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## Two Scavenger Moths of the Genus *Borkhausenia* Introduced from Europe to the West Coast of North America

(Lepidoptera : Oecophoridae)

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During the past several years specimens of a small, tan moth have appeared commonly in material I have examined from the San Francisco Bay area, and recently light trap collections have produced a related yellow and reddish moth. These represent two species of the genus *Borkhausenia* (*sens. lat.*) which were not recorded in the North American fauna by Clarke (1941).

### BORKHAUSENIA (BORKHAUSENIA) FUSCESCENS (Haworth)

One of the first species I encountered when I began collecting microlepidoptera at Berkeley in 1955 was this moth, and it has appeared consistently in houses and at porch lights during subsequent years. *B.*

*fuscescens* has also turned up in the Sacramento Valley and at San Diego. Its known distribution in California is a reflection of collecting efforts, and I suspect that it is established in most urban areas of the state.

The species was first recorded here as "*Borkhausenia* near *minutella*" by Armitage (1952), who reported that "for a number of years [specimens of] a small, light tan moth infesting houses in the San Francisco Bay Area have been submitted to Sacramento for identification." The earliest collection data on specimens in the State Department of Agriculture collection at Sacramento are July 1936, at Oakland. Since no specimens were available to J. F. G. Clarke at the time of his revision of North American Oecophoridae (1941), it is logical to assume that the species was not established in California long prior to that. However, Dr. Clarke tentatively identified specimens which I took to Washington in 1959 and stated that the National Museum had no other record of its occurrence in North America.

*B. fuscescens* is common in England and Scotland and is widespread in Europe from France to Sweden, Central Europe, and Russia (Jacobs, 1950). The moth is small (forewing length: ♂ 4.7 to 6.6 mm; ♀ 5.4 to 8.3 mm) with pale to dark tan forewings usually marked by a variable pair of indistinct darkish spots in the basal third and a large one near the end of the cell. A colored figure of the adult is given by Jacobs. The genitalia are illustrated by Pierce and Metcalfe (1935) and by Toll (1956).

In Europe larvae of *B. fuscescens* have been reported to feed on dead leaves and in birds' nests (Meyrick, 1895; Ford, 1949). The larvae are said to live from September or October to April or May, producing a single annual flight in July and August. In California the species has been reared once, from fungus material, and as suggested by Armitage (1952), *B. fuscescens* probably feeds in mouldy trash or leaves in or around houses. The moths are commonly collected at lights, often in houses, garages, on porches, etc. and have been taken in central coastal California during every month of the year. The climate of this area evidently enables year-round activity, possibly in part due to the species' ability to exist in buildings.

*California material examined.*—Sonoma Co.: Forestville, 6 ♂, 2 ♀ 12–23 October 1961, at light (R. M. Brown). Yolo Co.: Davis, 1 ♂ 18 July 1956 (J. Powell). Marin Co.: West Novato, 5 ♂, 1 ♀ 4–29 April 1961 (D. C. Rentz); Inverness, 1 ♂ 10 July 1961 (C. A. Toschi). Contra Costa Co.: San Pablo, 1 ♀ 16 March 1959 (Powell), 1 ♂ 23 August 1956 (F. Crisp); El Cerrito, 3 ♂ 19 May to 5 June 1959 (C. D. MacNeill), 1 ♂ 24 July 1963 (D. D. Linsdale); Tilden Park, 1 ♂ 10 September 1962, r. f. *Polyporus adustus* (J. F. Lawrence, lot no. 1102) (P. de

