

On Two Ant Species of the Genus *Formica* (Hymenoptera, Formicidae) from Japan

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Synopsis New record of *Formica gagatoides* from Japan and new status of *Formica fukaii* are mentioned.

1. *Formica gagatoides* RUZSKY

This species is a representative palaearctic circumpolar species of ants with *Camponotus herculeanus* and *Leptothorax acervorum*. This species is restricted to the north of latitude 60°N (DLUSSKY, 1967).

SONOBE obtained it from Mts. Kita-dake and Mae-hodaka-dake, alpine mountains in Central Japan in 1972 and 1973 respectively. In 1975 Prof. Masaki KONDOH also obtained it from Mt. Norikura-dake, an alpine mountain in Central Japan as well (KONDOH, unpublished). All the three mountains are situated around 36°N Lat. Therefore, these records are from far South of the past ones. Details of the localities are as follows.

- 1) Mt. Kita-dake (35.6°N Lat.): 2,900 and 2,940 m alt.
- 2) Mt. Mae-hodaka-dake (36.3°N Lat.): 2,540 m alt.
- 3) Mt. Norikura-dake (36.1°N Lat.): 2,800 m alt.

In Central Japan, it is the highest land-living species of ant. Its vertical distribution overlaps with the upper part of that of *Myrmica kurokii*, but not with those of *Formica lemani* and *Myrmica ruginodis*, which are also highland species (Fig. 1). All the four nests seen by SONOBE are under stones in *Pinus pumila* forests.

2. *Formica fukaii* WHEELER, stat. n.

F. exsecta var.: YANO, 1910

F. exsecta: YANO, 1912

F. exsecta var. *fukaii* WHEELER, 1914

F. exsecta exsecta: KUZNETZOV-UGAMSKII, 1926. (*Syn. n.*)

F. exsecta fukaii: YANO, 1950; KONDOH, 1961

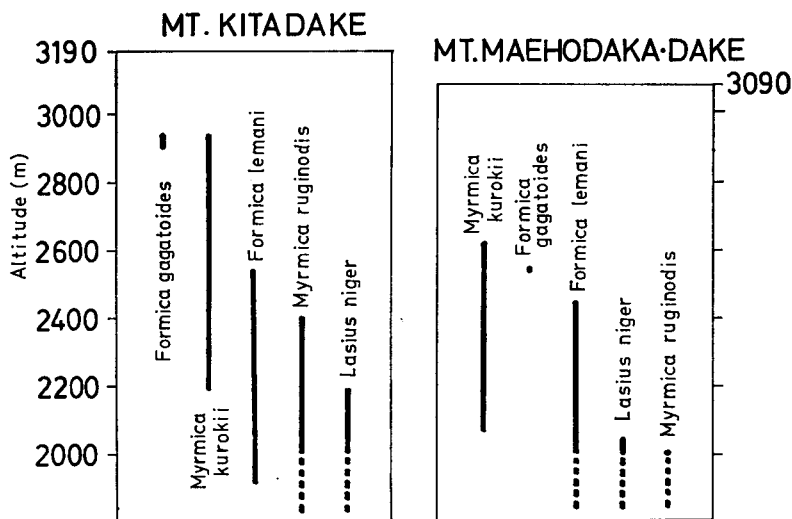


Fig. 1. Altitudinal distribution of ants above 2,000 m in the two alpine mountains of Central Japan.

F. exsecta: DLUSSKY, 1962; YASUNO, 1963; OSAWA, 1970; KUBOTA, 1971

F. mesasiatica DLUSSKY, 1964. (*Syn. n.*)

Japanese species of the Subgenus *Coptoformica* was described by WHEELER (1914) as a variety of *F. exsecta* based on the workers collected in Saitama Prefecture. Later, it was also treated as a subspecies of *F. exsecta* (YANO, 1950). In recent years, Japanese *Coptoformica* ant has been treated as *F. exsecta* in most works (KUBOTA, 1971).

DLUSSKY (1967), in the study of the Genus *Formica* of the USSR, treated *F. exsecta* var. *fukaii* as 'incertae sedis', because this variety is based on the worker form only, with which it is scarcely possible to distinguish between the species of the Subgenus *Coptoformica*.

Now the Japanese *Coptoformica* holds only one species according to the study up to this time. We can not find any difference between this species and *F. mesasiatica* described by DLUSSKY (1964) from Tien-Shan mountains (USSR, Kirdhizia). Consequently we make *F. mesasiatica* as a new synonym of *F. fukaii*.

It is allied to *F. exsecta* NYL. and they both differ from all the other species of *Coptoformica* by hairy eyes of all three castes, convex profile of the clypeus and long 6-jointed maxillary palpi. *F. fukaii* can be distinguished from *F. exsecta* by the absence of suberect hairs on the head of female and on the cheek of male. Workers of *F. fukaii* differ from those of the latter by more dense pubescence of gastric tergites and by absence of suberect hairs on the head (except some south-west-european populations of *F. exsecta*, f. *dalcqi* BONDR., workers of which have no suberect hairs. However females and males of this form are not different from

those of the typical *F. exsecta*).

In Asia the south boundary of the distribution of *F. exsecta* is in accord with the boundary of forest zone in northern Kazakhstan, crosses Altai, northern (forestry) part of Mongolia, Baykal coasts and stretches along Lena. Besides, 3 local populations were founded near Chita, between Amur and Zeya rivers and near Khabarovsk. *F. exsecta* is substituted by *F. longiceps* DLUSSKY and *F. pisarskii* DLUSSKY on the most part of East Siberia and Mongolia. There is only *F. brunneonitida* DLUSSKY in Primorskij krai of the USSR (Vladivostok, Ussuriysk and Suchan). In Central Asia *F. exsecta* is separated from *F. fukaii* by dry steppes and deserts of Kazakhstan and Djungharia.

This means that *F. exsecta* and *F. fukaii* are essentially allopatric forms. We have never found in Asia any populations which we can consider to be intermediate between these forms. That is why we believe *F. fukaii* and *F. exsecta* are separate species.

Distribution. Mountains of Middle Asia, Japan.

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