

From a talk, "Butterflies in Peril," presented to the American River Natural History Association at Effie Yeaw Nature Center, Carmichael (Sacramento Co.), CA, June 20, 2007

WHO'S IN TROUBLE IN THE SACRAMENTO BUTTERFLY FAUNA?

Here is a brief summary of recent butterfly declines in our area. The page references are to "Field Guide to Butterflies of the San Francisco Bay and Sacramento Valley Regions," by A.M. Shapiro and T. Manolis (UC Press, 2007). For more information, please visit our Web site at <http://butterfly.ucdavis.edu>

I monitor the butterfly fauna biweekly at three Valley sites (West Sacramento, North Sacramento, and Rancho Cordova), plus the Suisun Marsh, and a low-elevation Coast Range foothill site (Gates Canyon, near Vacaville). These sites were initiated in different years between 1972 and 1988. In 1999 there were apparent population crashes of at least 14 species at low elevation. Most of these have not recovered, and several have continued to decline, becoming extinct at some sites and very rare at most or all of the others. The dry winter of 2006-07 has given some of them a reprieve from near-extinction by minimizing the usual over-winter mortality due to flooding and bacterial and fungal disease. But it remains to be seen if they will be able to carry forward what momentum they have gained.

The species in the biggest trouble are:

- LARGE MARBLE (*Euchloe ausonides*) , p.110-111

This species was common and widespread at all five sites, and regionally. Its host plants were weedy mustards. It was formerly double-brooded. The second (late spring) brood ceased appearing at all sites; then the species itself went extinct in Rancho Cordova in 2000, West Sacramento in 2003, North Sacramento in 2004, and Gates Canyon in 2007. It was very rare at Suisun in 2006 but bounced back in 07.

- GREAT COPPER (*Lycaena xanthoides*), p.123-124

Never seen at Rancho, of uncertain status at Gates where seen infrequently (but at least once most years), but common at the other sites until recently. Extinct in West Sacramento in 2004, not seen at Gates since 2005, extremely rare at North Sacramento and Suisun since 2005. Extinct in Broderick and Bryte (Yolo County) and at Lagoon Valley Regional Park (Solano County).

Declining sharply in the Bay Area. Its host plants are weedy Docks, including Curly Dock, *Rumex crispus*.

- PURPLISH COPPER (*Lycaena helloides*), p.126-127

Another feeder on Dock as well as weedy Knotweeds (*Polygonum*), this species had been in steep decline everywhere but did not go extinct at any sites. It had an abrupt upturn in West Sacramento in summer 2006 which, abetted by high overwinter survival in the dry 06-07 season, led to a population explosion there in spring 07. An unusual ecological race previously endemic to the Suisun marsh does appear to have gone extinct in the early-mid 1990s. During the period of rarity the first and second (spring) broods were rarely if at all seen.

- FIELD CRESCENT (*Phyciodes campestris*), p.176-177

This feeder on native Asters has always been colonial in the Valley, but was locally abundant at some sites, establishing transient colonies at others; it was not present at Rancho except as a rare stray. It went extinct at North Sac in 2004 and West Sac in 2002. It also had an endemic ecotype at Suisun, which has not been seen since 2002. The very large population at Willow Slough north of Davis, which had been monitored since the early 1970s and formerly numbered in the thousands, was extinct by 2004.

- SATYR ANGLEWING (*Polygonia satyrus*), p.186

A riparian feeder on native Nettle (*Urtica holosericea*), formerly found at all five sites but never common. Last seen at North Sac, West Sac, and Rancho in 2000. Still present at Gates Canyon. Status at Suisun unclear.

- MOURNING CLOAK (*Nymphalis antiopa*), p. 193-194

A familiar and iconic species, the Mourning Cloak undergoes seasonal altitudinal migration, breeding in the lowlands in spring, after hibernation, and in the mountains in summer. Formerly common at all sites, it underwent apparent breeding failure in the Sierra Nevada in summer 2001 and has been at very low levels in the Valley since. Gates Canyon was only slightly depressed. Some slight improvement has been noted in 2006 and 2007. The hosts are Willows, and planted Elms and Hackberries in cities.

- LORQUIN'S ADMIRAL (*Limenitis lorquini*), p. 205-206

Another familiar riparian Willow feeder, formerly fairly common at all sites except rare and spotty at Suisun. Went extinct in North Sacramento in 2000 and has been very rare and unpredictable in Rancho Cordova. Numbers were very low but rebounded in West Sac in 2006-07.

- CALIFORNIA RINGLET (*Coenonympha tullia California*), p.209-210

This species is well-known to be intolerant of urbanization and is in general decline in urbanizing areas of lowland California. It had been common in North Sacramento but became extinct in 2000. Its numbers in Rancho Cordova had been declining steeply but rose again 2007. Has not been a breeding resident at Suisun or West Sac, and its foothill numbers have not declined. The hosts are perennial grasses.

- SYLVAN HAIRSTREAK (*Satyrrium sylvinum*), p.131-132

Formerly incredibly abundant in riparian habitats where it feeds on Willows, this butterfly is extinct near Davis, in Broderick and Bryte, and is holding on in extremely low numbers in North and West Sac. Numbers at Gates Canyon are also low.

- GOLD-HUNTER'S HAIRSTREAK (*Satyrrium auretteum*), p.132-133

This oak feeder is probably regionally extinct on the Valley floor. It was last seen in North Sac and Rancho Cordova in 1996.

- LEAST CHECKERED SKIPPER (*Pyrgus scriptura*), p. 229-230

A specialist feeding only on Alkali Mallow (*Malvella leprosa*), which grows mainly on alkaline clay soils and along railroad embankments. It has become very rare and erratic at my West Sacramento, North Sacramento and Suisun sites, where it was formerly common, and has disappeared entirely from the Davis area and from south Sacramento and Elk Grove. It was formerly commonest in autumn but in recent years is sometimes seen only in spring!

- COMMON SOOTYWING (*Pholisora catullus*), p. 234-235

This used to be considered a “junk species,” found only in disturbed habitats where its weedy hosts, Amaranth Pigweeds, grow. It is now regionally very rare. It went extinct in Rancho in 1996, Gates Canyon in 2002 and Suisun in 2003. It is seen once or twice a year at North Sac and slightly more often in West Sac, and there have been recent (2006-07) sightings in Winters and in Broderick.

In addition, the Pygmy Blue (*Brephidium exile*) has been depressed in recent years, especially at Suisun where it previously swarmed by tens of thousands late in the season.

The only obvious patterns here are the nearly-simultaneous regional declines and the very odd fact that ALL THREE OF OUR WILLOW-FEEDING BUTTERFLIES are in trouble. So is the large, showy, conspicuous willow-feeding, day-flying Sheep Moth, *Hemileuca=Pseudohazis eglanterina*. It used to be almost as common as the Sylvan Hairstreak and in the same places. It is now extinct from all my sites except Suisun, where it is scarce. It is also extinct near Davis and in Broderick and Bryte. The changes in seasonality noted for several species as a prelude to extinction have been recorded for other species elsewhere. The apparent loss of broods – presumably due to rarity reducing the likelihood that they would be observed! – may be informative as to the nature of the pressures impacting those populations.

ONE BIT OF GOOD NEWS: The Gulf Fritillary (*Agraulis vanillae*, p.168-169) seems to have established a beachhead in eastern Sacramento County, having been seen since 2005 in Folsom and Rancho Cordova. Neither it nor its Passionflower host is native, however!

Comments? Suggestions? E-mail me at amshapiro@ucdavis.edu.