Benedictis); Orinda, 2 ♂ 29 October 1955 (R. H. Goodwin); Pleasant Hill, 1 ♂ 4 April 1957 (W. E. Ferguson); Concord, 1 ♂ 27 September 1961 (R. M. Brown); Walnut Creek, 1 ♂ 30 January 1963, 1 ♀ 7 March 1962, 4 ♂, 2 ♀ 31 March to 13 May 1961 and 1962, 3 ♂, 3 ♀ 29 May to 19 June 1961 and 1962, 1 ♂ 28 July 1961, 1 ♂ 20 August 1962, 7 ♂ 30 September to 22 November 1961 and 1962 (Powell). Alameda Co.: Albany, 1 ♂ 25 June 1957, 1 ♂ 12 September 1957 (Powell); Berkeley, 2 ♀ 21 April 1941 (no collector given), 1 ♂ 26 January 1961 (R. L. Langston), 12 ♂, 3 ♀ 1 March to 10 April 1957-1962 (J. A. Chemsak, Langston, Linsdale, C. W. O'Brien, Powell), 1 ♀ 29 April 1955 (Powell), 1 ♂ 26 May 1961 (Langston), 1 ♀ 15 June 1960, 1 ♂ 29 June 1959 (Powell), 9 ♂, 1 ♀ 19 August to 10 September, 1960-1961 (Langston, Powell, G. I. Stage), 5 ♂ 24 September to 26 October, 1955-1961 (Powell, R. W. Thorp), 1 ♂ 2 December 1958, 1 ♂ 17 December 1960 (Powell); Oakland, 4 ♂, 2 ♀ 29 July 1936 "coll. from house" CDA-36H13 (E. Keal), 1 ♂ 25 February 1952 (R. O. Schuster), 3 ♂ 4 April 1957 (B. J. Adelson); San Lorenzo, 3 ♂ 15 August 1960 (P. D. Hurd, Jr.). San Francisco Co.: San Francisco, 2 ♂ 16 January 1960, 1 ♂ 13 February 1960, 16 ♂, 3 ♀ 29 February to 28 March 1960 (Rentz), 3 ♂ 14 May to 28 June 1960 (H. B. Leech, Rentz). San Mateo Co.: Redwood City, 1 ♂ 24 September 1959, 1 ♂ 27 May 1960 (P. H. Arnaud, Jr.). Santa Clara Co.: New Almaden, 2 ♂ 17, 28 September 1963 (P. A. Opler). San Diego Co.: Del Mar, 1 ♂ 5 August 1959 (R. A. Mackie); La Jolla, 2 ♂, 1 ♀ 18 June 1963 (Powell).

#### BORKHAUSENIA (BATIA) LUNARIS (Haworth)

In June 1962, light trap collections made by P. D. Hurd, Jr. in Oakland contained numbers of this curious looking little moth, which I had not seen before. Subsequent efforts to determine the extent of its occurrence in this area have resulted in little data. The only records in California I have been able to locate are May 1956 and 1959, in Marin County. Specimens were submitted to me by Trevor Kincaid from Seattle, Washington, so that the species is established at more than one west coast metropolitan area, perhaps due to separate introductions.

In the Old World, *B. lunaris* is common in southern England, and ranges through France, Central Europe, to Sicily and Asia Minor (Meyrick, 1895; Jacobs, 1950). The species appears not to have been reported in North America, and the present records represent recent collections. However, occurrence of the species on two sides of San Francisco Bay, as well as at Seattle, suggests the presence of widespread but local colonies which have not been sampled. A parallel but better documented situation exists with another apparently introduced scavenger moth, *Oinophila v-flava* (Haworth) (Powell, 1964).

*B. lunaris* is small (forewing length: 4.5 to 5.2 mm) with a shiny appearance and has smooth-scaled, black-and-white head and palpi. The forewing is ochreous yellow, suffused with reddish brown along the costa and termen, with a rather distinct dark blue mark at the tornus.

A colored illustration of the adult is given by Jacobs (1950) (as *Chirocompa lunaris*), and the genitalia are figured by Pierce and Metcalfe (1935) (as *Batia lunaris*) and by Toll (1956), who related *Batia* (= *Chirocompa*) with *Borkhausenina* as a subgeneric entity.

The larvae have been reported to feed in the mouldy and dead wood under the bark of *Acacia*, *Crataegus*, *Malus*, and *Robinia* and are also recorded in wood of baskets, fences, etc. (Ford, 1949; Jacobs, 1950). Pupation is said to take place in the larval feeding site. A single annual generation is listed, the moths flying in June and July and the larvae overwintering. The few North American records indicate a similar life cycle by adventive colonies.

*Material examined*.—Washington: Seattle, King Co., 7 ♂ 9 to 28 July 1962, 2 ♂ 30 June, 25 July 1963 (T. Kincaid). California: Mill Valley, Marin Co., 2 ♂, 3 ♀ emerged from dead *Ceanothus thyrsiflorus*, 14 May to 14 June 1956, 2 ♀ 21 May, 10 June 1959 (H. B. Leech); Piedmont Pines, NE Oakland, Alameda Co., 40 ♂, 8 ♀ 18 June to 2 July 1962, 15-watt blacklight trap (P. D. Hurd, Jr.).

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