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A new genus and new species of Brachynemurini from Ecuador
(Neuroptera: Myrmeleontidae: Brachynemurini)

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A new genus and new species of Brachynemurini from Ecuador
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Abstract. A new genus, *Dejunaleon* Miller and Stange, is described with two new species: *Dejunaleon loja* Miller and *Dejunaleon maculosus* Stange (Neuroptera: Myrmeleontidae: Brachynemurini). A key to species is provided as well as distributional data. A description of the larva of *Dejunaleon loja* is given. A key to genera of the tribe Brachynemurini is provided based on larvae and adults.

Key Words. Antlion, *Dejunaleon*, larva, keys adults and larvae.

Resumen. Se describe un género nuevo, *Dejunaleon* Miller y Stange, de Ecuador con dos especies nuevas: *Dejunaleon loja* Miller y *Dejunaleon maculosus* Stange (Neuroptera: Myrmeleontidae: Brachynemurini). Se provee una clave para las especies con datos sobre sus distribuciones. Se describe la larva de *Dejunaleon loja*. Se presenta una clave para los generos de la tribu Brachynemurini basada sobre los adultos y larvas.

Introduction

Dejunaleon Miller and Stange, new genus, is described from Ecuador and includes two new species, *Dejunaleon loja* Miller and *Dejunaleon maculosus* Stange. These straw colored species, as adults, superficially resemble those of the genus *Dejuna* Navás but differ especially in the structure of the male genitalia and female terminalia. The larvae of *Dejunaleon loja* were found living in loose soil on 45° slopes at the base of an agave plant. The larva (Fig. 21–29) is distinctive in the abundance of sessile microspinose dolichasters on the dorsal surface of the body including clusters of black sausage-shaped dolichasters, which are microspinose, at the submedian and anterior area of the mesothorax and metathorax and along the median area of tergites I–V. *Dejunaleon* is unusual in having sexually dimorphic characters. The forefemoral sense hair is longer in the females than in the males and the hind tibial spurs are longer in the females. Considerable variation in these characters and other characters in *Dejunaleon loja* indicate that this is a complex species and may represent at least two cryptic species. Much more collecting is needed to evaluate the pattern of extensive variation. The male genitalia are the most complex that we have seen in the Brachynemurini, being spring-loaded and box shaped with multiple paramere articulations (hinges).

Materials and Methods

Photographs were taken using an Auto Montage (Leica Z16 APO zoom lens attached to a JVC 3-CCD digital camera (KY-F75U)), and montaged with Syncroscopy Automontage software. Genitalia were enhanced in contrast to clearly define sclerotized areas using the Picasa computer program. Genitalia were pressed down by a cover slip for stability during photography, but a description is also given of the genitalia in an uncompressed state. Larvae were originally treated with KAAD larval fixative and then stored in 75% ethanol. Larvae were reared using Mediterranean grain moth larvae (*Ephestia kuehniella* Zeller; Lepidoptera: Pyralidae). Adults were collected in grassy areas by net and with light traps. Larvae were collected by sifting fine earth through screens from beneath *Agave* plants. Description of male genitalia are given for compressed and non-compressed views.

Specimens studied are deposited in the following institutions:

CASC	California Academy of Sciences, San Francisco, California, U.S.A.
FSCA	Florida State Collection of Arthropods, Gainesville, Florida, U.S.A.
TAMU	Department of Entomology, Texas A & M University, College Station, Texas, U.S.A.
USNM	United States National Museum, Washington, D.C. U.S.A.

Dejunaleon Miller and Stange, new genus

Type species. *Dejunaleon loja* Miller, by present designation.

Distribution. Southwest Ecuador and northwest Peru

Diagnosis. Hindwing vein CuA bends to posterior margin at or before medial fork, only 1 or 2 cross veins between CuA and posterior fork of MP₂; posterior area of hindwing less than twice as high as corresponding area of forewing (Stange 1970, fig. 37); forefemur with elongate white setae on exterior surface; ocular rim without setae; pronotum with one or more elongate white setae laterally; forefemoral sense hair sexually dimorphic, males with femoral sense hair no longer than one-half femoral length, females longer than one-half femoral length; hindwing shorter than forewing; male pilula axillaris small; male ectoproct more than five times longer than middle diameter, without medial lobe; male genitalia spring-loaded and box shaped with multiple paramere articulations (hinges).

