

ON SOME AMERICAN SPECIES OF MACROPSIS (JASSIDAE).

BY C. F. BAKER, ST. LOUIS, MO.

In America, *Macropsis* is distinctly southern in distribution. In Van Duzee's List of *Jassina* four species are credited to North America, two to Mexico, and two to Colorado and the southwest. Three have been described from South America by Stål and one by Lethierry. In this paper three are added to the South American list and six to the United States. As at present known, one species occurs throughout the southern United States, one in Alabama, one in the Argus Mts., Cal., one in the Magdalena Mts., N. M., two in southern California, two in Colorado, two in Mexico and four in South America. Undoubtedly a number more will be found in Central and South America.

Pachyopsis Uhl., is strictly synonymous with *Macropsis* Lewis.

Macropsis idioceroides n. sp. — Male. Length 5.5 mm. Strongly resembling an *Idiocerus* in form. Head very little if any narrower than pronotum, vertex scarcely longer at middle than at eyes. Front very minutely rugose below. Ledges over antennal cavities short. Clypeus strongly convex, very broad at base, suddenly strongly narrowed beyond the middle to the rounded apex. On a space along the anterior margin of pronotum, the usual aciculation gives place to a fine shagreening. Lateral pronotal carinae not reaching eyes but curved far down on to the pleurae. Punctures on clavus fairly numerous and setigerous; punctures on corium obsolete if at all setiger-

ous, sparse, and arranged in longitudinal rows.

Color pale olivaceous, head and below yellowish, the legs greenish. Eyes dull carmine. Elytra transparent.

Valve transverse, longer than preceding segment, hind margin straight. Plates strongly convex, twice longer than width of both, bulging laterally below, then narrowed to an acute point.

Described from one example collected in the Magdalena Mts., N. M., in August (Snow). This is one of the most interesting *Bythoscopids* occurring in North America. Though so closely resembling an *Idiocerus*, it yet presents all the characters of *Macropsis*. The width of head, form of clypeus, and the position of the lateral pronotal carinae, separate it widely from all other species of the genus.

Macropsis lactus (Uhl.) — I have collected this species at Fort Collins, Colo., in September. It somewhat resembles the European *prasinus* in coloration and size, but is nearer *lanio* in structure. The head is broader than in *prasinus*, and the elytra possess supernumerary veins at apex. It differs from *lanio* in various structural characters, and more conspicuously, in lacking the fuscous irrorations on head and pronotum. *Lactus* is the only American representative of the group including *prasinus* and *lanio*, and in which the elytra are elongate and the punctures not

setigerous. The other American species are more like *microcephala*.

Macropsis atra n. sp.—Male. Length 4 mm. Form of *robustus*. Head somewhat narrower than pronotum, vertex very slightly longer at middle than at eyes. Front unusually distinctly transversely aciculate throughout. Ledges over antennal cavities nearly in a straight line. Clypeus a half longer than broad, with sides parallel, apex subtruncate. Pronotum aciculate throughout. Elytra sordid whitish opaque; hairs strong, numerous, and black, except on base of clavus where they are white and weak.

Beneath, with lower part of face including margins of front, very pale sordid yellowish. Upper part of face with most of front, vertex; pronotum and scutel (except the piceous apex), black. Narrow margin along inner angle of clavus ferruginous. Fore and middle legs slightly embrowned, hind legs greenish.

Last ventral segment nearly square, twice the length of preceding segment, hind margin nearly truncate.

Described from a single specimen in the National Museum collection, taken in the Argus Mts., Cal., in May, by Mr. Koebele. It closely resembles *humilis* Stål, and may prove but a variety of it. The extent of black is not so great in *atra*. *Atra* resembles some of the Mexican and South American species more nearly than any other species we have.

Macropsis smithii n. sp.—Female. Length 4 mm. Very stout. Head considerably narrower than pronotum; vertex short; as long at middle as at eyes. Front becoming nearly smooth below. Ledges over antennal cavities strongly bent towards clypeus. Clypeus distinctly, but little, longer

than broad with sides slightly converging apically to the broadly rounded apex. Aciculation on pronotum becoming obsolete medially on anterior submargin. Elytra hyaline, hairs strong, black fairly numerous, weak and white on base of clavus.

Pale straw color, legs greenish. More or less of pronotum along hind margin, basal portion of clavus, and sometimes narrow basal margin of scutel, black or piceous.

Last ventral segment twice length of preceding; hind margin broadly rounded, on either side of the middle with a narrow slit extending to one-third the length of the segment, and enclosing a rectangular tooth.

