

## Discovery of Host Plant and Larva of *Pamphilius lizejiani* (Hymenoptera, Pamphiliidae) in Hubei Province, China

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**Abstract** Based on the rearing of larvae found in Shennongjia, Hubei Province, China, *Platycarya strobilacea* Siebold and Zuccarini (Juglandaceae) is recorded as a host plant of *Pamphilius lizejiani* Shinohara, 2012, a leaf-rolling sawfly previously known to occur in Hunan and Jiangxi Provinces, China. The larva is briefly described and notes are given for the life history. This is the first record of the host plant and immature stages of *P. lizejiani* and the first distribution record of the species from Hubei Province.

**Key words:** Pamphiliidae, *Pamphilius lizejiani*, new host record, *Platycarya strobilacea*, China.

### Introduction

*Pamphilius lizejiani* Shinohara, 2012, is a leaf-rolling sawfly recently described from five specimens obtained in Hunan and Jiangxi Provinces, China (Shinohara and Wei, 2012). It is one of the two species of the *P. basilaris* group (Shinohara, 2002) and is very closely related to the Japanese *P. basilaris* Shinohara, 1982, a peculiar pamphiliid associated with Japanese Walnut, *Juglans mandshurica* Maxim. var. *sachalinensis* (Komatsu) Kitam. (Juglandaceae) (Shinohara, 2003).

In Shennongjia, Hubei Province, China, we found four pamphiliid larvae solitarily feeding on the leaflet of *Platycarya strobilacea* Siebold and Zuccarini (Juglandaceae) in May, 2011, and obtained one female adult of *P. lizejiani* in April, 2012, by rearing them. The host plant and larva of *P. lizejiani* were unknown. Here we give the new host record, brief description of the larva, and notes on its life history. The reared female specimen is kept in the National Museum of

Nature and Science, Tsukuba.

### Observations and discussion

On May 22, 2011, we collected four pamphiliid larvae, each of them solitarily living in a simple leaf-roll on *Platycarya strobilacea* (Fig. 1A–D, F) in Qianjiaping (1,530m, 31°25'N, 110°24'E), Shennongjia, Hubei Province, China. The four larvae matured and entered the soil on June 2–4 and one female adult emerged on April 17, 2012, in the laboratory. In Yaolangou (1,360m, 31°30'N, 110°23'E), Shennongjia, we also found a leaf-roll of pamphiliid larva on the same plant on May 26, 2010 (Fig. 1E, G, H), but no attempt was made to rear the larva.

From the facts given above, we consider that *P. lizejiani* has a univoltine life cycle as in other *Pamphilius* species. In Shennongjia, the adults should occur in early May and the larval feeding period is in middle/late May to early June. On Mt. Mufu-shan (1,350m alt.) and Mt. Yun-shan



Fig. 1. *Pamphilius lizejani*, larvae (A–E) and larval leaf-rolls (F–H). — A, B, D, Last instar larva, collected on May 22, 2011, Qianjiaping, photographed on June 1; C, same larva, matured and photographed on June 3; E, middle instar larva, Yaolangou, photographed on May 26, 2010; F, Qianjiaping, underside, photographed on May 22, 2011; G, Yaolangou, underside, photographed on May 26, 2010; H, same, upper side. White arrow: remains of egg shells. Black arrow: larval leaf-rolls.

(1,200 m alt.), Hunan Province, the adults were collected in late April to early May, while one female paratype from Jiangxi Province has been labeled “Jiangxi, 1967.3.4” (Shinohara and Wei,

2012).

In five cases observed, one leaflet of the host plant always had only one leaf-roll. The leaf-roll was a simple one on the underside of the leaflet

(Fig. 1F–H: black arrows). The remains of egg shells were attached to the lateral side of the midvein at about basal one-fourth to one-third on the undersurface of the leaflet (Fig. 1F, G: white arrows).

The last instar larva (Fig. 1A–D) is characterized as follows: Length about 12–13 mm; head black, with large paired spots in anterior part of parietal region and lateral part of frons creamy white and posterior lateral part of vertex pale brown; clypeus brown; antenna pale brown, with apical segment blackish; labrum pale brown, darkened medially; mandible brown, becoming blackish at apex; labium and maxilla pale green, with palpi pale brown. Trunk pale green; prothoracic shield with large rounded blackish spot dorsally; lateral shield concolorous with trunk; cervical sclerite and spot dorsal to each thoracic leg black; thoracic legs all creamy white; suranal hook and setae on anal segment blackish brown; subanal appendage creamy white, with apical segment blackish. The middle instar larva (Fig. 1E) is similar in color pattern to the last instar larva.

The leaf-rolls and larval characters of *P. lizejiani* are quite similar to those of *P. basilaris* as described by Shinohara (2003). For the moment, the larva of *P. lizejiani* is not distinguishable from that of *P. basilaris* except for the host differences. The larvae of these two species are easily separated from those of the other *Pamphilius* species by the peculiar color pattern as described above and the juglandaceous host.

The female that emerged from the larva agrees well with the original description of *P. lizejiani* (Shinohara and Wei, 2012). In this specimen, both the antennae have 23 flagellomeres, with the 1st flagellomere about 1.4 times as long as the 2nd, the mesoscutellum and mesepisternum are very smooth, the latter very sparsely punctate, and the entire cell Rs and most of the cell 2M of the forewing are blackish. The 2nd to 4th abdominal terga have no blackish marks.

This is the second species of Pamphiliidae

known to feed on the Juglandaceae and the second known species of sawfly feeding on *Platycarya*. Another species of sawfly associated with *Platycarya strobilacea* is *Craesus platycaryae* Togashi, 1997, a nematine tenthredinid from Honshu, Japan (Togashi, 1997). The host plant *Platycarya strobilacea* is widely distributed in China (Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Yunnan, and Zhejiang Provinces), Japan, Korea, and Vietnam (Lu *et al.*, 1999). Because both the sawfly species are known from only several specimens each, further search for the sawflies on *Platycarya strobilacea* over the whole range of this plant species may be needed to clarify the actual distribution range of the two sawfly species.

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