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A NEW GENERIC STATUS OF
CRABRO NITOBEI MATSUMURA, 1912,
WITH THE REVIEW OF ITS BIOLOGY;
GENUS SPADICOCRABRO GEN. NOV.
(HYMENOPTERA, SPHECIDAE)

By K. TSUNEKI

SPADICOCRABRO NITOBEI (MATSUMURA, 1912)

- Crabro (Ceratocolus) nitobei Matsumura, 1912, Thous. Ins. Jap., Suppl. IV, p. 173, Pl. LIII, fig. 5, ♀ (really ♂), no. 930.
- Lestica (Lestica?) nitobei: Leclercq, 1954, Monogr. Syst. etc. Hym. Crabro., p. 291 (listed).
- Ectemnius (Metacrabro) nitobei: Tsuneki, 1958, Ann. Zool. Jap., 31 (3): 156 (♂ ♀, described).
- Lestica (subterraneus group = Lestica s. str.) nitobei: Bohart & Menke, 1976, Sphecid Wasps of the World., p. 431 (listed).
- Ectemnius (Metacrabro) nitobei: Leclercq, 1973, Bull. Ann. Soc. R. Belg., Ent., 109: 298 (described, new distribution: Formosa and Sikkim).
- Okuno, H. 1975. Observation on the behaviour of Ectemnius nitobei Mats. Hym. Comm., 2: 8-10 (in Jap.).
- Shimoyama, K. 1987. Ectemnius nitobei in Aomori Pref. Collecting records and observations of their nesting activities and the nests. Ibid., 27: 46-57 (figs. in Jap.).

At the time when I redescribed the male of this species and newly described the female of which (1958) I placed it, based mainly upon the characters of the female, under Ectemnius (Metacrabro), with somewhat a query, because, although the general structural and punctational distinctions are, without doubt, those of Ectemnius, but the sculpture of the scutum is not formal to Metacrabro: anterior transverse striae (here puncto-rugoso-striate) being confined to narrow antero-lateral corners alone and the posterior longitudinal striae (do) also restricted narrowly in front of scutellum (only here clearly longitudinally striate), leaving the broad central area simply, evenly, finely and closely punctured. On the other hand, the male of this species has many characters that are rather close to those of Lestica: head somewhat elongate posteriorly, flagellomeres of antenna fringed beneath with hair, fore femur fairly modified and enlarged, with a tooth at base beneath and fore tarsus considerably dilated; but the punctures on head and scutum much finer and closer, with the frontal marks less distinctly outlined and not shining, as in the female.

Moreover, this species is very peculiar in coloration and quite exceptional to the Crabroninae in general: except for the antennal scape which is orange yellow there is no yellow or whitish marked area anywhere. All the bands, stripes and marks are slightly yellowish brown, apical bands of GT and GS 1-3 (♀) or 1-4 (♂) and marks on legs are brownish of various tones; hairs, except silvery clypeal ones, also brownish and wings also markedly brownish black.

Thus it seems better to erect a new genus to receive this species than to allocate it compulsorily within either of the two genera mentioned above:

Genus Spadicocrabro gen. nov.

Genotype: Crabro (Ceratocolus) nitobei Matsumura, 1912.

Biology

During five days from 25. July to 5. August, 1975, H. Okuno frequently observed and captured this species (♂ ♀) that came flying to small holes of a barkless dead tree of Cryptomeria japonica which was stood against another live tree at the mountain pass, Konome-toge, Fukui Prefecture. Apparently the males passed the night or rainy hours in certain holes. The females frequently visited the tree and showed the behaviour as if to search for the nesting site. But he could not observe the nesting activity of the females after all. During the course he collected 3 ♀ 6 ♂, though several ♀ and ♂ were set free to observe their behaviour.

Later, in August, 1986, K. Shimoyama with two of his friends found a number of the wasps of this species nesting in the standing rotten tree trunks of Aesculus urbinata in Aomori Prefecture, type locality of the species, and made the observations of the provisioning activities of the females and the structure and contents of their nests.

The prey captured by the wasps were always the moths belonging to the genera Catocala (mainly C. nupta L., C. electa Borkh.), Ephesia or Mormonia, the Noctuidae.

While provisioning the wasp came back with a prey every 10-20 min. and passed 2-3 min. inside the nest. The entrance of the nest was left open and wasp, gliding with the prey that was held head to head, apparently strided from the back and partly pushed behind the body of the wasp, almost directly entered there. They paid special attention to confirm the mode of capturing the moth, but resulted in vain, because the wasp with the prey so swiftly entered the entrance. From time to time they tried to press the wings of the moth against the entrance wood at the moment when she perched there. But then she at once let it off and flew away.

Finally they cut off a large block of wood containing several nests, brought it to the Shimoyama's house and examined the structure and contents of the nests.

A larval cell was 21-26 mm in length and 6-7 mm in width. In the completed cells 2 to 4 moths were placed, always head in (upwards), with wings outwards along the cell wall and with their amputated bodies inside, as if being wrapped by the wings and the larva eating the body of the prey (they could not meet with the wasp's egg). In the cells in which the larvae have passed the eating period the cocoons were present, which were semi-transparent deep brown, filling the cells and wrapped with the prey's wings from which the greater part of the scales dropped off, making impossible to identify the species.

The nest was a complicatedly branched type in structure (Fig. 1), extending for about 50 cm in length, separately occupied by some wasps (because there were some entrance holes), each partly reusing the old tunnels and partly dug a new burrow or burrows (because the wasps frequently dropped the saw dusts from the entrance). Each branch tunnel contained usually two, often one, larval cells; partition walls between the cells and between a second cell and the rough packing till main tunnel were 6.0-6.5 mm in thickness, consisted of fine particles of saw dusts mixed with the wing scales and the amputated legs of the prey, while the rest of the branch tunnel (often 100 mm or over) and unused main tunnel were compactly stuffed with rough particles of saw dust (thus the different nests are separated with the thick layer of saw dusts).

The observers did not try to put an individual mark on the females, but judging from the presence of some entrance holes hither and thither, it seems certain that the wasps never use commonly the main tunnel.

During the course they collected 49 ♀ 44 ♂, showing that this species is not so rare in that district as in other parts of Japan.

