



Title	Synonymy and other taxonomic notes on the two commonest bumble bees of Eastern Asia
Author(s)	Yasumatsu, Keizo
Citation	Insecta matsumurana, 17(1), 17-22
Issue Date	1949-07
Doc URL	https://hdl.handle.net/2115/9502
Type	departmental bulletin paper
File Information	17(1)_p17-22.pdf



SYNONYMY AND OTHER TAXONOMIC
NOTES ON THE TWO COMMONEST
BUMBLE BEES OF EASTERN ASIA

By KEIZÔ YASUMATSU

Entomological Laboratory, Kyushu University

The bumble bee fauna of Eastern Asia has been studied mainly by O. RADOSZKOWSKI, F. SMITH, J. PÉREZ, H. FRIESE, S. MATSUMURA, T. D. A. COCKERELL, H. BISCHOFF, W. F. REINIG, A. S. SKORIKOV and T. H. FRISON. Nevertheless much should be done before completing a monograph of these bees in Eastern Asia. Among many species found there, both *Bombus ardens* and *B. speciosus* have always been questionable to several Hymenopterologists who attempted to determine these bees. Further more Hymenopterologists were unable to determine distinctly or definitely such bumble bees as *Bombus harmandi* and *B. andreaei*, both of which had been described from Japan.

This is a part of my revisional studies of all the species and varieties of bumble bees known to occur in Japan. My fairly definite conclusions regarding the identity of most of the names proposed by several authors, which led to much confusions of the two commonest bumble bees mentioned above, are based upon a study of literature and a good number of specimens preserved in the collection of the Entomological Laboratory of the Kyushu University, Fukuoka.

Before going further I express my sincere gratitude to Professor TEISO ESAKI for his kind guidance and to Professor KUNIO IWATA for his kind advices given in the course of the present study. To Dr. KARL V. KROMBEIN I am deeply indebted for consulting some literature.

***Bombus (Pratobombus) ignitus* SMITH**

1869 *Bombus ignitus* SMITH, Entomologist, 4 : 207.

This species is very common in Japan (Hokkaido, Honshu, Shikoku, Kyushu, Tsushima, Yakushima), and is widely distributed in the Transbaikal Region, Ussuri Region, Manchuria, Korea, Quelpart Island, N. China, E.

China, and W. China as far west as Tatsienlu, China-Tibet border. So far as my investigation goes *Bombus ignitus*, *B. harmandi*, *B. ardens* and *B. andreaei* are but one and the same species. The characters of *harmandi* and *andreaei* given by PÉREZ and FRIESE respectively may be regarded as mere variations within those of *ignitus*. The size of the malar space in the female sex is the differentiating character of *Bombus harmandi* from *B. ignitus*. But I think it is not necessary at the present time to regard it as an important character between the species in question. As to *Bombus ardens*, MEADE-WALDO published in 1916 such an incorrect opinion that *B. ardens* may prove to be the male of *B. muscorum* var. *tarsatus*, SMITH, also from Japan. In Kyushu there are found three species of bumble bees, viz., *Bombus ignitus*, *B. speciosus* and *B. diversus*. Although both *ignitus* and *diversus* occur in the low land, *speciosus* is on the wing only in mountainous regions (over 250 meters in altitude). From this fact it seems to be impossible to regard that *Bombus speciosus* is the male of *B. ignitus*. The circumstantial evidence that the only male bumble bee found in the low land, otherwise of *Bombus diversus*, is *B. ardens* seemed undoubtedly to confirm *B. ardens* as the male of *B. ignitus*. Fortunately Dr. IWATA observed that *Bombus ardens* (♂) and *B. ignitus* (♀) were in copula in Ikeda, Osaka Prefecture. Thus I may summarise my consideration in the following way.

Bombus (Pratobombus) ignitus SMITH, 1869

Bombus ardens SMITH, 1879, syn. nov.

Bombus harmandi PÉREZ, 1905, syn. nov.

Bombus andreaei FRIESE, 1910, syn. nov.

Bombus andreaei var. *unicinctus* FRIESE, 1910, syn. nov.

Bombus ignitus var. *subcollaris* SKORIKOV, 1914, syn. nov.

Bombus ignitus var. *balteatus* SKORIKOV, 1933, syn. nov.

Bombus ignitus var. *cancellatus* FRISON, 1935, syn. nov.

The subgeneric position of *Bombus ignitus* has been a problem of discussion. The authors who placed the species in the Subgenus *Bombus* are FRISON (1935) and BISCHOFF (1936). FRISON wrote that the characters of the female suggest that it is a member of the Subgenus *Bremus* (s. s.). In 1905 FRIESE placed *Bombus ardens* in "Arten, deren Stellung im System noch unsicher ist." In 1933, SKORIKOV placed both *Bombus ardens* and *B. andreaei* in the group "Bombi incertae sedis" and doubtfully regarded *B. harmandi*

as a representative of the Subgenus *Diversobombus*. In the same paper SKORIKOV published the opinion on the subgeneric position of *Bombus ignitus*, saying that "Die Zugehörigkeit dieser Art zur Gattung *Lapidariobombus* bedarf, meines Erachtens, Bestätigung." Unfortunately, however, the examination of the male genital appendages reveals that the species is very characteristic of the Subgenus *Pratobombus*.

