

SOME INSECT FOOD OF THE SAGE SPARROW

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Forty-five specimens of the sage sparrow, *Amphispiza nevadensis*, were collected in sage, rabbitbrush and greasewood areas of Utah from 1934 through 1942. Examination of the preserved stomachs reveal the following insect material, still in recognizable condition:

Six Thysanura; 4 Collembola; 20 Orthoptera, 19 being adult and 2 nymphal shorthorned grasshoppers and 1 meadow grasshopper; 2 Thysanoptera.

The 231 Hemiptera present included 4 Scutelleridae, 1 Cydnidae, 6 Pentatomidae of which 2 were *Carpocoris remotus* Horv., 1 Corizidae, a *Corizus hyalinus* (Fabr.), 1 Coreidae, 154 Lygaeidae included 125 adult and 17 nymphal *Nysius ericae* (Sch.), 3 *N. californicus* Stal, 2 *Geocoris pallens* var. *decoratus* Uhler, 1 Nabidae *Nabis alternatus* Parsh., 8 Miridae, 4 being *Lygus*, 1 a *L. elisus* Van D.; 212 Homoptera included 34 adult and 72 nymphal *Eutettix tenellus* (Baker) beside 7 other adult and 3 nymphal leafhoppers, 8 Membracidae, among them 3 *Pubila modesta* Uhler and 1 *Leiocyta ferruginipennis* (Godg.), 3 Fulgoridae, 39 Aphididae, among them 1 *Cinara* sp., 5 *Macrosiphum pisi* (Kalt.), 5 *M. coweni* Hunter and 1 *Aphis bonnevillensis* Knlt., and 39 Coccidae, largely scale insects.

The 37 Coleoptera contained in recognizable form included 2 Dermestidae larvae, 1 Buprestidae, 1 Elateridae, 1 Cerambycidae, 2 Chrysomelidae, one being a flea beetle, and 2 weevils; 8 larval Lepidoptera and 3 eggs. Nineteen Diptera were recognized all but one being adult, including 2 female mosquitoes and 2 Tipulidae; 116 Hymenoptera were present of which 90 were ants and 1 chalcid.

In addition to the insects listed above, recognized at least to order there were numerous grasshopper and some coleopterous mandibles present as well as a large number of other insect fragments. In addition, 6 spiders and 852 seeds, mostly weed seeds, were found. Large numbers of seed and plant fragments were present in a number of the stomachs.

SOME NEW SPECIES OF DELPHACODES (Homoptera, Fulgoridae, Delphacinae)

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Delphacodes nigripennata n. sp.

Brachypterous form:

Resembles *D. alexanderi* (Metcalf) but front without black longitudinal stripes, anal segment with two pairs of processes and aedeagus bent dorsally almost at right angles near base. Length ♂ 2.0 mm.

Structure: Front about three times as long as wide, widest slightly below middle, slightly narrowed on apical third to apex, narrowed about one-fourth on basal third, definitely tricarinate; crown longer than width be-

tween eyes, carinae barely visible; elytra widest near middle, reaching to genital capsule, apices broadly rounded.

Color: Head, pronotum and most of body except abdomen tawny, abdomen mostly dark brown to black, with two dorsal light crossbands, some light spots on lateral margins of dorsum and narrow light hind margins of ventral segments; large dark spot above hind coxae; elytra black or very dark brown, shining, veins raised.

Genitalia: In lateral view anal segment with two pairs of processes; aedeagus bent dorsally near base with dorsal margin bulged near middle, some small teeth in region of this bulge; styles avicephaliform, beak sharp, head high and fairly sharp.

Holotype ♂ and 1 ♂ paratype, Hutchinson, Kans., Aug. 5, 1945, R. H. Beamer; other paratypes: 3 ♂♂, Medora, Kans., same day and collector; 1 ♂, Clark Co., Kans., Sept. 14, 1944, R. H. Beamer; 1 ♂, Meade Co., Kans., Sept. 13, 1944, R. H. Beamer; 1 ♂, Medora, Kans., July 6, 1945, R. H. Beamer.

Macropterous form:

Like the short-winged form except wings about one-third longer than abdomen, semihyaline with veins darker, widest in region of crossveins. Color dark brown, with legs somewhat lighter.

Holomorphotype ♂, Old Town, Fla., July 11, 1939, R. H. Beamer.

Types in Snow Entomological Collections.

Delphacodes silvae, n. sp.

Brachypterous form:

Resembling *D. nigripennata* but anal segment of male with but one pair of processes, sides of aedeagus nearly parallel with spines throughout and styles avicephaliform in ventral view. Length ♂ 2.2 mm.; ♀ 2.6 mm.

Structure: Front with sides almost parallel on basal two thirds, slightly converging at apex and more so on basal third, definitely tricarinate; crown barely longer than width between eyes, indefinitely carinate; elytra widest near middle, apices broadly rounded, ending slightly beyond middle of abdomen, veins raised.

