

THE TYPE LOCALITY FOR *OCHLODES YUMA*

by F. M. BROWN

Dr. TILDEN has asked me to add a postscript to his discussion of *yuma* and, if possible, determine a more accurate type locality than was given by EDWARDS (1873). This I am happy to do. EDWARDS' citation of the locality from which his lone specimen came is very vague, ". . . a single male received from Arizona by Lieut. Wheeler's Expedition of 1871."

The three essentials for the task set by Dr. TILDEN are before me: the Wheeler parties' timetables for 1871; the ecology and flight periods of *yuma*; and the known distribution of the species. The range of the species suggested by Dr. TILDEN's data is the periphery of the Great Basin, at least its southern half, and the several areas adjoining it to the East, South, and West. The expedition of 1871 threaded its way through most of this area in Nevada, California, and Arizona. It moved south from Halleck's Station in north central Nevada to Belmont then westward to Camp Independence in California. From there it moved eastward to the Colorado River and finally southward to Prescott and Tucson, Arizona.

EDWARDS' statement that the type came from Arizona must be taken with caution. All of the material that I have seen from the 1871 expedition was so labelled in spite of evidence that much of it came from elsewhere.

FERDINAND BISCHOFF (Brown, 1958) was the man responsible for the butterflies caught in 1871. He entered Arizona with the combined parties at the northwestern corner of the state, crossing from Utah at the mouth of the Grand Wash. This occurred on the 6th of October. Once in Arizona the party moved southward following the bench formed by the Grand Wash Cliffs to Music Mountain, which was circled to the west, and camp was established at Truxton Springs. BISCHOFF stayed there from the 10th to the 24th of October when, with Lieutenant LOCKWOOD's party, he travelled via the Colorado Plateau to Prescott. The details of this and the earlier and later stages of the long journey from Halleck's Station are included in the article referred to above.

The nearest points in Arizona to BISCHOFF's track from which *Ochlodes yuma* has come are Indian Gardens in the Grand Canyon, and Prescott. We can immediately rule out Prescott as the source of the type. BISCHOFF got there much too late in the year, 31 October. The altitude and climate of Indian Gardens and Truxton are similar. A habitat for *yuma* is present at Truxton in the meadow just below the springs.

Contra Costa County, California material clearly shows that the species is double brooded there. The first brood emerges from the last of May (28th) to middle June (19th). The second brood in September (5th-22nd). About 13 weeks elapse between broods. In warmer Inyo County, the first flight occurs between 6 and 28 June with stragglers into July and the second brood in late September (28th). About 12 weeks elapse here between broods. Since

northern Arizona is cooler than the Inyo country where *yuma* is found we may expect the interbrood period to be at least 12-13 weeks.

Dated Arizona material, all from the northern part of the state, has been taken from 12 July to 1 August. If there is a second brood then it should emerge around 84 to 91 days later at the earliest. BISCHOFF'S arrival in Arizona on 6 October is 86 days after 12 July. He could have found second-brood *yuma* in the vicinity of Truxton on 10 October. However, we have no evidence that the species is two brooded in Arizona. It may be single brooded in Arizona as it is in Colorado. Only future collecting will settle this point.

The Owens River Valley portion of the known range of *yuma* was visited by BISCHOFF at a more propitious time. He entered the Valley via Deep Spring Valley on or about the 16th of July and left it via Desert Wells, about 18 miles east of Mohave, on the 15th of August. His time-table in the region follows. In it when there is a difference between WHEELER'S place names and those used today the later are placed in parentheses after WHEELER'S designation. The capitalized names are of known localities for *yuma*, and the dates indicate captures.

- [16.vii] — DEEP SPRINGS, 16.vii.53
- [17.vii] — Big Pine
- 18.vii. — 10.viii — Camp Independence
- 10.viii — Lone Pine
- 10.viii — OWENS LAKE, 20.vi.37
- [11.viii] — Star Ranch (OLANCHE), 6-28.vi—25,37,50
- [11.viii] — Hawee Meadows (HAIWEE), 11.vi.21
- [11.viii] — Cow Springs (nr. Coso Junction)
- [12.viii] — Little Owens Lake (Little Lake)
- [13.viii] — Indian Wells (north of Freeman)
- [14.viii] — Coyote Springs (south of Freeman)
- 15.viii — Desert Springs (Desert Wells)

The dates in brackets are estimates and may be in error by a day.

The second brood of *Ochloides yuma* starts emerging in Owens Valley and the vicinity during the last two weeks of July, and stragglers have been found as late as the last week in September. From the above time-table it is obvious that BISCHOFF had the opportunity to collect *yuma* in the Owens Valley. I believe it realistic to consider that the vicinity of Owens Lake, Inyo County, California, is the type locality for *Ochloides yuma* (Edwards).

#### References

- Brown, F. Martin, 1958. The Wheeler Surveys Naturalists — 1871 — Ferdinand Bischoff. *Journ. N. Y. Ent. Soc.* (in press).
- Edwards, William H., 1873. *Trans. Amer. Ent. Soc.* 4: 346.