The colour variation of this species is confined to the presence or absence of the yellowish hairs either on the pronotum or on the basal abdominal tergites in the female sex. The following key is offered for the separation of *ignitus* and all its individual variations hitherto named.

1. Pronotum with a band of yellowish hairs var. *subcollaris* SKORIKOV, 1914
 Pronotum without a band of yellowish hairs 2
2. Hairs on the basal abdominal tergites entirely black
 *ignitus* SMITH, 1869; *andreaei* FRIESE, 1910
 Hairs on the first or second tergite not entirely black 3
3. Hairs on the first or second tergite mixed with some yellowish ones
 var. *cancellatus* FRISON, 1935
 Second tergite with a band of yellowish hairs
 *harmandi* PÉREZ, 1910; *andreaei* var. *unicinctus* FRIESE, 1910

In Kyushu the male (*ardens* auct.) occurs only in late spring or early summer.

***Bombus (Bombus) speciosus* SMITH**

1873 *Bombus speciosus* SMITH, Trans. Ent. Soc. London, 1873 : 205.

In Japan this species is also very common in Hokkaido, Northern part of Honshu, mountainous regions of Central and Western Honshu and Kyushu. The distribution of the species in Eastern Asia is very wide, being found in the Transbaikal Region, Manchuria, Korea, Quelpart Island, Saghalien and N. China.

It is a strange fact that during sixty years or more no one has attempted to compare *Bombus speciosus* with *B. sapporoensis*. In 1935 FRISON suggested that *speciosus* SMITH (*Bremus* s. s.), known only in the male, is possibly the male of *ignitus*. On the other hand, SKORIKOV was of the same opinion as FRISON. Thus in 1938, I erroneously regarded *Bombus speciosus* as the male of *B. ignitus*. Recently I have noticed the fact that the bumble bees found only in mountainous regions of Kyushu are *Bombus speciosus* (♂) and *B.*

sapporoensis. After my careful comparison of these two forms, I came to the conclusion that these two forms are one and the same species, namely *Bombus speciosus* being the fresh male of *B. sapporoensis*. In the male of this

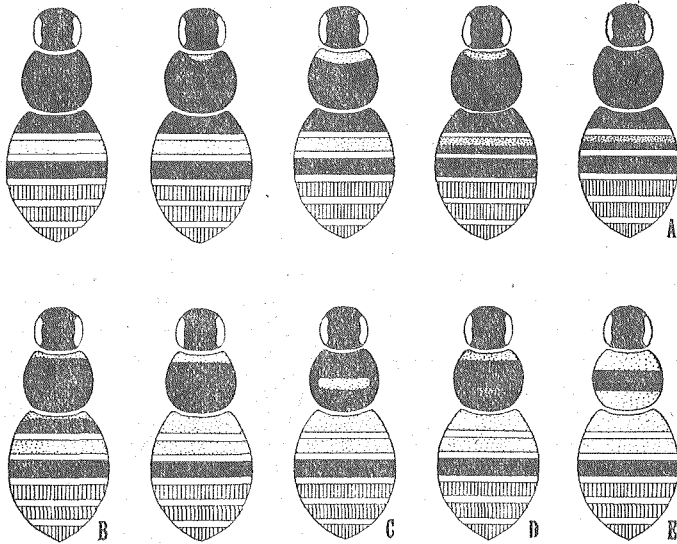


Fig. 1. Colour variation of *Bombus speciosus* (females and workers). Hairs black (black portion). Hairs yellowish, greyish or pale red (longitudinally striped portion). A : *ganjsuensis*. B : *ikonnikovi*. C : *invitabilis*, *catagraphus*. D : *hypocrita*. E : *vanus*.

species the colour variation is found only in the pubescence on the head, and the variation is transitional between yellow and brownish-black. In the female the individual colour variations are as shown in the text-figure. In the following lines I may summarise my consideration on *Bombus speciosus*.

Bombus (*Bombus*) *speciosus* SMITH, 1873

Bombus ignitus var. *hypocrita* PÉREZ, 1905, syn. nov.

Bombus sapporoensis COCKERELL, 1911, syn. nov.

Bombus sapporoensis ganjsuensis SKORIKOV, 1913, syn. nov.

Bombus fraterculus var. *esakii* SKORIKOV, 1933, syn. nov.