Description. Adult: Frons without setae; antenna moderately long, with 30 or more thick flagellomeres; antennal fossae separated by about width of pedicel; pronotum about as long as middle width, with at least one elongate white seta laterally; mesonotum and mesoscutellum usually with stout white setae; forefemur with comb of long white, nonclavate setae; legs short, all about the same length; femoral sense hair variable, longer in females; male forefemoral sense hair 30–45% as long as femoral length; female forefemoral sense hair 85% (sometimes 125%) as long as forefemoral length; longer in length than midfemur; pretarsal claws variable, shorter than tibial spurs and shorter than or longer than hind basitarsus; tibial spurs sometimes shorter in male than in female; pilula axillaris very small with setae restricted to apical margin of small knob; hindwing same shape as forewing but length shorter than forewing, in repose apices coincide; costal area of forewing narrow, cells above radial sector wider than high, not interconnected; hindwing with 1–3 presectoral cross veins, posterior area narrower than presectoral area; CuA bends to hind margin at or before medial fork; postventral lobe of male ectoproct about six times longer than median diameter, less than one-half length of tergite VIII, without median lobe, apically with several stout setae; sternite IX simple, longer than broad; male genitalia with very large gonarcus and with huge plate-like mediuncus; parameres complex with several hinges, with strong angle laterally near middle, anteriorly with short point, flanked by more weakly sclerotized small lobe; female terminalia with weak digging setae on ectoproct and lateral gonapophysis; pregenitale fairly large, without tubercle; anterior gonapophysis shorter than long; posterior gonapophysis about twice as long as middle diameter, finger-like but weakly swollen subapically; gonapophyseal plate elongate; lateral gonapophyses transverse, narrow, about four times longer than wide with many enlarged setae. **Larva:** (Fig. 21–29; based on *Dejunaleon loja*). Head capsule about as broad as long in dorsal view; mandible with distance between base and basal tooth much longer than that between teeth; mesothoracic spiracle borne on tubercle that is slightly broader than long; ventral surface of head capsule with elongate flat-ended setae posteriorly grading to short heavy dolichasters anteriorly; dorsal surface of body with many microspinose dolichasters including submedian clusters of black, sausage shaped (Fig. 26), microspinose dolichasters on anterior margin of mesothorax and metathorax; first five tergites with dense clusters of sausage shaped, microspinose, dolichasters at middle; abdominal spiracles not enlarged nor borne on tubercles; sternite VIII with pair of odontoid processes.

Discussion. Superficially the two known species of *Dejunaleon* resemble those of *Dejuna* Navás 1924, especially *Dejuna setosa* (Stange). The terminalia of both sexes are quite different in these two genera. The male genitalia (Fig. 15–18) are unusual in the tribe in having a huge and complex gonarcus and mediuncus and the parameres are complex, hinged in several places, with lateral angle near middle,

and apically pointed and flanked by a more weakly sclerotized small lobe. *Stangeleon* Miller also has a huge mediuncus. *Dejunaleon* belongs to the subtribe Austroleontina Banks 1943 characterized by having the hindwing vein CuA bending to posterior margin at or before medial fork with only 1 or 2 crossveins between CuA and the posterior fork of MP2. The posterior area of the hindwing is less than twice as high corresponding area of forewing. Other austroleontine genera are *Argentoleon* Stange 1994, *Austroleon* Banks 1909 and *Clathroneuria* Banks 1913 which lack a row of elongate white setae on exterior surface of the forefemur. The elongate row of setae on the forefemur of *Dejunaleon* are few in number, usually three setae which are tapered apically in contrast to *Peruveleon* Miller and Stange 2011 and *Abatoleon* Banks 1943 which have many elongate white setae that are usually clavate. The elongate postventral lobe of *Dejunaleon* separates it from *Chaetoleon* Banks 1920 and *Austroleon* Banks. In *Dejunaleon* there is sexual dimorphism in the length of the forefemoral sense hair, the males have it no longer than one-half the length of the forefemur whereas the females have the forefemoral sense hair longer. The hindwing is shorter than the forewing in *Dejunaleon*, as long as the forewing in *Dejuna*. Also, the pilula axillaris is much smaller in *Dejunaleon* than most austroleontine genera.

Etymology. The genus is named for its resemblance to *Dejuna* Navás. Masculine gender.

Key to species of *Dejunaleon*

1. Forewing with many dark brown spots (Fig. 13); hind basitarsus 2.8 times longer than middle diameter; ventral section of parameres indistinct and not rod-like, as in Fig. 17–18 *Dejunaleon maculosus* Stange n. sp.
- Forewing without many dark brown spots (Fig. 11); hind basitarsus 3.5–4.0 times longer than middle diameter; ventral section of parameres visually distinct and rod-like, but variable in shape, as in Fig. 15–16 *Dejunaleon loja* Miller n. sp.

