

Notes on a Linden Leaf Mining Sawfly, *Parna kamijoi* (Hymenoptera, Tenthredinidae), New to Korea with Brief Life History Notes

피나무류를 加害하는 잎벌科的 韓國未記錄 1種, 피나무잎벌 (벌目, 잎벌科) 보고

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Abstract - A linden leaf-mining sawfly, *Parna kamijoi* Togashi, 1980, is newly reported from Korea. A brief description of the adult and observations on its life history are given.

Key Words - Tenthredinidae, Leaf miner, *Parna kamijoi*, *Tilia*, Korea

초 록 - 피나무류의 잎에 잠엽하는 피나무잎벌 (신칭)이 간략한 생활사와 함께 우리나라에서 처음으로 보고된다.

검색어 - 피나무잎벌, 잎벌科, 벌目, 寄主, 分類, 韓國

A linden leaf-mining sawfly, *Parna kamijoi* Togashi, 1980, was described on the basis of a female which was reared from a leaf of *Tilia maximowiziana* in Hokkaido. The species was later recorded from Europe by Chevin (1983), but Liston (1993) described the European one as a different new species, *P. reseri*, comparing the European material with the description of *P. kamijoi* by Togashi (1980, 1990). Thus, *P. kamijoi* is now definitely known only from Japan to date. In Hokkaido, this leaf-mining sawfly has often outbreaked with a serious damage (北海道森林昆蟲談話會, 1988), but its biology has not been investigated in detail up to now.

In Korea, linden trees have suffered recently from defoliation by a leaf-mining sawfly, which has been identified eventually with *P. kamijoi*. In the present study, *P. kamijoi* is reported for the first time from Korea with a brief redescription of the female and notes on its

life history. Abbreviations for the depositories are: FRI - Forestry Research Institute, Seoul; NSMT - National Science Museum, Tokyo.

Parna kamijoi Togashi 피나무잎벌 (신칭)

Parna kamijoi Togashi, 1980, Kontyû, 48(2): 213; Smith, 1981, Proc. ent. Soc. Wash., 83: 770; Togashi, 1990, Jpn. J. Ent., 58: 182; Liston, 1993, Ent. Ber. Luzern, 29: 74.

Description: Female (Figs. 1-4). Robust small sawfly, 3.5-4.0 mm long. Black, with labrum, tegula, apex of each femur, and all tibiae and tarsi dirty pale yellow; antennae dark brown, dorsally blackish; wings subhyaline, with veins and stigma dark brown. Head with genal carina distinct; anterior margin of clypeus slightly emarginate (Fig. 2); antenna much shorter than costa; 4th

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antennal segment 0.6-0.7 times as long as 3rd segment; mesopleuron with prepectus distinct; forewing (Fig. 3) with M and 1m-cu divergent, M and Rs+M meeting Sc+R near the same point, and anal cell petiolate; hindwing with no closed middle cells and radial cell closed; tarsal claw with one outer tooth and large acute basal lobe; sawsheath large, upturned and apically pointed (Fig. 4). Male unknown. Body length of the matured larva is about 8.0 mm, milky white.

Material examined: KOREA: 2 ♀, Hongneung (reared from larvae), Seoul, 6. IV. 1997, B.K. Byun (FRI); 2 ♀, same data except 8. IV. 1997 (FRI) "Host: *T. kiusiana*"; 1 ♀, Mirugam (Puktaesa), 1,300 m, Mt. Odaesan, Kangwon-do, 29. V. 1992, A. Shinohara (NSMT); 1 ♀, same data except 26. V. 1993 (NSMT). JAPAN: ♀ (holotype), "Sapporo, Hokkaido, 20-V. 1958, K. Kamijo," "Holotype *Parna kamijoi* sp. nov." (Kyushu Univ., Fukuoka); 1 ♀, "Sapporo, JAP., 1-VI-1930, S. Fujii," "*Parna kamijoi* Togashi, D.R. Smith, '80" (NSMT); 1 ♀, "Bibai, Hokkaido, 10-V. 1961, K. Kamijo," "Host: From the leaves of *Tilia japonica*" (NSMT); 1 ♀, "Bibai, Hokkaido, 14. V. 1975, K. Kamijo," "Host: *Tilia japonica*" (NSMT); 1 ♀, "Asahikawa, Hokkaido, 22. V. 1988, K. Kamijo," "From the leaves of *Tilia japonica*" (NSMT).

Distribution: Korea (Seoul, Kangwon-do), Japan (Hokkaido, Honshu). According to Liston (1993), all the European records of this species (Altenhofer, 1980; Chevin, 1983; Huflejt, 1987) should refer to *P. reseri* Liston.

Taxonomic comments: *Parna* is a small genus represented by four Palearctic species (Smith, 1976; Liston, 1993).

P. kamijoi can be distinguished from *P. tenella* (Klug, 1816) from Europe and Japan and *P. babai* Togashi, 1990, from Japan by the large blackish trochanters and femora of all legs. The latter two species is sharing entirely pale trochanters and femora. The remaining species of the genus, *P. reseri* Liston from Europe is very close to *P. kamijoi* and possibly conspecific with it. Liston (1993) separated *P. reseri* from *P. kamijoi* by the "margin of clypeus emarginate, whereas truncate in *P. kamijoi*; antenna much shorter than length of costa, but nearly as long as costa and stigma of forewing in *P. kamijoi*; 4th antennal segment about half as long as 3rd segment, whereas more than two-thirds as long as 3rd segment in *P. kamijoi* and the shape of serrulae of lancet. It should be noted that Liston's concept of *P. kamijoi* is

not based on the examination of specimens, but totally based on Togashi's original description. An examination of a series of *P. kamijoi* from Japan and Korea, including the holotype of the species, has revealed that the alleged differences in the shape of the clypeus and the length of the antenna do not actually exist; *P. kamijoi* has the anterior margin of clypeus slightly emarginate and the antenna much shorter than the length of costa. There remain then only rather subtle differences in the relative lengths of the 3rd and 4th antennal segments and the shape of the lancet. The validity of Liston's species should be reexamined using adequate material both from East Asia and Europe.

