First report on two species of genus Monopis (Lepidoptera, Tineidae) collected by feather trap in Korea

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ABSTRACT

Two species of tined moths, Monopis longella (Walker, 1863) and Monopis congestella (Walker, 1864) were collected using artificial feather traps in Korea, with M. congestella reported for the first time from Korea. This is also the first report of collecting moths by feather trap in Korea. Additionally, biological information regarding M. longella and M. congestella are presented for the first time in Korea. The adults are briefly described and illustrated, including the male and female genitalia.

INTRODUCTION

Many species of the subfamily Tineinae, such as Tinea, Niditinea, and Monopis, have been reported in bird nests, feces, and wool products. The larvae of these moths feed on keratin and chitin sources, such as feathers, fur, pellets, arthropod remains, guano, and wool (Robinson 1988; Robinson & Nielsen 1993). The genus Monopis Hübner is characterized as having a forewing with a characteristic subhyaline spot in the discoidal cell and M3 stalked with CuA1, rod-shaped saccus, and the inner surface of valva with a dense patch of setae in the male genitalia. The genus currently comprises approximately 100 named species, which are widespread and diverse throughout the Old World, but poorly represented in the New World (Robinson & Nielsen 1993). There are 36 species in the Palaearctic and Oriental regions (Xiao & Li 2006), five of which were reported to occur in Korea (Park et al 2012; Byun et al 2014).

In this study, two species of tined moths, Monopis longella (Walker, 1863) and Monopis congestella (Walker, 1864), were collected using artificial feather traps in Korea, with Monopis congestella (Walker, 1864) reported for the first time from Korea. This is also the first report of collecting moths by feather trap in Korea. Additionally, biological information regarding M. longella and M. congestella are presented for the first time in Korea. The adults are briefly described and illustrated, including male and female genitalia.

MATERIALS AND METHODS

The feather traps containing feathers, pellets, and feces of a raptorial bird were used to attract moths to a trap (Figure 1). We set two feather traps at each of two locations: Mount Cheonchuk in Gyeongsangbuk-do, and Mount Gyeyang in Incheon-si. Each trap was set in a tree at a height of approximately 3 m from July 2014 to September 2014. The feather traps were constructed from a polyethylene net (diam. 10 cm × 50 cm) and coated wire (diam. 3 mm), and contained 200–300 g of feathers, pellets, and feces of a raptorial bird in each trap. After being retrieved from the field, feathers and pellets from the traps were separated from detritus, and identified moth larvae were reared in a rearing cage. Images of adults and genitalia were taken using a Canon EOS 50D digital camera attached to a Canon EF 100 mm F2.8 Macro USM lens (Canon, Inc., Tokyo, Japan) and a Leica DM 2500 microscope (Leica, Wetzlar, Germany). Voucher specimens were deposited in the Korea National Arboretum (KNA).
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Systematic accounts

Family Tineidae Latreillie, 1810
Subfamily Tineinae Latreillie, 1810
Genus Monopis Hübner, 1825

Monopis longella (Walker, 1863)

*Monopis longella* Walker, 1863: 479. Type locality: India.

Monopis pseudagyrta Meyrick, 1919: 240. Type locality: India.

Monopis pavlovskii Zagulajev, 1955: 282. Type locality: USSR.


Adult (Figures 2A and 2B). Wingspan 12 – 16 mm in male, 15 – 18 mm in female. Head creamy white with erect scales on vertex and frons. Labial palpus outer side dark brown, inner side of second segment yellowish brown with apex creamy white. Antenna filiform; scape dark brown with yellowish white scales, each segment dark brown in basal half, light brown in distal half. Maxillary palpus yellowish brown. Thorax anterior and posterior end dark brown; tegula yellowish white. Forewing approximately 2.8 – 3.0 times as long as wide including fringe (about 3.1 – 3.3 times as long as wide excluding fringe); ground color dark brown, a large rectangular oblique white marking at costa from basal 1/3 to 4/5; fringe short. Hindwing 2.1 – 2.2 times as long as wide including fringe, 2.5 – 2.7 times as long as wide excluding fringe; ground color light gray.

Male genitalia (Figures 3A and 3B). Male genitalia similar to Korean species of Tinea. Sacculus slender, elongate, about 2.3 times as long as length of valva. Uncus with wide base and pointed at tip, arms of gnathos with two pointed tips at top. Valva elongate and broad, about 3.0 times as long as width, with few setae directed towards base. Aedeagus rather long, approximately 2.1 times as long as length of valva.

Female genitalia (Figures 4A and 4B). Ovipositor short with papilae anales setae. Bursae copulatrix approximately 2.2 times as long as length of apophyses anteriores. Apophyses posteriores approximately 1.3 times as long as length of apophyses anteriores. Ductus bursae with numerous wrinkles. Corpus bursae with five to six thorn like signa.


Distribution. Korea, Japan, China, Russia (Far East), Thailand, Malaysia, Philippines, India.

Biology. The larvae feed on keratin sources (feather, fur, and pellets) used in feather traps.

Remarks. Twenty-two moths emerged from the feather trap placed at Mount Cheonchuk from June 22, 2014 to July 28, 2014, and six moths emerged from the feather trap placed at Mount Gyesan from August 24, 2014 to September 20, 2014. This species was recorded from Korea as *Monopis pavlovskii* Zagulajev, 1955, by Ponomarenko and Park (1996b), after synonymized to *Monopis longella* (Walker 1863) by Huang (2011).

Monopis congestella (Walker, 1864)

*Rhitia congestella* Walker, 1864. Type locality: Far East, Thailand.

Adult. (Figures 2C and 2D). Wingspan 12 – 15 mm in male, 14 – 18 mm in female. Head creamy white with erect scales on vertex and frons. Labial palpus creamy white with blackish brown scales in outer side second segment. Antenna filiform; scape brown with yellowish white, each segment dark brown in basal half, light brown in distal half. Maxillary palpus yellowish brown scales. Thorax dark brown. Forewing approximately 2.6 – 2.8 times as long as including fringe (about 3.1 – 3.2 times as long as excluding fringe); ground color dark brown, with three creamy white markings, large rounded marking at costa from basal 1/2 to 2/3, the other large rectangular marking at...