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## Japanese species of the genus *Proutia* Tutt, 1899 (Lepidoptera: Psychidae)

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### Abstract

Two new species of the genus *Proutia* are described from Japan based on both sexes. *Proutia maculatella* **sp. nov.** is distinctive in having maculated forewing upperside. *Proutia nigra*, **sp. nov.** has unicolorous blackish brown forewing upperside and similar to the European species, *P. betulina*, but differs from the latter in the longer processes of the male valvae and shorter female antennae.

**Key words:** Tineoidea, bagworm, Psychini, *Bruandia*, *Bruandella* **nom. nov.**, *nigra*, *maculatella*, new species, Japan

### Introduction

The genus *Proutia* Tutt, 1899 belongs to the tribe Psychini of the subfamily Psychinae, and includes a few species known from the Palaearctic Region (Sauter & Hättenschwiler 1991). Sobczyk (2011) enumerated the following seven species of the genus: *betulina* (Zeller, 1839), the type species of the genus, widely distributed from Europe to Turkestan; *breviserrata* Sieder, 1963 from Austria and Bulgaria; *norvegica* (Heylaerts, 1882) and *rotunda* Suomalainen, 1990 from Central to Northern Europe; *bogutica* (Solyanikov, 2000) from Kazakhstan; *nigripunctata* Dierl, 1955 from Nepal and *chinensis* Hättenschwiler et Chao, 1990 from Eastern China. The generic name *Anaprouitia* Lewin, 1949 based on *Fumea norvegica* Heylaerts, 1882 is a junior synonym of *Proutia* (**syn. nov.**), as the type species belongs to *Proutia* according to Palmqvist (2008), although Sobczyk (2011) treated it as the replacement name of *Bruandia* Tutt, 1900.

The genus *Proutia* superficially closely resembles the genera *Psyche* Schrank, 1801 and *Bruandella* **nom. nov.** (new replacement name for *Bruandia* Tutt, 1900, junior homonym of *Bruandia* Desmarest, 1857). The three genera are extremely similar to each other based on adult morphological characters of both sexes. However, *Proutia* is clearly distinguished from the two other genera based on the dorsally naked (not covered with scales) pectinations of the male flagellomeres. Moreover, *Proutia* almost always has the intercalary cell in the male forewing discoidal cell as in *Bruandella* (cell absent in *Psyche*).

There are differences among these three genera in the male genitalia. The anellus (valva penis) of the male genitalia of *Proutia* (*betulina*) and *Bruandella* (*comitella*) bears fine setulae, while in *Psyche* (*casta* and *crasiorella*) the anellus bears minute spinules (Dierl 1964; pers. obs.). The vesica of the phallus bears the cornuti consisting of a group of spinules in *Psyche*, but in the two other genera it does not bear spinules (Dierl 1964; pers. obs.). If we consider that the scaled antennal pectination, the absence of the intercalary cell, the presence of spinules on the anellus and vesica of male genitalia are apomorphic states, thence *Psyche* is most advanced genus in the Psychini, and *Proutia* is the most plesiomorphic as it has naked pectinations, the presence of the intercalary cell, finely setulose anellus, and the vesica free from spinules.

If *Proutia* is most plesiomorphic in the Psychini, this genus is probably paraphyletic. This assumption is supported by the heterogeneity of the genus, such as *P. nigripunctata* has the accessory cell in forewing discoidal cell, an unequivocally primitive character in the Psychidae but absent in other known Psychini species, *Proutia chinensis* is said to be lacking the intercalary cell, and the new species, *Proutia maculatella* described in this paper has a quite unique appearance of its wing shape and vestiture.

brown wings. The larval case of *P. rotunda* is somewhat similar to *P. betulina*, and consequently quite different from that of *P. nigra* **sp. nov.** (Palmqvist 2008). The Chinese *P. chinensis* is similar to *P. nigra* **sp. nov.** in uniformly dark forewings, but the former has flagellomere pectinations much longer than *P. nigra* **sp. nov.** in proportion to flagellomeres, and has no distinctive intercalary cell in the forewing discoidal cell (Hättenschwiler et Chao 1990). The female of *P. chinensis* resembles *P. nigra* **sp. nov.** female in the abbreviated antennae, but it differs from *P. nigra* **sp. nov.** in extremely shorter forelegs in proportion to the mid and hind legs (Hättenschwiler et Chao 1990).

The habitat of this species was found in evergreen forests and Japanese cedar plantations (*Cryptomeria japonica*), but not in open grasslands, the main habitat of *P. maculatella* **sp. nov.** The type locality is in the low mountain zone about 400 m in altitude. The species was not found in lowlands in northern Kyushu. Adults appear in late April to mid May.

The mature larvae fix their pupation cases on fences, walls of deserted sheds, tree trunks, etc in forests in mid spring. This species seems to be univoltine, but this has not been confirmed by breeding. The larval case (Fig. 6G) is similar to that of *P. maculatella* **sp. nov.**, however its covering consists of needles of Japanese cedar and other material found on the forest floor, not of narrow pieces of herbaceous plants attached to cases of *P. maculatella* **sp. nov.** Head (Fig. 6F) and forelegs of pupal exuviae of females are not shed, so that females wear the pupal head cuticle as a mask and the forelegs can not grasp the posterior end of the pupation case.

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