Male like the female. Last ventral segment greatly enlarged, broader and three times the length of the preceding segment; subquadrangular, medially longitudinally creased, the outer margins broadly rounded; hind margin with a large subrectangular tooth, rounded at tip, margins broadly depressed, and bent backwards into the fissure of the pygofer.

Described from seven females and one male in the Herbert H. Smith collection, taken at Chapada, Brazil. This species strongly resembles *pallescens* but it lacks the dark markings on vertex, and presents a totally different form of genitals.

Macropsis pallescens (Stål.) — 1862 Stål, K. Vet. Akad. Handl. B. 3, No. 6, p. 49 (*Stragania pallescens*).

There is a single typical example of this species in the Herbert H. Smith collection, from Chapada, Brazil, collected in November. The last ventral segment is broadly rounded apically and has a good sized rectangular median notch.

Macropsis sordidus n. sp.—Female. Length 4.5 mm. The general form and ver-

tex of *smithii*. Clypeus no longer than broad, sides very slightly converging to the subtruncate apex. Ledges over antennal cavities strongly bent towards clypeus. Pronotum aciculate except within anterior lateral angles, where there are some faint brownish spots. Elytra whitish opaque, very strongly but somewhat sparsely setigerous punctate, the hairs on base of clavus weak and white.

Color sordid yellowish, tinged with greenish on pronotum posteriorly, scutel, costa at base, and hind tibiae.

Last ventral segment twice the length of the preceding, hind margin broadly rounded, with a large median notch which is acute at apex and reaches nearly a third the length of the segment.

Described from a single female in the Herbert H. Smith collection, taken at Chapada, Brazil, in April. This may be near *divisa* Stål, which I have not seen, but it does not at all fit the description of that species.

Macropsis californicus n. sp.—Female. Length 5 mm. Far larger and stouter than *robustus*. Head little narrower than pronotum. Vertex very slightly longer on middle than next eye. Clypeus slightly longer than broad at base, sides gently converging towards the truncate apex. Ledges over antennal grooves nearly in a straight line. Pronotum aciculate except just within lateral carinae. Elytra thick, opaque, with a number of supernumerary veinlets towards the apex; hairs on elytra not strong anywhere, those on clavus weak and white, those on corium sparse and mostly black.

Head, all below, and elytra largely, pale straw color. Pronotum rufescent. A narrow area on clavus, adjoining inner angle usually deep reddish. Elytra often more or less tinged with reddish toward base. Dorsal segments mostly with discs black.

Last ventral segment little longer than preceding, broadly deeply emarginate, bottom of the emargination inclining to subrectangular.

Male. Length 4.75. Front above, vertex except narrow basal margin, pronotum and extreme base of scutel, black to piceous. Elytra except apical areoles suffused with bright reddish. Last ventral segment over twice the length of preceding segment, hind margin broadly rounded and with a minute median slit.

Described from one male and a number of females in the National Museum collection, taken by Mr. Koebele in Placer Co., Calif., during September and October. One female partakes somewhat of the male characters in having a spot on front above and anterior margin of pronotum, blackened. This is the most highly colored of known North American species.

Macropsis magnus n. sp.—Female. Length 5.5 mm. Near to *californicus*, but differing from it as follows: Larger and stouter. Pronotum without distinct supernumerary veins. Whole insect darker throughout. Vertex on either side in front, and basal margin of scutel, piceous or black. The dark color on scutel shading through ferruginous to light yellow at apex. Wings dark fuliginous at base.

Last ventral segment of female twice the length of preceding, hind margin trisinate, the three sinuosities of equal depth, the lateral broad, the median narrow and acute.

Described from a single female in the National Museum collection, taken in Los Angeles Co., Cal., by Mr. Coquillett. It is very near to *californicus* but easily separated by the size and genital characters.

Macropsis ornatula (Stål.) 1862
Stål, K. Vet. Akad. Handl. B. 3, No.
6, p. 49 (*Stragania ornatula*).

I have referred to this species six specimens in the Herbert H. Smith collection, taken at Chapada, Brazil, in May. These specimens fit the original description perfectly, except that they are only 3.5 mm. in length. The last ventral segment in the female is twice the length of the preceding, the hind margin very broadly slightly produced, between which and the lateral angles on either side, there is a slight concavity. In the male the last ventral segment is a half longer than preceding, the hind margin truncate.

Macropsis rufoscutellatus n. sp.—Female. Length 4.5 mm. Much stouter than *robustus*. Head somewhat narrower than pronotum, vertex somewhat longer at middle than at eye. Clypeus little longer than broad at base, the sides gently converging to the rounded tip. Ledges over antennal cavities distinctly bent towards the clypeus. Pronotum aciculate throughout. Elytra subhyaline, hairs weak and white towards base of clavus, black on remainder of clavus and corium, fairly numerous except at apex of corium.