Color: General color stramineous; in female, ovipositor and sheath brown; in male, elytra shining black, also abdomen except dorsum of last two segments including part of genital capsule; also a dark spot above hind coxae.

Genitalia: In lateral view anal segment with a pair of short, heavy processes; aedeagus about four times as long as wide, almost parallel-sided to rounded apex, gently curved ventrally and covered throughout with numerous sharp spines; aedeagal brace evident, narrow at apex; styles more or less pediform, in ventral view avicephaliform with sharp beak and long narrow head.

Holotype ♂, allotype ♀ and 2 ♂ paratypes, Brownsville, Texas, Dec. 29, 1945, R. H. Beamer, taken in the Palm Forest.

Types in Snow Entomological Collections.

Delphacodes sagae n. sp.

Brachypterous form:

Resembles *D. silvae* but smaller, more nearly black all over and aedeagus bent in half circle in lateral view. Length ♂ 1.8 mm.

Structure: Front slightly more than twice as long as wide, sides almost parallel, slightly converging at either end, plainly tricarinate, crown almost square, carinae visible but blunt; elytra almost rectangular, reaching to genital capsule, apices broadly rounded.

Color: General color almost black; head, pronotum, legs and dorsal spot at base of abdomen somewhat lighter.

Genitalia: In lateral view anal segment with two, long sharp processes; aedeagus about four times as long as broad, curved ventrally in almost half circle, sides nearly parallel, band of teeth on outer third; aedeagal brace long and strongly bifid; styles widest at base, bent dorsally on outer half with two short projections on ventral margin.

Holotype ♂ and 12 ♂ paratypes, Fredonia, N.Y., July 21, 1946, R. H. Beamer.

Types in Snow Entomological Collections.

Delphacodes hyalina n. sp.

Brachypterous form:

Resembles *D. foveata* (V.D.) but smaller, vertex definitely longer than wide and genital segment of male definitely infuscated. Length ♂ 2.2 mm.; ♀ 2.5 mm.

Structure: Front almost parallel-margined, slightly narrowed at base, moderately tricarinate; crown slightly more than one-third longer than width between eyes; elytra widest near middle, extending barely beyond abdomen, apices rounded, veins raised, sparsely set with fairly large dark setae; hind wings reduced to mere pads, about half size of an eye.

Color: General color stramineous with carinae of front bordered with black, a large black spot above posterior coxae, the anterior fovea of crown black, legs more or less lineate with fuscous and genital capsule infuscated.

Genitalia: In lateral view anal segment with a pair of rather closely appressed, sharp processes; aedeagus about three times as wide at base as near middle; sharply bent dorsad near base, gradually tapered to apex with about four teeth bordering opening on right side; aedeagal brace very long, extending out even with styles; styles pediform, toe long and slender, heel small.

Holotype ♂, allotype ♀, 63 ♂ and 75 ♀ paratypes, Douglas Co., Kans., Aug. 23, 1945, R. H. Beamer. Other paratypes: 23 ♂♂ and 25 ♀♀, same place and collector, Aug. 27, 1945.

Types in Snow Entomological Collections.

Delphacodes lutea n. sp.**Brachypterous form:**

Resembling *D. hyalina* but without dark color except in styles, aedeagal brace and aedeagus. Length ♂ 2.1 mm.; ♀ 2.8 mm.

Structure: Front widest near middle, very slightly narrowed toward apex, constricted about one-fourth on basal third, distinctly tricarinate; crown almost rectangular, plainly but feebly carinate; elytra with sides almost parallel, apices broadly rounded, veins raised with scattered, long light setae.

Color: Golden yellow with tips of, tarsi, styles, aedeagus and aedeagal brace darker.

Genitalia: In lateral view anal segment without processes; aedeagus broad and with sides almost parallel on basal two-thirds, sharply constricted on ventral margin on outer third with apex directed ventrally; aedeagal brace long and narrow, extending back between the styles; apices of styles pediform with blunt toe and heel.

Holotype ♂, allotype ♀, 41 ♂ and 40 ♀ paratypes, Douglas Co., Kans., Aug. 22, 1945, R. H. Beamer; other paratypes 20 ♂ ♂ and 17 ♀ ♀, same place and collector, Aug. 27, 1945.

Macropterous form:

Like the short wing form but elytra hyaline, widest in region of cross-veins, extending about one-third their length past abdomen.

Holomorphotype ♀ and 8 ♀ paramorphotypes, Douglas Co., Kans., Aug. 22, 1946, R. H. Beamer; 9 paramorphotypes, same place and collector, Aug. 27, 1945.

Types in Snow Entomological Collections.

