

PSYCHE.

NOTES ON NEW ENGLAND ACRIDIDAE.—III. OEDIPODINAE.—VII.

BY ALBERT P. MORSE, WELLESLEY, MASS.

19. PSINIDIA Stål.

Psinidia Stål 1873. Recensio Orthopterorum, i, 117, 133.

28. *Psinidia fenestralis* Serv.

Fig. 28.

Oedipoda fenestralis. Serville,—Hist. nat. d. Ins., Orth., 726, (1839), Thomas, 118.

Locusta eucerata. Harris, 180.

Oedipoda eucerata. Scudder, 472; Smith,—Conn., 373; Thomas 119.

Psinidia fenestralis. Saussure, 161; Morse, 105; Beutenmüller, 303.

Psinidia fenestralis. Fernald, 44.

Antenna: ♂, 10.7–12.3; ♀, 10–12.
H. fem.: ♂, 9–11.7; ♀, 11–13.5.
Teg.: ♂, 15.5–20; ♀, 17.5–24.
Body: ♂, 15–17.5; ♀, 19–25. Total length: ♂, 20–24; ♀, 23–30 mm.

Though presenting some resemblance to the species of *Spharagemon* and *Scirtetica* and frequently found in the same locality this locust is readily distinguished from them by the strongly constricted pronotum, the form of the antennae, and the venation of the tegmina, as noted in the Key.

The antennae are unlike those of any other species of the subfamily in the depressed, prismatic form of the joints, appearing almost ensiform next the base.

Another peculiarity noticeable is that on the distal third of the tegmina the maculation is restricted to the costal half.

In general coloration this species varies widely, according to environment, from pale dust-color to bright reddish brown or even black. The most interesting feature connected with its coloration, however, is the variation in the color of the wings. As noted before, these may vary in specimens from the same spot from dull white through yellow and orange to vermilion red. This is no doubt due in part to age, but seems also to depend upon other conditions, partly, it is probable, upon humidity as suggested by Prof. Bruner, but principally, I believe, upon temperature.

Nearly one-half of my specimens taken on the sea-beach at Stamford, in the warmest corner of Connecticut, are red-winged. At West Chop, M. V., and Provincetown, Mass., in the same situation, all are yellow-winged. At Wellesley, Sherborn, and Dedham, Mass., several miles inland, red-winged examples are comparatively scarce. At No. Conway, N. H., all are yellow-winged. Mr. Henshaw informs me that many of his specimens from Nantucket

are red-winged. While much collecting needs to be done before one can feel certain, I believe that it will be found that the red-winged form is most common in the warmest parts of New England.

This is a common and widely distributed species, occurring nearly everywhere on sandy spots in southern New England, and probably throughout the entire district. On the seashore it is sometimes associated with *T. maritima*. It is usually plentiful where it occurs, though often very local in consequence of its habitat. When disturbed it flies for but a short distance, often only a few feet, the male producing a very slight, scarcely noticeable, crepitation.

I have taken it on various dates from July 17 to Oct. 7 at Fryeburg, Me.; No. Conway, N. H.; Provincetown, Revere, Sherborn, and Wöllesley, Mass.; Watch Hill, R. I.; Canaan, Montville, Niantic, Stamford, and Thompson, Ct.; and offshore on Martha's Vineyard, Penikese, and Cuttyhunk Ids. Mr. Henshaw has found it common on Nantucket in late Sept., and it has been taken at Norway, Me., by Smith (M. C. Z.).

20. TRIMEROTROPIS Stål.

Trimerotropis Stål 1873. Recensio Orthopterorum, i, 118.

29. *Trimerotropis maritima* Harr. Fig. 29.

Locusta maritima. Harris, Report, 143 (1841); Treatise, 3rd ed., 178.

Oedipoda maritima. Scudder, 472; Smith, Conn., 373; Thomas, 124.

Trimerotropis maritima. Stal, loc. cit., 134; Saussure, 172; Fernald, 45; Morse, 105; Beutenmüller, 299.

Measurements. Antenna: ♂, 11-13; ♀, 11.5-14. Hind fem.: ♂, 11.5-14.5; ♀, 14.5-16.8. Teg.: ♂, 23-27; ♀, 29-35. Body: ♂, 20-25; ♀, 28-35. Total length: ♂, 28.5-33; ♀, 36-43 mm.

An easily recognized species, not likely to be mistaken for any other occurring with us. The sides of the pronotum vary considerably in the degree of prominence of the angulation, sometimes being almost rounded, sometimes with a distinct, tooth-like projection. In color it varies with the soil of the locality, the ground-color ranging from white to light brown, more or less sprinkled with dusky blotches; these are sometimes nearly obsolete, and again nearly confluent on the head, pronotum, and base of tegmina. Specimens from North Haven, Ct., show numerous bright rufous fleckings, agreeing with the reddish color of the soil at that place. This variation in color is often marked even in a small area, as I noticed at Block Id. where a portion of the beach is much darker than the rest, and the locusts frequenting that part agreed with it in tint.

