

Three Intersubfamilial Matings in Nature (Lycaenidae)

Two mated pairs of field-collected Lycaenids, representing respectively an inter-subfamilial and intertribal pair, recently were acquired by the Los Angeles County Museum of Natural History. The first, collected by the late Chris Henne, involved a male *Apodemia mormo* and female *Brephidium exilis* at Big Rock Creek, San Gabriel Mountains, Los Angeles Co., California, 4000' on September 18, 1972. The specimens were preserved *in copula*, the male (*A. mormo*) pinned laterally with the female (*B. exilis*) supported by a paper triangle. The male genitalia completely engorge the distal quarter of the female. There is no question of the veracity of the mating, although we have no information of the circumstances of collection.

The second, male *Lycaena arota nubila* and female *Euphilotes battoides bernardino* were taken *in copula* and killed by cyanide gas, remaining coupled. The specimen was collected by Les Stockton along the Mulholland Highway in the Santa Monica Mountains, Los Angeles Co., California, at about 10 AM on May 31, 1981. Stockton reported the collection was accidental, the netting occurring during his attempt to take another butterfly. The mating pair just happened into the net. Except for a notation that the day was warm (c 30°C) and virtually windless, we have no further information. While awaiting curation at the museum, the specimen most unfortunately was destroyed by Dermestids.

Finally, R. A. Arnold (1984, Interim Report for Contract C-616, Calif. Dept. of Fish & Game) reported observing a paired male *Apodemia mormo virgulti* and female *Euphilotes battoides allyni* at the El Segundo Sand Dunes, Los Angeles Co., California, on July 18, 1984. The coupling lasted from 1232 to 1337 PDT. No further data were given and the specimens were not taken.

Pairings between individuals of generic or higher levels of differentiation are extremely uncommon, and, although spectacular, are probably of only trivial biological significance. The obvious questions raised by such matings include 1) how did the sequence of behavioral stimuli and responses break down, 2) were the mechanics of mating effective, resulting in transfer of spermatophore, in spite of the differences in both size and morphology, 3) could the female maintain sperm viability, 4) would the "genetic systems" be sufficiently compatible to provide viable or even fertile offspring?

The latter two questions, particularly the last, most likely have negative answers. I am not aware of any reported hybrids other than among closely related butterflies, where such hybrids, in fact, are recurrent and genetically meaningful (e.g. *Limenitis*, *Colias*, *Vanessa*, *Lycaena*, etc.). A positive answer to question, concerning the effectiveness of spermatophore transfer between distantly related species, bears on the value of genitalia as taxonomic characters. Previous comments on the subject made by Shapiro (1979, The Assumption of adaptivity in genital morphology, J. Res. Lep. 17:68-72) and Lorkovic's experiments showing that mutilation of male genitalia does not hinder interspecific matings (1955, Zavisnost Varijabilnosti Organa Muskoc Genitalog Aparata Kukaca Njihovoj Funkcionalnoj Vrijednosti, Biol. Glasn. 7:234-235) are particularly pertinent. There are no clues concerning the first question, as we know little enough about normal intraspecific mating behavior in these butterflies.

All the above questions are amenable to experimental attack, however, because many Lycaenids mate in confinement and breed without the need of artificial pairing. Hence this butterfly family may be an especially effective group in which the

relative roles of pre- and postzygotic barriers to reproduction might be explored.

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A Melanic *Colias euxanthe stuebeli* from Peru (Pieridae)

Melanic male aberrations are known from a number of *Colias* species. They range from partial to complete on the dorsal surface but are rarely fully melanized ventrally. A melanic aberration of the male of *Colias euxanthe stuebeli* Reiss. was taken 6 July 1984 2 km E Catca, Department of Cusco, Peru, by S. P. Courtney and M. J. Stern. Approximately half the scales in the normally orange area (except the scent patches and near them) are black, producing a very distinctive appearance (Fig. 1). Remarkably, the underside is entirely normal. The "ventral median flush" of black scales on the forewing is heavy, but within the normal range of variation.

The U.S. National Museum contains five melanic male *Colias philodice* Latr. from the United States. One of these is fully blackened on both surfaces. The other four are roughly as melanized dorsally as the Catca specimen, but all display a black area on the ventral forewing which seems characteristic of melanic males in the Nearctic *Colias*. The absence of this marking on the Catca specimen suggests that the variation is probably not homologous.



Fig. 1. Dorsal surface of normal and melanic male *Colias euxanthe stuebeli* from Catca, Depto. Cusco, Peru, 6 July 1984.

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