

Reprinted from THE PAN-PACIFIC ENTOMOLOGIST
Vol. 43, April, 1967, No. 2, pp. 130-133
Made in United States of America

***Caliscelis bonellii* (Latreille), a European Genus of Issidae
New to the United States**

(Homoptera : Fulgoroidea)

LOIS BREIMEIER O'BRIEN

***Caliscelis bonellii* (Latreille), a European Genus of Issidae
New to the United States**

(Homoptera : Fulgoroidea)

LOIS BREIMEIER O'BRIEN

California Academy of Sciences, San Francisco

During the summer of 1965, eleven males and one female of *Caliscelis bonellii* (Latreille) were collected in Sonoma County, California, in two localities approximately 15 miles apart; this is the first record of the genus on this continent. This species was described by Latreille in 1807 and is recorded from Italy, France, Sardinia, Sicily, Austria, Hungary, Spain, Yugoslavia, Portugal, and Russia. Thirteen other species are found in Eurasia, one in Ceylon, and one in Brazil.

During the summer of 1966 several observations were made to supplement the 1965 collecting data and the European references on ecology. Metcalf's Catalogue of the Homoptera (1958) cites three references to the ecology of this species. Melichar (1907) says it occurs "auf sonnigen stellen"; in 1901 he says both sexes are found "auf sonnigen Anhoen." Graeffe (1903) says "Diese interessante s"udliche Cicade findet sich nicht selten auf recht sonnigen d"urren Graspl"atzen bei Triest und in Istrien vom July bis in den Herbst. Weibliche Thiere noch in November gefunden, die wahrscheinlich "uberwintern."

In 1965, nine males were collected at Healdsburg, 17 June 1965, on Bermuda grass, on a railroad right of way by W. Wiard (labelled Calif. Dept. Agr. 65 F 24-19) and one male was collected two miles north of Sebastopol, 24 July 1965, by myself. One male and one female were collected there one week later by C. W. O'Brien; 28 males, 2 nymphs, and 18 females, 3 July 1966, by us; 1 nymph, 22 May 1966, by us; and one nymph 1 mile south of Sebastopol, 10 September 1966, by W. C. Gagn"e. One nymph has been collected one mile northeast of Occidental, Sonoma County, 17 May 1964, by C. W. O'Brien, but was not recognized as this genus until the adults and other nymphs were collected.

The collection site north of Sebastopol is a pasture with a few broad leaved plants, chiefly *Cichorium* and *Grindelia*. In July that part of the pasture where *Caliscelis* is found is dry, with most of the grass brown and the earth cracked. The pasture slopes in a westerly direction toward a creek bed and on this slope is an elongate depression approximately 75 feet long and 20 feet wide and 8 feet deep, with steeply sloping sides. It runs from east to west and in 1966 was filled with hay.



Fig. 1. Lateral view of *Caliscelis bonellii* (Latreille), male. Crosshatching indicates yellow coloration; black, black or ferruginous; white, white.

It is along its south side that most of the specimens of *Caliscelis bonellii* were found. Collecting started at 2 PM and the whole pasture area was swept with a net, with only two specimens being found, these near the depression. It was swept again, and again specimens were obtained in the same area. By five o'clock almost every swing over the same area produced more specimens and several males were watched as they ran about on the plants. Their black color made them stand out on both green and golden plants and they ran along the stems and stopped, ran and stopped, often on the pauses reaching out with one front leg, touching it down, raising it again, and again placing it down before shifting weight on it and repeating the procedure with the other leg. This movement was easily seen because of the foliaceous femur and tibia. The whole action gave one the impression of watching a jumping spider. The drab female was not observed displaying the front legs. Since each sweep in the late afternoon produced more insects than were collected in the same area earlier in the afternoon, I assume they were at the base of plants or in cracks in the ground earlier in the day.

Six adults and two nymphs were brought into the laboratory for study. Two of the adults, placed on dry weed and grass stems, died overnight. Those in vials with green stems of *Grindelia*, *Cichorium*, and grasses

were observed with mouthparts inserted into all three at one time or another. After two days, the plant stems seemed dry and were replaced with fresh Bermuda grass every second day. One nymph became adult and the two females laid five eggs within the week they lived. The eggs were 1 mm long, 0.4 mm in diameter, oval, and pale, with a small cylindrical opaque projection at the head end; they were glued longitudinally along the stems. At room temperature, three nymphs hatched within 23 days after the first egg was laid; they were placed out of doors on living Bermuda grass in a vial, but were trapped in dew and died.

