

In short, Karny's 1908 findings apply to American acridians as well as European acridians. The flexor-extensor mechanism of the hind wings with their rapid fan-like folding and closing produces the stridulous flight songs. Field behavior of a number of acridian species supports the conclusion that flight noises are heard and responded to by other individuals within the species concerned.

To summarize:

1. The tegmina are not concerned in flight-stridulation.
2. Acridian flight noises emanate from the hind wings, and require stiff veins for their production.
3. There is a definite correlation between the volume of flight songs and the topography of the habitat.
4. Grasshoppers hear and react to flight crepitations.

A New Bee of the Genus *Coelioxys* from Nebraska (Hymenopt.: Megachilidae).

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Coelioxys bisoncornua new species.

♀. Length 12-14 mm. Black, with all of the legs except the coxae dark red, venter and extreme lateral edges of abdominal tergites more or less obscurely reddish.

Clypeus opaque, finely rugose, its apical margin bidentate, almost bare except for a thin ochreous apical fringe and a similar though less evident fringe of short hair about the epistomal suture. Supraclypeus and face similarly but more finely sculptured, with a faint carina between antennae which bifurcates to throw the anterior ocellus into a slight depression. Face thinly clothed with short appressed, yellowish white hair. Vertex comparatively bare, each of the strong dense punctures with an inconspicuous minute hair in its center, punctures fine back of ocelli but rather coarse and crowded laterally, a small opaque impunctate spot contiguous to superior orbital margin. Eyes green with very short hair. Antennae black, joint 3 longer than 4 and twice as long as 2. Mandibles dark reddish with black teeth. Cheeks coarsely punctured and moderately clothed with short white hair, anterior margin carinate.

Mesoscutum punctured like sides of vertex, a little less densely so on disk. Scutellum densely rugose, prominently angulated behind, the rugose lateral spines moderate in length

and broad, their points incurved so as to resemble a pair of bison horns. Propodeum opaque, finely rugose, enclosure satiny and minutely rugose, the sides of the propodeum angled and clothed with long, rather dense, shaggy, white hair. Mesopleura punctured like mesoscutum, their anterior margins carinate, all margins bounded by thin whitish hair lines which join under the tegulae to form a hair spot behind the dark testaceous and well-developed lateral pronotal carinae. Mesoscutum practically bare, without lines or spots of squamose hairs, except a short line behind tegulae, the anterior margin with a rather thin fringe of short, erect, pale ochreous hair. Mesoscutellar suture with two spots of white appressed hairs and a similar fringe along the posterior margin of the scutellum. Metanotum with a dense fringe of long, erect, whitish hair. Tegulae ferruginous.

Wings hyaline, brownish, becoming clouded apically, nervures and stigma dark brown, basal nervure meeting transverso-medial, first recurrent nervure meeting second submarginal cell about same distance from base as second recurrent nervure from apex. Legs with short white pubescence, that on the tarsi within golden.

Abdomen slightly shiny, strongly punctured; the punctures on tergite 1 very close and rather fine; tergites 2 and 3 more coarsely punctured, those anterior of the entire and hairless sulci close, posterior of the sulci punctures are more remote and with very minute punctures interspersed among the larger ones, especially so on disk; tergite 3 with a shining, minutely punctured, otherwise impunctate, transverse band on disk posterior to sulci; tergites 4 and 5 shiny, without sulci and with coarse punctures uniformly separated for about the width of one; tergite 6 finely and densely punctured, broad at base and gradually narrowed to tip which is broadly rounded, a fine longitudinal carina running about two-thirds its length, on either side of which the tergite is deeply depressed at apex, a broadly rounded, though slight, lateral projection on each side near apex which is not reflexed. Tergites 1-5 with narrow, entire apical fasciae of squamose, white hairs, but without basal bands. Sternites 2-5 subapically with a more or less distinct transverse red line. Sternites 1-4 uniformly and coarsely punctured; sternite 5 with coarse punctures which are slightly more dense at apex; sternite 1 with a median white hair spot, but no apical margin, apices of 2-5 with thin entire hair bands. Apical sternite slightly longer than apical tergite, broad and gradually narrowed to near apex, where it is emarginated almost at a right

angle to form a narrow, more or less acute, apical projection, the punctures coarse and somewhat more close and elongate apically, a median carina running over half its length, the margins of the sternite finely pale ciliate.

