

Journal of the Lepidopterists' Society
35(1), 1981, 76

LONG DISTANCE DISPERSAL BY *CALLOSAMIA PROMETHEA* (SATURNIIDAE)

Shapiro (1977, J. Lepid. Soc. 31: 202–203) notes the importance of reporting well-documented, long range dispersal by Lepidoptera. Our experiments, involving release-recapture of painted male *Callosamia promethea* (Drury) (Sternburg et al. 1975, Science 195: 681–683; Jeffords et al. 1979, Evolution 33: 275–286; Toliver et al. in prep.) at two locations in central Illinois, have provided us with the opportunity to record two such instances. In both cases, the exact distance traveled and the time required to make the trip are known.

On 8 August 1977, MRJ released yellow and black painted male *C. promethea* at Robert Allerton Park, Piatt Co., Illinois. On 10 August 1977, MET collected a yellow painted male from this release in a trap baited with virgin females located at 614 W. Florida, Urbana, Champaign Co., Illinois. The second instance involved a wild male (unpainted) attracted to caged females at MET's apartment located in Tolono, Champaign Co., on 7 August 1978. This male was captured and marked on the underside of the left hindwing with the letter A, then released immediately. On 9 August 1978, it was recaptured at a trap located at 1101 S. Webber in Urbana.

In the first instance, the painted male traveled a distance of 36.5 km in 3 days (the equivalent of 3 afternoon flight periods; see Toliver et al. 1979, J. Lepid. Soc. 33: 232–238). Weather during the period 4–11 August 1977 was unsettled, with thunderstorms occurring daily (weather data from Urbana provided by the Illinois State Water Survey). Wind recorded as averaged 8.6 ± 1.6 km/hr from SW for the period 3–10 August. The release site in Allerton is located SW of the recapture site, upwind of the prevailing wind direction for the period during which the male was on the wing. Weather records show that on 11 August, wind direction shifted from SW to NE, indicating the passage of a front. Therefore, it appears probable that this male's dispersal flight was aided by storms moving through the area. Horsfall et al. (1973, Bionomics and Embryology of the Inland Floodwater Mosquito *Aedes vexans*, Univ. of Ill. Press, Urbana, 211 p.) notes, that *Aedes vexans* (Meigen) (Diptera, Culicidae) were transported long distances by cold fronts, and there are numerous examples of Lepidoptera being transported by storms (e.g., Neck 1978, J. Lepid. Soc. 32: 111–115).

The second male traveled 14 km in 3 days. The period 7–9 August 1978 was characterized by clear to partly cloudy skies in Urbana, no precipitation, winds from the W–SW at 8.2 ± 2.2 km/hr, and mean daily temperatures from 21.7 to 23.9°C. Wind direction shifted on 10 August from SW to E, again indicating the passage of a front, although in this case there was very little storm activity (trace of rain, partly cloudy skies on 10 August). Tolono is located S–SW of the Urbana recapture site; again, upwind of the prevailing wind direction.

The yellow-painted male released at Allerton Park had considerable wing damage, mostly in the form of a beak-shaped tear in the right forewing and another large block of missing wing area below the apex of the left forewing. The hindwings were relatively undamaged. This male would fall into wing-damage category VI (2.01 to 4.00 cm² of wing area missing) following the classification of Jeffords et al. (1979, Evolution 33: 275–286). The unpainted male released at Tolono was only slightly damaged (0.17 cm² of wing area missing, category II of Jeffords et al.). The nature of the wing damage of the painted male and the lack of significant wing damage in the unpainted male indicates that male *promethea* can travel considerable distances without wear on their wings. Thus, the capture of a reasonably undamaged male does not necessarily indicate that the male originated locally.

These events show that *C. promethea* is capable of long range dispersal, aided by prevailing winds and storms. The recording of two such events in two years indicates that such dispersal may not be a rare occurrence in *promethea*. This in turn implies that gene flow between populations in central Illinois may be considerable, despite the fact that such populations are otherwise isolated by surrounding agricultural lands.

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