

A SOUTHWARD MIGRATION OF *VANESSA CARDUI* IN LATE SUMMER AND FALL, 1965

THOMAS C. EMMEL and REINHARD A. WOBUS

Departments of Biological Sciences and Geology, Stanford University, California

The summer of 1965 was a notable one for vast numbers of painted lady butterflies (*Vanessa cardui* L.) (Nymphalidae) occurring throughout the western United States. From the last week of June to mid-July, incredible densities of *V. cardui* were encountered in southern Nevada, northern Arizona, southern to northern Utah, western and central Wyoming, and all through Colorado, on a three-week field trip by the first-named author. No favored direction of movement was noted at this time. From mid-July to mid-August, no movement of *V. cardui* was noted in the many areas of Colorado that were visited, and in particular, at Big Spring Ranch near Florissant (Teller County, Colorado) where almost daily observations were made during this period.

Suddenly, however, on August 22 the *Vanessa cardui* located on Big Spring Ranch began flying about due south and south-southwest in vast numbers, and this mass movement, involving every individual seen, continued until August 25. By this date, almost all *V. cardui* had left this area but scattered individuals were observed flying south through August 28, when a cold front moved in and stopped all butterfly activity for several days. From August 22 to 25, the *V. cardui* in the entire area between Florissant and Wilkerson Pass (16 miles to the west on Hwy. 24) also were observed moving south in huge numbers. A count on August 22 at the Ranch gave an average of 10 butterflies per minute flying across a 20-foot line, or 600 per hour! This rate of flight activity continued from as early as 7:00 A.M. to nearly dusk.

Between September 1 and 19, observations in the same area by one of us (R. A. W.) showed that *V. cardui* continued moving southward in reduced but still significant numbers. Again, the movement apparently involved all *V. cardui* individuals located between the Puma Hills in South Park (near Wilkerson Pass) to at least as far east as Florissant. On September 20, a severe cold front moved in and the temperature dropped to 12° F. that night; snow soon followed, and apparently the migration was brought to a halt.

These observations seem to represent the first record of a major southward "return" movement of *Vanessa cardui* in the west; it is known from the work of Abbott and Tilden that this butterfly breeds during the winter in northern Mexico and extreme southern California, flying north

in the spring, often in great numbers. Successive generations during the spring and summer appear to be responsible for the annual northerly appearances of this species. But to the authors' knowledge, the species has never before been observed in a southward, fall "migration."

NYMPHALIS CALIFORNICA IN ILLINOIS AND IOWA

In reference to my article entitled, "*Nymphalis j-album* captured at fluorescent light in Chicago" (Jour. Lepid. Soc., 15: 101, 1961), I would like to make a correction. Recently Mr. R. R. Irwin of Chicago, in checking over some of my specimens and field notes, called to my attention that my *Nymphalis* taken at light was not *N. vau-album j-album* (Bdv. & Lec.) but was *N. californica* (Bdv.). Evidently I had not examined the specimen carefully, since one would never expect to find *Nymphalis californica* this far east, while *j-album* should occur here, even though I had never found it.

The mystery is how did *californica* get to Chicago? It seems impossible for it to fly here across the mountains from the west. One other strong probability is that this butterfly was transported here either by truck or by train from the west while in the pupal stage. It could be that the larva crawled onto a boxcar or a truck and made its chrysalid, then emerged after it arrived in this area. There are trucking places not too far away from the location of capture, as well as train sidings and yards.

Another strange fact occurred, however, in the same year at Cedar Falls, Iowa. While collecting along the railroad tracks to the west part of the city, I captured what I supposed was *j-album*, but it turned out to be another *californica*. The Chicago specimen was collected August 20, 1952, and the one from Cedar Falls was taken August 31, 1952. Catching two specimens in the same month of the same year over 300 miles apart indeed enhances the mystery.

The identity of both of these specimens has been verified not only by Mr. Irwin but also by Mr. Alex K. Wyatt of the Chicago Natural History Museum. According to Mr. Wyatt, my record of finding *N. californica* in Illinois is the only one, to the best of his knowledge.

LEONARD S. PHILLIPS, *Illinois Institute of Technology, Chicago, Illinois*