.

Specimens examined: 1♂, Apr. 15, Biratanti (1150 m), TK; 2♀♀, May 3, Tato-
pani (1300 m), TK; 1♂, May 9, Rukuche-khola (1600 m), TK; 1♂, May 12,
Heele (1400 m), TM; 2♀♀, May 30, Dhunche (2000 m), TK & TM; 2♂♂, June
15, Godavari (1450 m), TM; 1♂, June 24, Trupakar (1800 m), TM; 2♀♀, June 28,
Chembu (1650 m), TM; 1♂, July 16, Sherabesi (1460 m), TM.



Figs. 1-4. *Thyreus massuri* (Radoszkowski) ♂.

1. 7th gastral sternite from ventral side. 2. 8th gastral sternite from ventral side, showing variation of apical shape. 3. Genitalia from ventral side. 4. Pubescent marks of 1st gastral tergite from ventral and lateral sides.

Distribution: India, C. to E. Himalaya, Assam, Burma, Thailand, Indochina, China, Malaya, and Sumatra.

The specimens from Nepal well coincide with the redescription given by Lieftinck in gastral sternites and male genitalia (Figs. 1-3), especially with the specimens from India and Burma. The apical shape of the 8th gastral sternite shows some individual variation (Fig. 2).

However, the specimens from Nepal are more or less different from those recorded by Lieftinck, in both paler coloration and marks. In the system by Lieftinck, *massuri* is classified into the bluish forms and the pubescent marks are more remarkable than those from Nepal. In the series obtained from Nepal, the pubescence is tinted with nearly greyish white, only rarely admixed with a bit of light blue pubescence on frontal face or abdominal bands, and the marks of the 1st gastral tergite show a gradation from incomplete L-shaped marks

lacking basal band (Fig. 4a) to the narrow bands of both base and apex combined by lateral marks (Fig. 4b).

Lieftinck writes, "In topotypical (Himalayan) *massuri* and in series from the high mountains of Central China, the bands are straight, relatively narrow, and of a pallid grey-blue tint and species from S. India and Burma are distinctly bluer and light blue" (1962: 96), and further, "The light pubescence of the truly Palearctic species is invariably white, whereas in the warmer countries nearly all *Thyreus* are colored various shades in blue" (1968: 7).

Therefore the population in Nepal seems to represent a mountaneous type, having different characters of pubescent marks and color than the series cited Lieftinck mainly from the Oriental region.

5. *Thyreus takaonis* (Cockerell)

Crocisa takaonis Cockerell, 1962, Ann. Mag. Nat. Hist., (8)7: 311-312.

Thyreus takaonis, Lieftinck, 1962, Zool. Verhandl. Leiden, 53: 21-26.

Specimens examined: 1♀, Oct. 8, 1965, Khumal Khoti (700 m), Isao Yoneta; 1♂, June 25, Keelatichhap (1250 m), TM; 1♂, July 15, Namuto (1400 m), TM.

Distribution: Formosa, Ryukyu Is., Amami Is., Korea, N. to S. China, C. Himalaya, India, and Ceylon.

Finally the flower visit records briefly listed as follows:

Boraginaceae	<i>Cynoglossum zeylanicum</i> Thunb.	<i>T. decorus</i> 1 ♂
		<i>T. massuri</i> 2 ♀♀
Verbenaceae	<i>Myosotis scorpioides</i> L.	<i>T. massuri</i> 1 ♂
	<i>Vitex negundo</i> L.	<i>T. himalayensis</i> 4 ♂♂
		<i>T. massuri</i> 1 ♂
		<i>T. takaonis</i> 2 ♂♂
		<i>T. himalayensis</i> 1 ♂
Rubiaceae	<i>Randia tetrasperma</i> Roxb.	<i>T. massuri</i> 1 ♀
Compositae	<i>Centaurea cyanus</i> L.	<i>T. histrio</i> 1 ♀
	<i>Chrysanthemum</i> sp.	<i>T. massuri</i> 1 ♂
	<i>Cirsium</i> sp.	<i>T. massuri</i> 1 ♂
	<i>Coreopsis lanceolata</i> L.	<i>T. histrio</i> 1 ♂