ies. And to my good wife, Conway A. Kendall, who accompanied me on all field trips and who rendered invaluable laboratory assistance in conducting the numerous rearings, I am greatly indebted.

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STATUS OF AGRAULIS VANILLAE IN MISSOURI AND KANSAS

The recent article (Jour. Lepid. Soc., 17: 227–228, 1964) by Richard D. Turner regarding Agraulis vanillae (L.) in Missouri was of interest. Its author arrived at the conclusion that simply because vanillae happened to be quite abundant on Passiflora at Green Ridge, Missouri, for several successive summers that the butterfly had successfully survived the winter in the area. Unfortunately this is a conclusion reached by the author who overlooked the fact that A. vanillae is a migratory species in both Missouri and Kansas. Females traveling from much farther south (the Gulf or the tropics?) reach this latitude in sporadic numbers during June and July. Since Passiflora does come up from the roots in this area by late spring, a wandering female, if she happens to be passing through the area and accidentally locates such a vine, will indeed cover its leaves with eggs. Caterpillars are subsequently produced and pupae formed, all of which takes place in rapid succession. A pupa may develop into an adult in only six days.

Ottawa, Kansas, and Green Ridge, Missouri, are of nearly identical latitude and only a hundred miles apart so the situation should be rather similar. Last summer (1963) was one of particularly heavy migration of A. vanillae in wide sections of both Kansas and Missouri. One vine in Ottawa was literally covered with the caterpillars of *vanillae*. Another vine in a different section of town had not a single caterpillar on its leaves. The latter vine simply had not been discovered by a roving migrant female. By autumn, however, enough progeny had been produced from the first vines to spread out and seek out all available host plants of the area. By September the adults were quite abundant in much of the area and especially in the towns. In two months I had easily reared over 200 caterpillars (not one was parasitized!), and as many as twelve butterflies emerged from pupae in a single day. But the day of reckoning came during the last week in October. Every single chrysalid that had not emerged before 29 October never emerged. All 37 of them were hanging limp and lifeless in their screen cage. They all perished during one freezing night.

We have in Kansas and Missouri three principal types of butterflies: breeding residents, breeding migrants, and (usually tropical) windblown strays. Agraulis vanillae is distinctly of the middle group. Colias (Zerene) cesonia (Stoll) is quite possibly another such butterfly, though strong evidence supports the idea that at least a few adults of cesonia hibernate here as well. The tropical blue, Leptotes marina (Reakirt) sometimes migrates here too, temporarily establishes a local colony, but is completely wiped out with the first hard freeze. This is exactly what happens to vanillae; it cannot withstand the severe cold that occurs every winter in every section of both Missouri and Kansas, and this applies to each of its four life stages. An adult vanillae cannot withstand winter hibernation nor does it make any attempt to do so as does another native subtropical nymphalid, Anaea andria Scudder. This explains why adult *vanillae* are never seen here very early in spring. It is usually at least June before migrating adults can reach this latitude from farther south. Some seasons they do not reach us at all and then we have no *vanillae* that year, since no colonies can exist here without an influx of females to propagate themselves. Whether or not this situation prevails in northern California I cannot say, but I can state positively that this is the situation that prevails regarding Agraulis vanillae within the boundaries of both Kansas and Missouri.

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