



Descriptions of life-stages of *Blastobasis repartella* (Lepidoptera: Gelechioidea: Coleophoridae: Blastobasinae) and observations on its biology in switchgrass

D. ADAMSKI¹, P. J. JOHNSON², A.A. BOE³, J.D. BRADSHAW⁴ & ALAN PULTYNIWICZ⁵

¹Department of Entomology, National Museum of Natural History, P. O. Box 37012, NHB - E519, Smithsonian Institution, Washington, D.C. 20013-7012, USA. E-mail: adamskid@si.edu

²Insect Research Collection, Box 2207A, South Dakota State University, Brookings, SD 57007, USA.
E-mail: paul.johnson@sdstate.edu

³Plant Science Department, Box 2140C, South Dakota State University, Brookings, SD 57007, USA. E-mail: arvid.boe@sdstate.edu

⁴Panhandle Research and Extension Center, University of Nebraska-Lincoln, 4502 Ave I Scottsbluff, NE 69361, USA.
E-mail: jbradshaw2@unl.edu

⁵6148 Agail Place, Columbia, MD 21045, USA

Abstract

Blastobasis repartella (Dietz) is a borer in the proaxis and basal nodes and internodes of above ground stems of *Panicum virgatum* L. (Poaceae). The adult and immature stages are described herein, including diagnoses of the adult and larva, as this insect may be easily confused with a closely related grass-feeding congener, *Blastobasis graminea* Adamski, which is also known to occur in the United States. The biology of *B. repartella* is described. Figures of the adult, illustrations of the male and female genitalia, wing venation, the chaetotaxy of the larva (supplemented with scanning electron micrographs), and pupa are provided. *Bassus difficilis* (Hymenoptera: Braconidae) is reported as a larval/pupal parasitoid of *B. repartella*. A new host record for *Aethes spartinana* (Barnes & McDunnough) (Lepidoptera: Tortricidae) is also reported.

Key words: biofuel, biomass, Blastobasinae, chaetotaxy, Coleophoridae, energy, Gramineae, life stages, *Panicum*, Poaceae, stem-borer, switchgrass

Introduction

Switchgrass, *Panicum virgatum* L. (Poaceae), is one of the abundant graminaceous species that contribute to the prairies of the Great Plains. This species and others function to control soil erosion within the grassland ecosystem, which historically has had an inverse relationship between conservation of this ecosystem and human settlement (Samson and Knopf 1994). Within recent decades, components of this grassland system, e.g., switchgrass, have been selected and developed to serve as a component species in pasture and in the Conservation Reserve Program (Schmer *et al.* 2008). Very recently, renewed interests in research has aimed to exploit cellulosic energy sources originating from the entire prairie (Tilman *et al.* 2006) to component species such as switchgrass (Schmer *et al.* 2008; Vogel & Mitchell 2008; Jakob, *et al.* 2009). Land-change plans in agriculture are underway to accommodate this growing cellulosic market (USDOE, 2006). This may mean that biological components of the system that were once in decline may change direction. These changes will enhance our need acquire knowledge of insect species such as *Blastobasis repartella*, that feed on these grasses.

Blastobasis repartella was described by Dietz (1910) from two male specimens collected from Denver, Colorado. The lectotype and paralectotype are deposited in the National Museum of Natural History, Smithsonian Institution, Washington, DC, USA (Adamski & Hodges 1996). Little had been known of the identity of this moth or its biology until collaborative efforts by the authors was initiated.