Light green throughout, scutel except apex, and adjoining border of clavus, rufous.

Last ventral segment deeply emarginate, the apex of the emargination with a short broadly triangular projection.

Male more sordid in coloration and with a greater extent of rufous on the clavus. Last ventral segment more than twice the length of preceding, hind margin strongly rounded.

Described from two females and one male collected by myself in the foothills west of Fort Collins, Colo., during

May and June. In the Prelim. List Hemip., Colo., this species was confused with *robustus*, but it is distinct. I unfortunately made a partial distribution of it under the latter name. It is of frequent occurrence in Northern Colorado.

Macropsis robustus Uhl.—This is the most common species of the genus in the United States. It occurs throughout the Southern States from the Atlantic to the Pacific, and in the Rocky Mountain Region as far north as Northern Colorado. I have many specimens from Arizona, California, Louisiana and Alabama. Dr. Uhler also records it from New Mexico and Texas.

It is one of the smallest forms, clear green to pale straw color throughout. The clypeus is distinctly longer than broad. The hairs on the elytra are black throughout the clavus and corium. The last ventral segment of the female is shallowly bisinuate behind, the included projection small, acute and equalling the lateral angles.

Macropsis alabamensis n. sp.—Female. Length 4.5 mm. Closely resembling *robustus* from which it differs as follows: Clypeus scarcely as long as broad, the genae distinctly incurved to meet its tip. Hairs on elytra weak, white, and rather sparse throughout. The commissural margin from the scutel to the apex of elytra narrowly blackened. Appendix strongly infusate, the three apical cells each with a brown spot at tip.

Last ventral segment bisinuate, the enclosed projection large, exceeding a little the lateral angles, and broadly rounded.

Described from three females, col-

lected at Auburn, Ala., in September by myself. These three specimens are uniform in the above characters. I find no gradation towards them in my entire series of *robustus*, numbering some ninety specimens, some of which are from Alabama.

Macropsis stramineus n. sp.—Female. Length 4 mm. Near *alabamensis* than which it is stouter. It differs as follows:

Bright straw color throughout. Hairs on elytra black, very short and very sparse, almost wanting on median portion. A brown cloud at tip of clavus and more or less numerous small brown marks at apex of corium. Last ventral segment as in *alabamensis*.

Described from three females in the Herbert H. Smith collection, taken at Chapada, Brazil, in October and November.

LIFE HISTORIES OF NORTH AMERICAN GEOMETRIDAE.—XI.

BY HARRISON G. DYAR, WASHINGTON, D. C.

Gypsochroa haesitata Guen.

Egg. Elliptical, a little flattened above and below, one end larger than the other, but full and well rounded; micropylar (large) end not flattened. Smooth, finely shagreened, the reticulations obsolete, just the faintest trace perceptible in the shell. Not shining, ocher yellow. Size $6 \times .55 \times .5$ mm. Laid singly on spider's webs or other delicate thread on the leaves or branches of its food plant.

Stage I. Head round, bilobed, clypeus moderate, rather flat before; very pale brown, a narrow dark line on posterior edge of checks; ocelli and mouth dark; not shining; width .4 mm. Body not very slender, cylindrical, smooth, normal, dull greenish, sordid dark and opaque, no definite lines, but numerous longitudinal fine paler streaks, somewhat confused. Feet pale; tubercles small, brown; setae black with slightly swollen tips; no subprimaries; tubercle iii superstigmatal anterior, iv post stigmatal, a trifle above the whitish tracheal line, v well anterior, vii with separated hairs: on thorax ia, iia, iv and vi visible.

Stage II. Head rounded, flattened before, held out flat, mouth projecting, antennae distinct; sordid brown, speckled with darker, a faint, grayish V-shaped shade bordering the clypeus; width .7 mm. Body not very slender; legless segments elongated. Green, the ends, joints 2 to 5 and 10 to 13 shaded with brown, anteriorly darkly shaded especially subdorsally, posteriorly lighter, faintly longitudinally lined, but without distinct bands. Feet pale; tubercles obsolete, setae fine short and pale. Shields concolorous and obscure.

Stage III. Head round, flattened before, not bilobed and free from joint 2; whitish, densely mottled with pale brown, more sparsely about the clypeus; ocelli black; width 1.2 mm. Body moderate, cylindrical, uniform, translucent whitish green, green from the food, with irregular longitudinal rows of small white specks; at the extremities faintly tinged with brown and the specks become dark. Tracheal line visible; spiracles narrowly black rimmed; tubercles small, white; setae very short, pale.

Stage IV. Head rounded, very slightly bilobed, whitish green, thickly mottled with



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