Bombus lapidarius var. *Kalinowski* RADOSZKOWSKI, 1887

Bombus Kalinowskii RADOSZKOWSKI, 1890

Bombus alticola MATSUMURA, 1908 (nec KRIECHBUMER)

Bombus jesoensis MATSUMURA, 1911

Bombus ikonnikovi SKORIKOV, 1913

- Bombus ikonnikovi* var. *mariae* SKORIKOV, 1913
Bombus ikonnikovi var. *catagraphus* SKORIKOV, 1913
Bombus ikonnikovi var. *invitabilis* SKORIKOV, 1913
Bombus ikonnikovi var. *vamus* SKORIKOV, 1913
Bombus formosulus SKORIKOV, 1913
Bombus fraterculus SKORIKOV, 1922

The male of this species occurs in late summer or early autumn in Kyushu. Mr. Y. KUROSAWA collected a single female of this species which was hibernating in decaying wood of a *Cryptomeria* tree (4. v. 1947, Takizawa Pass, Itsuki-mura, near Wakamatsu City, Fukushima Prefecture).

Literature

- BISCHOFF, H. 1936 Schwedisch-chinesische wissenschaftliche Expedition nach den nord-westlichen Provinzen Chinas, 56. Hymen. 10, Bombidae. Arkiv för Zoologi, 27A, no. 38: 1—27.
- COCKERELL, T. D. A. 1911 Bees in the collection of the U. S. Nat. Mus., 39: 635—658.
- ESAKI, T., HORI, H. et K. YASUMATSU 1938 Iconographia Insectorum Illustratio Iconographica coloribus ad naturam depicta. Tokyo.
- FRIESE, H. 1905 Neue oder wenig bekannte Hummeln des Russischen Reiches, (Hymenoptera). Ann. Mus. Zool. P'Acad. Imp. Sci. St.-Petersbourg, 9: 507—523.
- FRIESE, H. 1910 Neue Bienenarten aus Japan. Verh. k. k. zool.-bot. Ges., Wien, 60: 404—410.
- FRISON, T. H. 1935 Records, notes and descriptions of *Bremus* from Asia (Bremidae: Hymenoptera). Records of the Indian Museum, 37: 339—363.
- MATSUMURA, S. 1911 Erster Beitrag zur Insekten-Fauna von Sachalin. Jour. Coll. Agr., Tohoku Imp. Univ., Sapporo, Japan, 4: 84—107.
- MEADE-WALDO, G. 1916 Notes on Apoidea (Hymenoptera) in the collection of the British Museum, with descriptions of new species. Ann. Mag. Nat. Hist., ser. 8, 17: 448—470.
- OKAMOTO, H. 1924 The insect fauna of Quelpart Island. Bull. Agr. Expt. Sta., Government-General of Chosen, 1: no. 2.
- PÉREZ, J. 1905 Hyménoptères recueillis dans le Japon central, par M. HARMAND, ministre plénipotentiaire de France à Tokio. Bull. Mus. d'Hist. Nat., Paris, 1905: 23—39.
- PITTONI, B. 1937 Die Hummelfauna des Kalsbachtals in Ost-Tirol. Festschr. für Prof. Dr. EMBRIK STRAND, 3: 64—122.
- RADOSZKOWSKI, O. 1887 Hyménoptères de Korée. Horae Soc. entom. Ross., 21: 428—436.
- RADOSZKOWSKI, O. 1890 Hyménoptères de Korée. Horae Soc. entom. Ross., 24: 227—232.
- SICKMANN, F. 1894 Beiträge zur Kenntnis der Hymenopteren-Fauna des nördlichen China. Zool. Jahrb., Syst., 8: 195—236.
- SKORIKOV, A. S. 1913 Neue Hummelformen (Hymenoptera, Bombidae). Revue Russe d'Entom., 13: 171—175.
- SKORIKOV, A. S. 1922 Palaearctic bumble bees: General biology including zoogeography. Bull. Stat. Régionale Protect. d. Plantes à Petrograd, 4: 1—160.
- SKORIKOV, A. S. 1933 Zur Hummelfauna Japans und seiner Nachbarländer. Mushi, 6: 53—65.
- SMITH, FR. 1869 Entomologist, 4: 207 (description of *Bombus ignitus*).

- SMITH, FR. 1873 Descriptions of Aculeata Hymenoptera of Japan, collected by Mr. GEORGE LEWIS at Nagasaki and Hiogo. Trans. Ent. Soc. London, 1873 : 181—206
- SMITH, FR. 1879 Descriptions of new species of Hymenoptera in the collection of British Museum, London
- TOMARI, N. 1930 Insects of Kwantung Province.
- UCHIDA, T. 1936 Einige Hymenopteren aus dem Berg Daisetsu. Biogeographica. Trans. Biogeographical Soc. Jap., 1 : 63—74.
- YASUMATSU, K. 1935 Insects of Jehol. Superfamily Apoidea. Rep. First Sci. Exp. Manchoukuo, sec. 5, iv. 1, part 12, art. 67.
- YASUMATSU, K. 1947 Hymenopterous fauna of N. Kyushu. Biosphaera, 1 : 31—35.