Delphacodes lappae n. sp.**Brachypterous form:**

Resembling *D. hyalina* Beamer but dark color on abdomen more or less in a broad lateral band reaching across ventral part of genital capsule, aedeagus enlarged at tip with many teeth and styles in lateral view avicephaliform. Length ♂ 2.3 mm.; ♀ 3.0 mm.

Structure: Front widest near apical third, gently narrowed to apex and base, definitely tricarinate; crown slightly longer than width between eyes, carinae definite; elytra widest near apex of scutellum, tapering to rounded apex, ending slightly before tip of abdomen in female and at tip in male; hind wings absent.

Color: General color stramineous; carinae of front bordered with fuscous; lateral and apical foveola of crown black; abdomen with a more or less definite broad lateral longitudinal stripe which crosses ventral portion of genital capsule; in female ovipositor and sheath brown, venter more or less flecked with brown.

Genitalia: In lateral view anal segment with a pair of heavy blunt processes; aedeagus about half as wide at base as total length, narrowed near middle on ventral margin, slightly enlarged with many teeth on tip; styles avicephaliform, beak sharp and short, head high and rather sharp.

Holotype ♂, allotype ♀, 12 ♂ and 5 ♀ paratypes, Sarita, Texas, Dec. 25, 1945, R. H. Beamer; 1 ♂ paratype, Mission, Texas, Dec. 26, 1945, R. H. Beamer.

Types in Snow Entomological Collections.

Delphacodes bifurca n. sp.**Brachypterous form:**

Resembles *D. shermani* but male has a large shining spot on scutellum, another above middle coxae and aedeagus is bifurcate more than one-third its length. Length ♂ 1.8 mm.; ♀ 2.2 mm.

Structure: Front slightly more than twice as long as width, widest near middle, slightly converging toward apex, more so toward base, plainly tricarinate; crown slightly longer than width between eyes, carinae very indefinite; elytra hyaline, widest near tip of scutellum, reaching to genital capsule in male on to fourth abdominal segment in female, apices broadly rounded, veins slightly thickened, sparsely set with setae.

Color: General color stramineous; ovipositor and sheath of female slightly darker; male with large shining black spot on scutellum and above middle coxae, few dark spots on dorsum of abdomen near base, one on each side of genital capsule; styles, aedeagus and hooks of anal segment also darker.

Genitalia: In lateral view anal segment with two large sharp processes; aedeagus bulbous near base, divided from tip to basal fifth, dorsal portion slightly shorter than ventral, sharp pointed, ventral portion with knobbed apex bent ventrally; styles barely visible, parallel with wall of pygofer apex, narrowed and slightly turned out.

Holotype ♂, allotype ♀, 7 ♂ and 4 ♀ paratypes, Douglas Co., Kans., Aug. 23, 1945, R. H. Beamer; other paratypes: same place and collector, 3 ♂ ♂ and 6 ♀ ♀, Aug. 27, 1945; 1 pair, Aug. 22, 1945; 7 ♂ ♂ and 3 ♀ ♀, July 7, 1945; 14 ♂ ♂ and 3 ♀ ♀, July 24, 1945; 8 ♂ ♂ and 2 ♀ ♀, July 31, 1945; 24 ♂ ♂ and 6 ♀ ♀, July 25, 1945; 2 ♂ ♂ and 4 ♀ ♀, July 23, 1945; additional paratypes: 4 ♂ ♂ and 6 ♀ ♀, Hutchinson, Kans., Aug. 5, 1946, R. H. Beamer, 14 ♂ ♂ and 36 ♀ ♀, Medora, Kans., Aug. 5, 1945, R. H. Beamer.

Types in Snow Entomological Collections.

Delphacodes bocana n. sp.**Brachypterous form:**

Resembling *D. floridae* Muir and Giff. but crown about as wide as long, black stripes either side median carina of front and elytra about same color as remainder of body. Length ♂ 1.8 mm.; ♀ 2.0 mm.

Structure: Front widest about basal third, slightly narrowing to apex,

more definitely narrowed on basal third, strongly tricarinated; crown almost rectangular, strongly carinated; elytra semihyaline, almost rectangular, reaching to genital segment in male, to middle of abdomen in female, broadly rounded at apices, veins heavier.

Color: General color tawny with following darker areas: genital segment and more or less of sternum of male, ovipositor sheath and area on each side of frontal carina of female.

Genitalia: In lateral view anal segment with a pair of heavy, fairly blunt processes; aedeagus about four times as long as wide, slightly curved dorsally throughout with a number of small teeth near middle on dorsal margin and a few on side near apex; styles rather short, almost parallel-sided.

Holotype ♂, allotype ♀, 1 ♂ and 8 ♀ paratypes, Brownsville, Texas, Dec. 27, 1945, R. H. Beamer.

Macropterous form:

Like short wing form except elytra extending about one-third their length beyond abdomen, widest beyond crossveins, veins raised, darker beyond crossveins.

Holomorphotype ♂, same data as brachypterous form.

Types in Snow Entomological Collections.