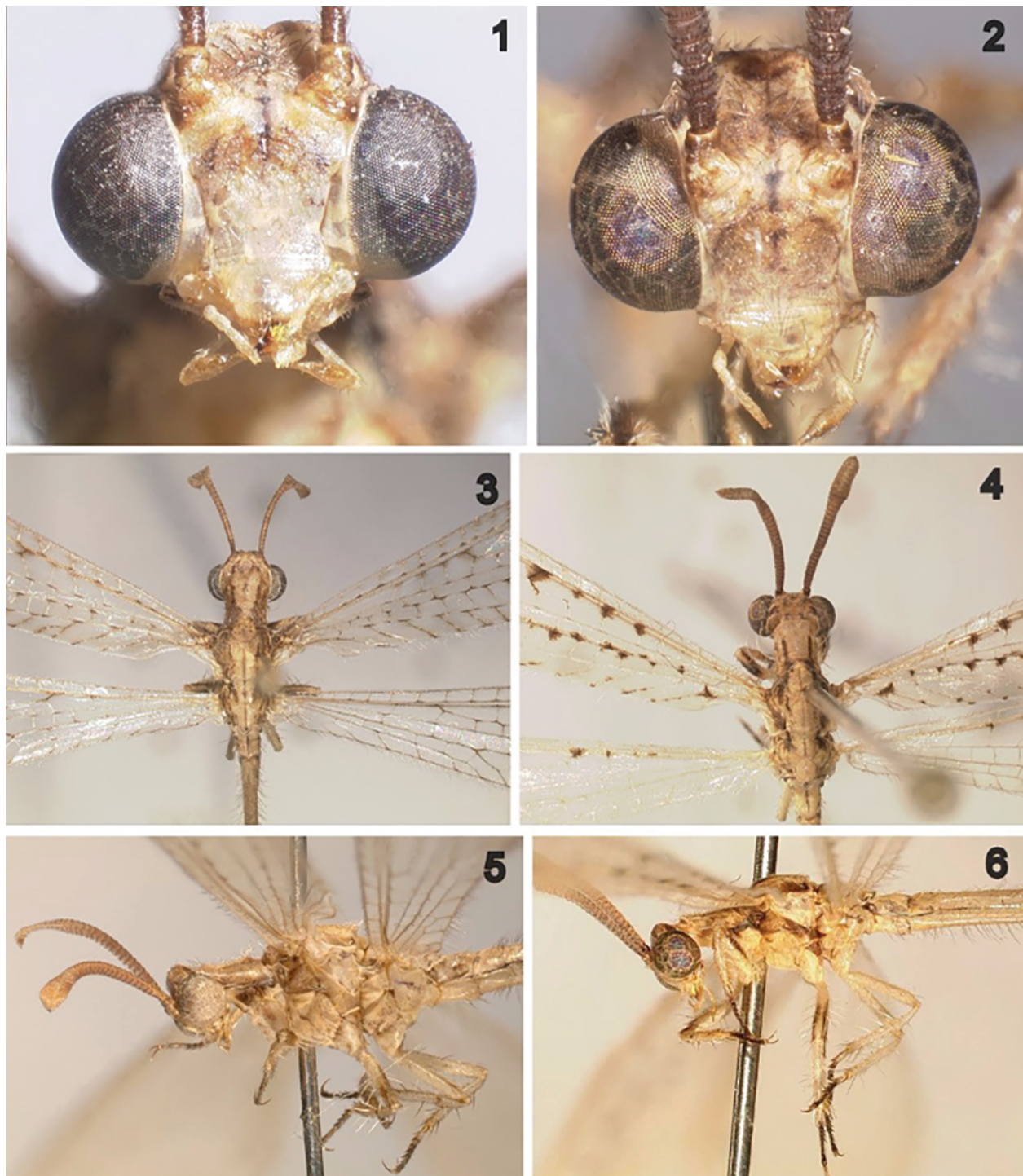
Dejunaleon loja Miller, new species

Fig. 1, 3, 5, 7–9, 11, 13 14, 15, 16, 19, 20, 21–29

Holotype male. Ecuador, El Oro / 10 km. east Piñas / 4.VII.1989, R. Miller, L. Stange (FSCA).