How *Caliscelis bonellii* overwinters in California is not known; nymphs have been collected on 17 and 22 May without finding adults; adults and two last instar nymphs were found on 3 July, and another nymph 10 September. If the species overwinters as an active nymph or adult or hibernates in the ground, recent introduction would seem to be indicated. Since spring is the collecting period in this part of California, Van Duzee or other Hemipterists might have been expected to collect it. However, collecting in the coastal range and central California valleys commonly stops in very early summer when the vegetation turns brown, so it is not impossible that even so striking a species should go undetected, given this habitat, if it is adult only during the dry summer period. In this case, it might have been introduced by early ships from the Mediterranean region as eggs on hay, or hibernating in hay.

SYSTEMATICS

In Dr. Kathleen C. Doering's key to the genera of Issidae north of Mexico (1938), *Caliscelis bonellii* keys to couplet 20, where it can be separated from *Aphelonema* and *Papagona* by its expanded fore femora and tibiae; head, including eyes, narrower than pronotum or base of closed tegmina; vertex short. Distinctive characters of this genus are the abbreviated wings, the greatly expanded fore femora and tibiae, the rounded clypeus not expanded into a snout, sexual dimorphism, and, like *Osbornia*, vestigial or no circular pits on the head and thorax; *Aphelonema*, *Fitchiella*, *Bruchomorpha*, and *Papagona* have very distinct circular pits.

MALE.—2.5 mm long, 1.1 mm wide across tegmina. Color: black except yellow pronotum, mesonotum, and tegmina; tegmen with black border along costal margin, white stripe along claval suture and black stripe medially of white stripe; tarsi, apical half of hind tibiae, middle femora and tibiae and membranes around coxae and eyes brownish yellow; papillae on antennae pale. Pronotum sometimes bor-

dered anteriorly and laterally with black; sometimes it and mesonotum spotted with black; notum under wings yellow or yellowish.

Lateral view as figured. Vertex half as long as broad, chevron shaped except anterior edge truncate, lateral edges along eye elevated, carina along posterior margin. Frons medially depressed, apical fifth produced anteriorly, subequal to clypeus. Clypeus with median carina; in lateral view smoothly convex. Pronotum pentagonal, depressed medially. Mesonotum with anterior transverse carina arched anteriorly, sinuate laterad of each lateral carina; median carina poorly developed or absent on meso- and pronotum and vertex. Fore femora and tibiae expanded leaflike with axes thickened; femur $\frac{3}{8}$, tibia $\frac{4}{7}$ as broad as long. Hind tibia with a single spine. Veins of tegmina indistinct.

FEMALE.—4.1 mm long, 1.75 mm wide across tegmina. Color brown, spotted with dark brown. Pale median stripe from vertex to anal flap, with brown line bisecting it from tegmina posteriorly; this stripe flanked by two other pale stripes on each side from tegmina posteriorly. Frons darkly spotted medially, clypeus solid dark brown color.

Structure similar to male except frons and vertex only slightly concave, so that vertex is $\frac{1}{3}$ as long as broad. All carinae less distinct than in male. Fore femur about $\frac{1}{2}$, fore tibia about $\frac{1}{3}$ as broad as long.

I am indebted to Mr. R. G. Fennah, Assistant Director, Commonwealth Institute of Entomology, London, for comparing a specimen with continental representatives of the species and confirming my determination; to Dr. R. F. Wilkey, California Department of Agriculture, for calling my attention to and loaning their specimens; to Mr. Virgil Whitlatch, for granting permission to collect insects on his property; and to the National Science Foundation for the Graduate Fellowship which I held during this research.

LITERATURE CITED

- DOERING, K. C. 1938. A contribution to the taxonomy of the subfamily Issinae in America north of Mexico (Fulgoridae, Homoptera). Univ. Kansas Sci. Bull., 25: 447-575.
- GRAEFFE, E. 1903. Beiträge zur Cicadinenfauna des Osterr. Küstenlandes. Boll. Soc. Adriatica Sci. Nat. Trieste, 21: 41-63.
- MELICHAR, L. 1901. Rhynchota (Juli). Entomol. Jahrb., 1901: 42-43.
1907. Bericht über die mit Subvention der kaiserl. Akademie der Wissenschaften unternommene entomologische Studienreise nach Spanien und Marokko. Sitzungberichte. Akad. Wiss., 116: 1038.
- METCALF, Z. P. 1958. General Catalogue of the Homoptera, Fasc. IV, Part 15, Issidae. Waverly Press, Inc., Baltimore, Md. 561 pp.