This is a common species along the sandy sea-beaches of southern New England, but while common it is one of the wariest and most difficult to capture of all our locusts. Extremely shy, it starts up before the pursuer is within

reaching distance and flies rapidly for many rods. Even when marked down it is very difficult to see, owing to its close resemblance in color to the sand on which it alights. I know of but one locality where it is found away from the sound of the surf, — this is at North Haven, Ct., where it occurs sparingly on barren sandy wastes.

I have taken adult specimens on July 24, and Mr. Henshaw found it plentiful on Nantucket Id., on Sept. 22.

It is found on the shore of all the seaboard New England States. I have seen specimens from West Beach, Me. (5 nymphs, M. C. Z.); Hampton, N. H. (Scudder); Salisbury Beach, Mass. (A. L. Babcock); and have taken it at Provincetown and West Chop, M. V., Mass.; Watch Hill and Block Id., R. I.; Niantic, North Haven, and Stamford, Ct.

21. *CIRCOTETTIX* Scudd.

Circotettix Scudder 1876. Bulletin Geol. & Geog. Surv. Terr., ii, (appendix) 264.

30. *Circotettix verruculatus* Kirby. Fig. 30.

Locusta verruculata. Kirby, Fauna bor. Amer., Insects, p. 250, (1837).

Locusta latipennis. Harris, 179.

Oedipoda verruculata. Scudder, 471; Smith, Me., 151, — Conn., 372; Thomas, 115.

Circotettix verruculatus. Saussure, 175; Fernald, 45; Morse, 105; Beutenmüller, 302.

About 120 New England specimens give measurements as follows: Antenna: ♂, 9–11.5; ♀, 10–11.5; Hind femora: ♂, 11–11.5; ♀, 13–14. Tegmina: ♂, 20.5–25 (usually 23–24); ♀, 24–28.5 (usually 27–28). Body: ♂, 21–23; ♀, 26–30. Total length: ♂, 26.5–32; ♀, 30.5–37 mm.

This is an easily recognized species, the only one likely to be confused with it being *Spharagemon saxatile* from which it may be distinguished by the narrow wing-band, enlarged radial veins, pale hind tibiae, and distinctly two-notched pronotal carina. In color it varies from a dark gray or brown to black sprinkled with ashy, darkest on the head and pronotum, palest on base of hind thighs, and with the tegmina indistinctly trifasciate. Occasionally specimens occur light yellowish-brown or ashy in color but as a rule the species is the darkest colored of all our locusts.

It is found plentifully in northern and western New England, its favorite haunts being bare ledges on elevated land and low mountains. On these it delights to bask in the sunshine, crawling about over the lichen-covered and weatherbeaten rocks with whose tints its coloring harmonizes, or to hover in the air above them, sharply stridulating. Its "song" in flight is the loudest produced by any of our locusts, and consists of a series of separate notes, clicks, or snaps, not a rattle, and is readily distinguished by this peculiar snapping quality. It is one of the wariest of our locusts, being especially shy and difficult

to approach during the warmer part of the day, when it often flies away to a distance of several rods and circles about, returning to the place whence it started, or dances up and down in the air, snapping loudly. The ♀ sometimes makes a soft flutter or shuffle of wings in flight, probably corresponding to the snapping of the ♂, and both sexes can fly silently at will. I have seen the ♂ stridulate when at rest, also, by rubbing the hind thighs against the tegmina, producing a "scratching" sound audible at a distance of three or four feet. The intercalary vein is toothed, in a low but continuous series, for its entire length in the ♂, and on the distal half or more in the ♀, in which the teeth are lower and barely perceptible.

It begins to appear in the winged state about July 15, on which date I have taken it in northern Vermont, and it may be found during the rest of the season. Henshaw has taken it at Bar Harbor, Me. I have specimens from the following localities: Deering, Portland, Norway, and Speckled Mt., Stoneham, Me.; Keene (Prof. Weed), No. Conway, Pinkham Notch, Mts. Pequawket and Washington, N. H.; Jay, Vt.; Greylock Mt., Adams, and Palmer, Mass.; and Canaan, Ct. Harris described it under the name of *latipennis*, and there are two specimens in M. C. Z. labeled Cambridge, indicating that it may be found in the vicinity of Boston, though I have yet to meet with it there personally.

NOTES ON THE GENUS DELTOCEPHALUS.

BY CARL F. BAKER, ALA. POLYTECHNIC INST., AUBURN, ALA.

The following notes are called forth by Prof. Osborn's late "Review of the Genus *Deltocephalus*" in Proc. Iowa Acad. Sci., more especially by the changes he has proposed in connection with the species described in the Prelim. List Hemip. Colo. The new species in the latter work were so described on my own authority and the true type specimens are in my collection. Hence I may be supposed to know why they were called "new."

Prof. Osborn's generalizations on the genus *Deltocephalus* seem to me at least very premature, especially in consideration of the fact that less than

a third of the American species occurring in collections were known to him at the time his paper was written. It seems questionable from a study of *all* the species if the genus can be naturally separated into groups along the lines he has indicated. Likewise, the excluding from the genus of *simplex*, *coquilletii*, *concentricus*, *bimaculatus* and *flavovirens* seems to me decidedly premature. His reconstruction of the genus, based upon a study of but a small proportion of our species, cannot but prove untenable. The genus, as it occurs in Europe, so far as our present knowledge goes, is a fairly homogeneous group.



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