♂. Length 11-13 mm. Like ♀ except that clypeus and face below antennal level is covered with a dense mat of appressed silvery hairs, the vertex subuniformly and somewhat more finely punctured, first recurrent nervure meeting second submarginal nearer base than second from apex, tergites 2 and 3 with entire sulci, those on 4 and 5 medially interrupted, tergite 4 less closely and tergite 5 more closely punctured, the sternum without the distinct red lines. Sulci on tergites 3-5 with medially interrupted hair fasciae, that on 2 without hair. Cheeks below broad and without a beveled or grooved area. Anterior coxae with short inconspicuous spines. Apical tergite closely punctured and with a basal hair band, its apical margin truncate, angularly slightly produced and feebly emarginate medially at the tip, below which is a short, broad, blunt terminal spine on each side, the extreme sides with longer, sharper, curved spines, segment 7 showing ventrally as a conspicuous hairy spine. Tergite 5 without lateral spines. Tergite 2 without foveae. Sternite 4 entire.

Holotype.: Halsey, Thomas County, NEBRASKA, August 9, 1912, on *Helianthus petiolaris* (J. T. Zimmer), ♀. *Allotype*: Gordon, Sheridan county, NEBRASKA, August 29, 1905, on *Helianthus petiolaris* (D. E. Winchester), ♂. *Paratypes*: Lincoln, NEBRASKA, August, 1 ♂; Neligh, Nebraska, August (M. Cary), 1 ♂; Blue Rapids, KANSAS, September 12, 1908, on *Helianthus grosscarratus* (O. A. Stevens, N. 1127), 1 ♀.

The male from Neligh differs from the other two males in the wing venation, agreeing with the females in this respect. The female from Blue Rapids, Kansas, does not have the distinct narrow transverse red lines on the sternum; otherwise it agrees with the holotype.

All the above specimens are in the permanent collection of the University of Nebraska at Lincoln.

The general aspect of this handsome species is much like that of *C. edita* Cresson (= *deplanata* Cresson), to which it is most closely related, but from which it may easily be separated by its prominently angulated scutellum (rounded behind in *edita*), the complete lack of the line of appressed squamose

hairs dilated into two spots on anterior border of the meso-scutum and the similar line on posterior margin of the scutellum which are so conspicuous in *edita*, the darker red legs, the narrower fasciae, the presence of the minute punctures on tergites 2 and 3, the more poorly developed occipital fringe (well developed in *edita*), the more deeply apically depressed sixth tergite, the more uniform puncturation of the penultimate sternite (punctures much finer and close on apical third than at base in *edita*), and other differences. From *C. sculptifrons* Crawford in the generally closer abdominal puncturation, especially on tergites 2 and 3 apicad of the transverse sulci, the much closer puncturation of tergite 6 (in *sculptifrons* the punctures are over a puncture width apart basally), the subuniformly coarsely and rather closely punctured sternite 5 (in *sculptifrons* this is coarsely punctured basally but minutely and very closely punctured apically), the bidentate apical margin of the clypeus (clypeus with 5 short apical teeth in *sculptifrons*), and other differences. From *C. rudis* Cockerell it is known by the wholly red femora (basal half black in *rudis*), the lack of the sub-apical impunctate band on the first tergite, the dentate margin of the clypeus (straight and simple in *rudis*), and other characters. Aside from *edita*, *sculptifrons*, and *rudis* the character of the apical segment and the red legs will distinguish it from our other species of the genus. The bispinose tip of tergite 6 in the male distinguishes it from *C. edita* as well as all other allied species.

A New Robber Fly, with a Key to the Species of *Callinicus* and *Chrysoceria*. (Diptera: Asilidae).

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The genera *Callinicus* Loew and *Chrysoceria* Williston are separated from the remainder of the *Dasygogoninae* that lack a terminal claw-like spur on the fore tibiae by the presence of a pair of stout, inwardly directed spines at the apices of the middle tibiae. The species here described appears to link these two genera and unless some structural character can be found