

ON THE HABITS OF *CLEPTES FUDZI* TSUNEKI (Hymenoptera, Cleptidae)

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It is known that Cleptid wasps are ectomonoparasites of the prepupae of various sawflies in cocoons. But their habits have heretofore been reported only by G. Takagi (1931) and C. P. Clausen (1940) in Korean species which remain both undetermined. In the summer of 1961 and 1962, fortunately, we had good chances to observe the habits of *Cleptes fudzi* Tsuneki while we were researching for some pests on pine trees at Sasayama, Hyogo Prefecture.

The writers wish to express their best thanks to Prof. K. Iwata and Dr. T. Okutani of the Hyogo University of Agriculture for their kind direction and encouragement. They are also indebted to Prof. K. Tsuneki of the Fukui University for the identification of *Cleptes* wasps.

Host: *Nesodiprion japonica* Marlatt.

The larvae of *japonica* were observed feeding on needles of pine trees, *Pinus densiflora* and *P. taeda*, in June, 1961. The results run as follows. Its cocoon is brown in color and approximately 8-9 mm in length. It seems to have 3 generations a year in this district. The larvae of its first and second generations spin their cocoons attaching them to the twig or needle, while those of the third generation may be considered to spin among fallen leaves on the ground where they hibernate. Attacking by *Cleptes* was observed afield on these arboreal host cocoons.

Observations

Observations were done in the field on *Pinus* twig at Tambaoyama near Sasayama.

When the adult female of *fudzi* finds a cocoon of *japonica*, she cuts a small hole with her mandibles through the cocoon wall near the apex of its anterior end and then, turning her abdominal tip to the hole, inserts her ovipositor backwardly through this opening. When she draws out her ovipositor after laying an egg, she discharges a quantity of paste-like material, probably from her abdominal end, over the hole in the cocoon and thus seals it effectively. These perforation and inserting behavior for oviposition are quite similar to those indicated by an ectomonoparasitic Chrysidid on *Cnidocampa flavescens* Walker, *Chrysis shanghaiensis* Smith, but the closing behavior is different from that of *Chrysis* on a point of never using her mandibles to seal the hole. It takes about 5 minutes to complete these manouevs. Thus the parasitized cocoons can be easily recognized by this small spot of material. The spot is 0.3 mm in diameter and is rather darker in color than the entire surface of cocoon. When the ovipositor of *fudzi* is extended, it is long enough to reach on a half of the length or more in the cocoon. So the

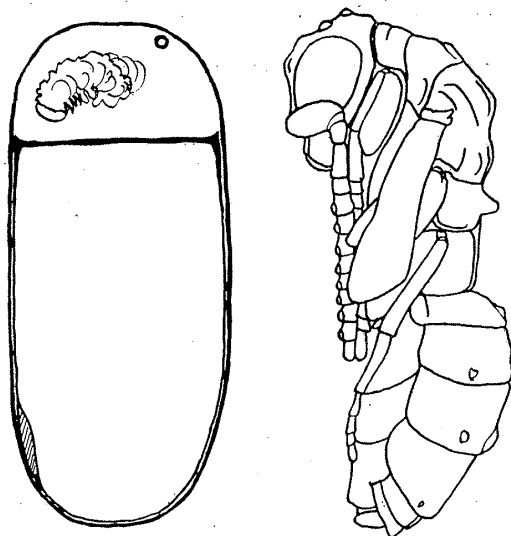


Fig. 1. The cocoon of *Cleptes fudzi* within that of the host.

Fig. 2. The pupa of *Cleptes fudzi*.

egg is oviposited rather deep near the bottom being placed on the body surface of the host, although is not adhered thereto. The host is completely and permanently paralyzed by *Cleptes* female.

The total developmental period from egg to adult is approximately 30 days according to the data taken under room temperature condition from June to July and from August to September in 1961. Though exact number of generations per year remains unknown, it may be presumed that the species has 3 broods a year according to the following facts and expectations.

(1) The first collection of adult *fudzi* in spring was dated May 14 in 1950 at Ikeda, Osaka Pref. (the male specimen by Y. Sakai) and May 24 in 1933 at Youga-cho (the female specimen by A. Y.). (Tsuneki, 1959)

(2) The host *Nesodiprion* was observed to have at least 2 generations in summer season, first from June to July and second from August to September. (Writers' observation)

(3) But the third generation may occur in autumn, for the host prepupae in arboreal cocoons do not seem to be able to overwinter high above the ground. ... (Writers' conjecture)

The mature larva makes a distinct parchment-like cocoon (Fig. 1) within that of the host. Its anterior end is flattened or truncated, partitioning off the host remains compressed in a mass. A quantity of meconium is discharged in the cocoon of parasite's own at the bottom. The emergence hole cut by the adult *fudzi* on the host cocoon is circular with a diameter of 2 mm, whose location on the wall is not definite as follows: (1) the anterior end through the truncated wall of its own cocoon, (2) the central part of the host cocoon, just under the truncat-

ed portion, and (3) the posterior end. We observed that (1) is the commonest case.

Percentage of parasitism by *Cleptes fudzi* in the field was observed as follows. In 1961, only 4 *Nesodiprion* cocoons out of 48 collected were being attacked by *C. fudzi*, while in 1962, in the same locality, 39 cocoons out of 119 examined were containing Cleptid cocoons, that is 8.3 % and 32.8 % respectively. Thus *Cleptes fudzi* may be considered to be an important natural enemy upon this needle sawfly.

References

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再び花粉媒介昆虫としてのツツハナバチの利用について

平 嶋 義 宏

村上陽三博士からリングの花粉媒介昆虫として利用されているマメコバチ *Osmia cornifrons* (Radoszkowski) [本種に対し, 1959 年に著者はコツノツツハナバチと新名を付した。しかし津軽地方での応用事業に敬意を表し, 同地方で広く呼びならわしているマメコバチ (小さい蜂の意) を, 新たに, 標準和名として採用することを提唱したい] について報せをうけた資料は青森県南津軽郡藤崎町一帯のものであつた。その篤志家の 1 人として竹島儀助氏を紹介され, 同氏からはマメコバチの利用について数回の連絡をうけた。

ところが, 最近ある機会から, 青森県北津軽郡鶴田町においても, マメコバチが利用されている事実を知った。その篤志家の 1 人に松山栄久氏があり, 同氏については, 長らく弘前大学におられた福島正三博士からもお話を伺う機会があつた。

このように, 青森県下ではマメコバチの利用はかなり広範に普及していることがうかがわれる。

更に興味深いことには, マメコバチの利用が, 津軽地方のそれとは全く別個に, 信州の一部農家でも行われていることが, 信州大学農学部前田泰生氏 (現東北農試栽培第 2 部) の調査で判明した (第 23 回日本昆虫学会大会講演)。このことについては, 同氏からの興味ある発表を期待したい。最後に, このような昆虫の利用法を, 公私に拘らず, 行なっている事実をお存知の方は, 是非御一報下さるようお願いしたい。