Host plants: In Japan, the larvae of the species are known to feed on *Tilia maximowicziana* and *T. japonica* (Togashi, 1980; 北海道森林昆虫談話會, 1988). In Korea, the senior author has succeeded in rearing this species from the larvae mining leaves of *Tilia kiusiana*, and *T. taquetii* S., and observed larval mines most probably of this sawfly on *T. taquetii* S., *T. rufa* N., and *T. insularis* N..

Life history: The species has one generation a year. Adults emerge from the early of April and mate immediately. Just after mating, the female lays egg singly on the medio-lateral part of a leaf of *Tilia* spp. The eggs hatch in the middle of April, 7-9 days after being laid. The hatched larva mines into a leaf of *Tilia* spp. from the middle of April to the early of May. In the middle of May, matured larvae escape from the leaves to the ground and enter the soil, where they stay until next spring. Pupation takes place in the soil at the late of March.

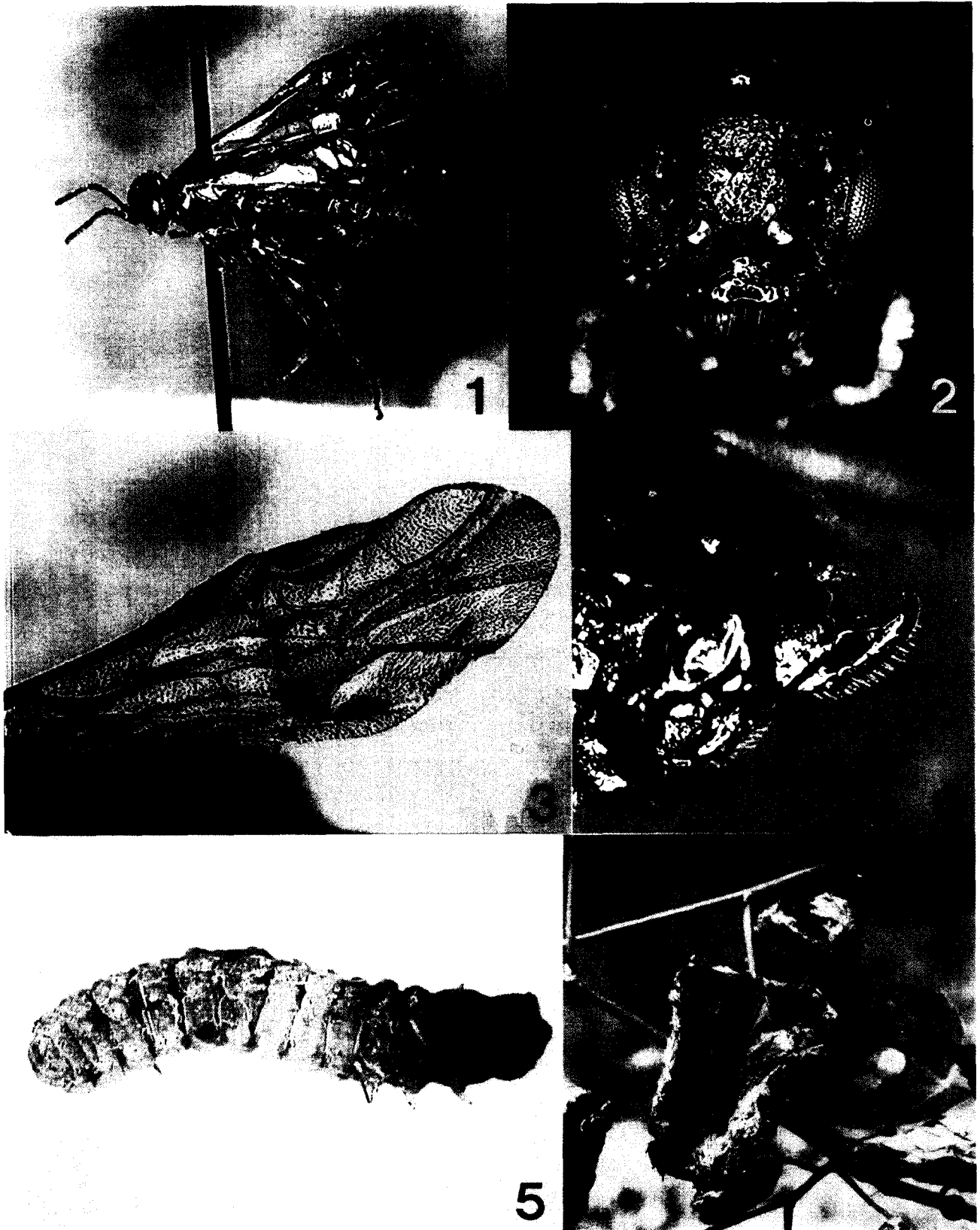
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Figs. 1-6. *Parna kamijoi*, female, 1, Whole insect; 2, head, frontal view; 3, forewing; 4, sawsheath, lateral view; 5, matured larva; 6, the damaged leaves.