

dant in the tropics. Although sphingid moths commonly accumulate at lights along with many other insects in the wet tropics, the kind of defense suggested here would be adaptive when away from lights as well. Moths flying through darkness might be picked off by foraging bats. Some Neotropical insectivorous bats readily respond to wing-flapping noises from large moths confined to the same cages (M. D. Tuttle, pers. comm.). Successful capture of a large sphingid results in the predator obtaining a large protein- and lipid-rich food morsel.

The presence of hindtibial spurs of varying size in sphingids may represent an adaptation to defense against predators. When jabbed with the spurs, my reaction was to immediately release the captured insect, permitting its escape. Similar behavioral responses might occur if spurs can successfully lodge in soft tissues around or just inside the mouth of a predator. Alternatively, these pronounced spurs may have little or no direct defensive function *per se*, and perhaps are non-functional, or are used in other activities such as courtship or feeding, but, secondarily can be used opportunistically in defense. Closer scrutiny of the functional role of these spurs, in sphingids in general, is needed. Studies, including analyses of distribution among sexes within a species, spur sizes, and frequency of occurrence in tropical and extra-tropical taxa, should be done.

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## TWO SPECIES OF SKIPPERS COLLECTED AT ANTIFREEZE-FILLED PITFALL TRAPS IN ARIZONA

During a research trip to the Southwestern Research Station, American Museum of Natural History, Portal, Arizona 85632 in 1978, the senior author was able to collect hundreds of skippers in antifreeze-filled pitfall traps. The skippers were subsequently determined by the junior author as *Atrytonopsis python* (Edwards) and *A. deva* (Edwards).

Four pitfall traps (plastic cottage cheese containers) were placed, flush with the ground, 10'-20' apart around a pond that had a heavy red algal bloom. The traps were placed 3'-4' from the water's edge with the intention of collecting ground dwelling beetles near the water's edge. The traps were  $\frac{3}{4}$  filled with Dowguard® antifreeze for specimen preservation. The traps were checked every 2-3 days, emptied and new antifreeze put in to bring the trap level back up to  $\frac{3}{4}$  full.

During the month of June, hundreds of the two above mentioned skippers were found in the traps, preserved in the antifreeze. A select number of the skippers were removed from the antifreeze traps and taken to the lab. They were carefully washed with 75% ETOH and placed on paper towel to dry. When the alcohol absorbed by the towel had dried, the specimens were pinned and spread. No adverse effects on scale coloration of the specimens were noted.

To the author's knowledge, this is the only known record of skippers being attracted to antifreeze. As ethylene glycol is present in both the antifreeze and the insects (Somme, 1964. *Canad. Jour. Zool.* 42:87-101), it may be acting as a "cue" to attract the skippers to the traps. Skippers of this genus generally are attracted to flowers, sometimes in swarms, according to Howe (1975, *The Butterflies of North America*, Doubleday & Co., Garden City, N.Y.). Use of this type of artificial lure may be a useful method



of collecting these and other *Atrytonopsis* species. Specimens of both species have been deposited in the Michigan State University collection.

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A ONE-FOURTH GYNANDROMORPH OF *AGRIADES RUSTICA RUSTICA*  
(EDWARDS) FROM WYOMING (LYCAENIDAE)

On a recent collecting trip to the Bighorn Mountains of Wyoming, an unusual single specimen of *A. r. rustica* (W. H. Edwards) was collected. The coloration of the wings, together with their relative size, clearly shows the left hindwing to be male, with the other three wings being female. In this respect it is similar to the specimen of *Strymon bazochii* (Godart) illustrated by Riotte [1978 (1979), *J. Res. Lepid.* 17(1):17–18.]. Examination of the external features suggests that the abdomen is that of a female specimen. While no other gynandromorphic Plebejinae are known to me from the Nearctic region, Ford (1945, *Butterflies*, London, pp. 193–195) illustrates a number of interesting forms from the Palearctic region.

Nielson (1977, *J. Res. Lepid.* 16(4):209–211) has pointed out that there has been a recent increase in publications dealing with gynandromorphism in the Lepidoptera.

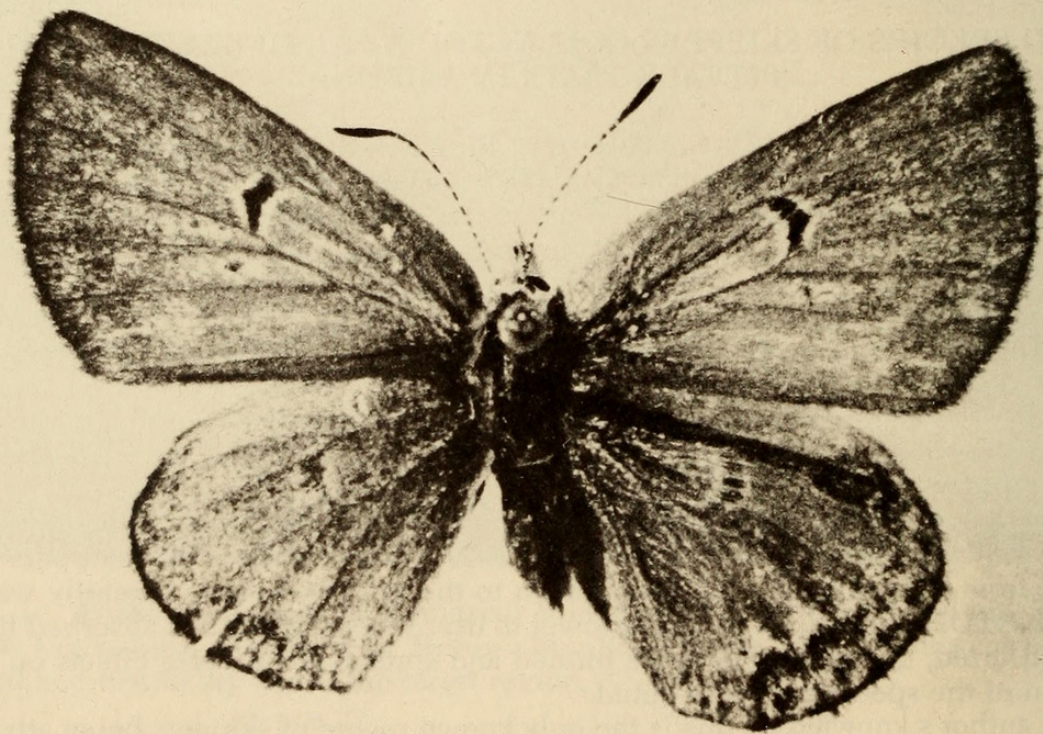


FIG. 1. Gynandromorph of *Agriades rustica rustica* from Wyoming. (Photo credit: Steve Lewis)



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