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Scientific Note

Notes on *Antonina* Mealybug of Korea (Hemiptera: Pseudococcidae)

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한국산 꼬리가루깍지벌레속의 재정리 (노린재목: 가루깍지벌레과)

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ABSTRACT: The legless mealybug, *Antonina nakaharai Williams* and Miller (Hemiptera: Pseudococcidae) is recorded from bamboos (Poaceae) in Korea. An identification key to adult females of three species of *Antonina* from the Korean Peninsula is also provided.

Key words: Hemiptera, Pseudococcidae, *Antonina nakaharai* Williams and Miller, Korea, bamboo

초 록: 한국의 대나무류에 다리가 퇴화한 꼬리가루깍지벌레속의 *Antonina nakaharai Williams* and Miller 대나무꼬리가루깍지벌레(신칭)가 발생함을 확인하고, 한반도에 분포하는 꼬리가루깍지벌레속 3종 동정에 필요한 검색표를 함께 정리하였다.

검색어: 노린재목, 가루깍지벌레과, *Antonina nakaharai* Williams and Miller, 한국, 대나무류

Species of the genus *Antonina* are legless mealybugs (Pseudococcidae) that are found on grasses including bamboo. Currently, the genus is comprised of 28 species and is known to occur in all of the zoogeographic regions of the world (Miller *et al*., 2010). Only two species, *Antonina crawi* Cockerell (*A. crawii* misspelling by Paik, 2000) and *Antonina vera* Borchsenius have been documented in the Korean Peninsula (Paik, 2000; Kwon *et al*., 2003). Borchsenius (1956) described *A. vera* from North Korea but this species has not yet been found in South Korea.

Herein, we report the occurrence of an additional species in the genus, *Antonina nakaharai* Williams and Miller, which was found on bamboo in this country. Williams and Miller (2002), after a thorough analysis of the *Antonina crawi* Cockerell complex, described the species and reported its presence in China, Japan, Russia, Hawaii and continental U.S.A. (probably introduced). Since then, it has been collected from Azerbaijan and Georgia.

Listed below are records from Korea of this mealybug occurring on three species of bamboo-like grasses :

Poaceae: *Arundinaria simonii* (Gyeongsangnamdo: Eulsukdo, 13 adult females, on leaf sheath, 30-viii-2001 (Y.H. Lee)), *Phyllostachys pubescens* (Jeollanamdo: Damyang-gun, 6 adult females, on leaf sheath, 23-vii-2005 (S.J. Suh)), and *Phyllostachys* sp. (Gyeongsangbukdo: Sobo-myeon, 1 adult female, 5-vii-1999; Sangyeok-dong, 10 adult females, on leaf sheath, 13-vi-2001 (Y.H. Lee); Jeollanamdo: Yulpo-ri, 1 adult female, on leaf sheath, 15-v-2009 (S.J. Suh)).

According to labels on specimens of *A. nakaharai* from Japan and China examined for Williams and Miller's study (2002), this species had been collected in Japan and China in 1889 and 1941, respectively. Its hosts are native to China and have been grown in the southern regions of Asia, including Korea, for hundreds of years. In addition, other *Antonina* species, such as *A. bambusae* Khalid and Shafee from India, *A. crawi* Cockerell probably from Japan or China, and *A. elongata* Tang from China, are native to

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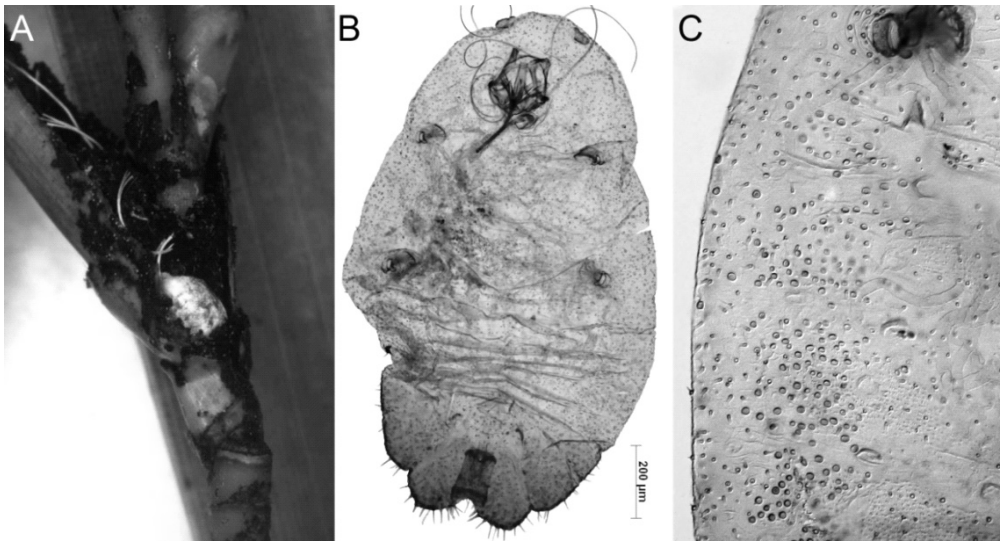

Fig. 1. *Antonina nakaharai* Williams and Miller: A. Adult female on bamboo, B. Slide mounted adult female, C. Ventral abdomen.

the Asia (Williams and Miller, 2002). We believe that *A. nakaharai* is probably native to East Asia and should not be considered as a species that has been accidently introduced into Korea.

Critical reexamination of the *Antonina crawi* Cockerell complex, by Williams and Miller (2002) showed that the complex is comprised of the following three, very similar species: *A. crawi* Cockerell, *A. nakaharai* Williams and Miller, and *A socialis* Newstead, that primarily feed on bamboo and its relatives. Based upon the illustration of what was labeled as *A. crawi* Cockerell in Paik (1978), they stated that the specimen probably represented a misidentification of *A. socialis* Newstead. We consider the species Kwon *et al*. (2003) identified as *A. crawi* from Korea is probably to be a misidentification of *A. nakaharai* since the illustration of the species in Kwon's dissertation (2002), on which they based their paper, is not *A. crawi* but rather *A. nakaharai*. Further study will be required to determine with certainty, which species of *Antonina* exist in Korea.

Adult females of the three species of *Antonina* reported from Korea can be distinguished by the following key, which was modified from that of Williams and Miller (2002) and Danzig (1986).

1. Multilocular pores of uniform size present below the hind spiracles and body with differentiated pores ····· 2

1b. Multilocular pores of two sizes present below the hind spiracles and body without differentiated pores ····· ····· ***A. vera* Borchsenius**

2(1). Ventral abdominal multilocular pores abundant, with 6 or more pores on segment IV in area within the cluster of disc-like pores ····· ····· ***A. crawi* Cockerell**

2b. Ventral abdominal multilocular pores abundant, with 5 or fewer pores on segment IV in area within the cluster of disc-like pore clusters ····· ····· ***A. nakaharai* Williams and Miller (Fig. 1)**

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