

# FIRST OLD WORLD RECORD OF THE MOTH FAMILY ARRHENOPHANIDAE (LEPIDOPTERA: TINEOIDEA)

DONALD R. DAVIS

Department of Entomology, NHB 127, Smithsonian Institution  
Washington, DC 20560, USA

**ABSTRACT.**— The presence of a new genus and two new species of the tineoid family Arrhenophanidae is reported from the central mountains of Taiwan. This constitutes the first record of the family for the Old World. A summary of the diagnostic features of the family is also provided.

**KEY WORDS:** biogeography, *Dysoptus*, larva, *Micrerethista*, morphology, Neotropical, Oriental, pupa, systematics, *Harmaclona*, Psychidae, Taiwan, Tineidae.



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Fig. 1. Adult male (forewing = 4.9mm), Fennchihwu, ca. 1400m, Chiayi Co., Taiwan. Fig. 2. Adult male (forewing = 5.8mm), Lukuei Forestry Station, 750m, Kaohsiung Co., Taiwan.

Currently, the family Arrhenophanidae consists of eight described species divided amongst four genera, all restricted to the American tropics (Becker, 1984; Davis, 1984). Previously, the pantropical genus *Harmaclona* had been erroneously assigned to the Arrhenophanidae (Fletcher, 1929; Bradley, 1953). *Harmaclona* has recently been reassigned to the Tineidae (Robinson and Nielsen, in press) where it was first proposed (Busck, 1914). *Harmaclona* and its probable sister genus *Micrerethista* comprise a monophyletic, highly autapomorphic group of approximately 10 described species characterized by the presence of an abdominal tympanum (Maes, 1985; Davis and Heppner, 1987; Robinson, 1988; Robinson and Nielsen, in press), secondary fore-hindwing locking mechanism (Bradley, 1953), and certain pretarsal specializations (loss of arolium and pseudempodial seta). The invaginated pocket (apotheca) present in the male genitalia of

most *Harmaclona*, which was considered by Bradley to constitute a synapomorphy of the Arrhenophanidae, is variably developed in the latter family as well as in Tineidae and *Harmaclona*.

The Arrhenophanidae are recognized to be closely allied to the Psychidae, largely on basis of the similar metafurcal bridge (Brock, 1971; Robinson, 1988; Davis, 1990) and larval crochets (lateral penellipse). They differ from Psychidae by the retention of several plesiomorphies, including the possession of a single (anterior) row of dorsal spines on the pupa, larvae with three pairs of epipharyngeal spines, divided coxae, and distinct (separated) prespiracular plate on the first thoracic segment. Arrhenophanidae can be characterized by two possible synapomorphies: the presence of a partially sclerotized, non-retractile vesica (reduced in some species), and the presence of a sclerotized, tubular anellus fused laterally to the valvae. The larvae of

Arrhenophanidae typically feed on bracken fungi and construct cases which are attached to the host substrate.

Concentrated fieldwork since 1980 in Taiwan has unexpectedly revealed the presence of true Arrhenophanidae in the Old World. Two species belonging to an undescribed genus most allied to the neotropical genus *Dysoptus* Walsingham have been discovered in the central mountains of Taiwan. One species (Fig. 1) was collected during July at Fennchihwu, 1400-1450m, in Chiayi County. The other (Fig. 2) is known from Nantou County (Lushan, 1000m, 30Km east of Wushi, 27-31 May and Lien-huachih Forestry Station, 750m, 12Km south of Puli, 7-12 Sep) and Kaohsiung County (Lukuei Forestry Station, 750m, 29 Apr - 3 May).

The Taiwanese genus differs from *Dysoptus* and the other neotropical genera in possessing the most plesiomorphic venation within the family. All major veins arise separately from the forewing discal cell, the base of M is forked within the cell, and the accessory cell is preserved.

With the discovery of the Taiwanese species, the number of Arrhenophanidae known to the author now totals 24 species. All will be described and illustrated in a monograph of the family, now in preparation. Closer examination of Old World collections should reveal additional species from Asia and perhaps Africa.

#### ACKNOWLEDGMENTS

I wish to thank J. B. Heppner (Florida State Collection of Arthropods, Gainesville, FL) and Y. Arita (Meijo Univ., Nagoya, Japan) for the loan of specimens. Photographs of specimens were by V. E. Krantz of the Smithsonian Photographic Laboratory, and the final draft of the manuscript was typed by Silver West. My fieldwork in Taiwan was funded by a Fluid Research Grant from the Smithsonian Institution. Heppner's fieldwork was supported by the National Science Foundation (grants INT-8119539 and INT-8721716). I also wish to thank Shui-chen (Sally) Chiu, formerly of the Taiwan Agricultural Research Institute (TARI), Sheng-hwa Lin Chow of the National Science Council of the Republic of China, and my assistant Jen Ren, for assisting with travel arrangements in Taiwan.

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