Diagnosis. Hind basitarsus about three and one-half times longer than middle diameter; forefemoral sense hair about equal to that of midfemur; forewing without dark brown spots, mostly brownish streaks; abdominal hair mostly pale brown, about 1/3 length of tergal width; male genitalia as in Fig. 15, 16. Larvae have hundreds of very small bead-like microspinose setae on most of the dorsal surface of the body and other much larger, black, sausage shaped, microspinose ones in clusters near the midline of the tergites and on the anterior margins of the mesothorax and metathorax.

Description. Length from head to apex of tergite IX 30 mm; forewing length 20 mm, width 4.8 mm; hindwing length 19 mm, width 4.0 mm. **Coloration:** Face (Fig. 1) pale brown with yellow brown stripe well below antennal bases; narrow median black line extends from yellow brown band irregularly to anterior vertex row; mouthparts pale brown, palpmacula yellowish; antenna with scape and pedicel pale brown posteriorly with irregular darker brown areas mostly at middle, darker brown anteriorly; flagellomeres nearly all reddish brown; vertex (Fig. 3) mostly straw brown with darker brown laterally at middle row, small yellow brown area at middle posteriorly; pronotum straw brown with sinuate darker brown stripe sublaterally; pterothoracic nota mostly straw brown with darker brown areas laterally; tarsomeres all dark brown except bases of basitarsi; forewing (Fig. 11) without dark brown spots, mostly brownish streaks in medial area and lower outer gradates. **Chaetotaxy:** Pronotum with two elongate white setae laterally; mesonotum and mesoscutellum with curved, stout white bristles posteriorly; forefemur with comb of long white, non-clavate bristles. **Structure:** Distal palpomere (Fig. 1) of labius moderately swollen; antenna (Fig. 5) with flagellomeres much broader than long; hind basitarsus (Fig. 9) about four times longer than middle diameter; hind tibial spurs of male about equal to length of basitarsus and pretarsal claws; forefemoral sensory hair about one-third as long as femur, equal to that



Figures 1–6. Adults of *Dejunaleon* spp. (1) Face of *Dejunaleon loja* Miller. (2) Face of *Dejunaleon maculosus* Stange. (3) Dorsal view, head and thorax of *Dejunaleon loja* Miller. (4) Dorsal view, head and thorax of *Dejunaleon maculosus* Stange. (5) Lateral view, *Dejunaleon loja* Miller. (6) Lateral view, *Dejunaleon maculosus* Stange.



Figures 7–10. Hind tarsus of *Dejunaleon* spp. (7) Female *Dejunaleon loja* Miller showing variation from female in Figure 8. (8) Female *Dejunaleon loja* Miller. (9) Male *Dejunaleon loja* Miller. (10) *Dejunaleon maculosus* Stange.

of midfemur; **Male genitalia (compressed under cover slip for photographic stability):** (Fig. 15, 16). Dominant structure a large expanded, flexible, mediuncus with lateral, ventrally projecting, extensions; mediuncus with regularly spaced sculpturing; gonarcus fused to mediuncus anteriorly, but appears to be of separate origin; gonarcus almost as wide as mediuncus; complex three segmented parameres hinged to themselves and the mediuncus dorsally and ventrally; dorsal section of parameres fused to upper section of mediuncus; middle paramere sections hinged to ventral end of dorsal sections and ventral sections of parameres at their midpoint; ventral portion of parameres connected by hinge to ventral margin of mediuncus submedially; oblong bag-like structure covered with about 75 tiny setae, with large setal bases, between parameres and opening between ventral hinges of parameres. **Male genitalia (uncompressed):** Genitalia with upper section of parameres fused to mediuncus and horizontal; ventral section of parameres pointing straight posteriorly from basal connection to mediuncus and hinged to middle section; middle section of parameres vertical, hinged above and below to other paramere sections; upper portion of mediuncus with dorsal portion of parameres produces a spring loading action, which forms the genitalia into a box-like structure when not compressed; transparent membranes between paramere sections and mediuncus form walls; sculptured oval sack sits within central anterior of genitalia.

Female: Similar to male in coloration and structure except the hind tibial spurs and forefemoral sense hair are longer. The female terminalia (Fig. 19, 20) with pointed digging setae of medium thickness; pregenitale fairly large, without tubercle; anterior gonapophysis shorter than long; posterior gonapophysis about twice as long as middle diameter, finger-like but weakly swollen; lateral gonapophyses transverse, narrow, about four times longer than wide with many enlarged setae.

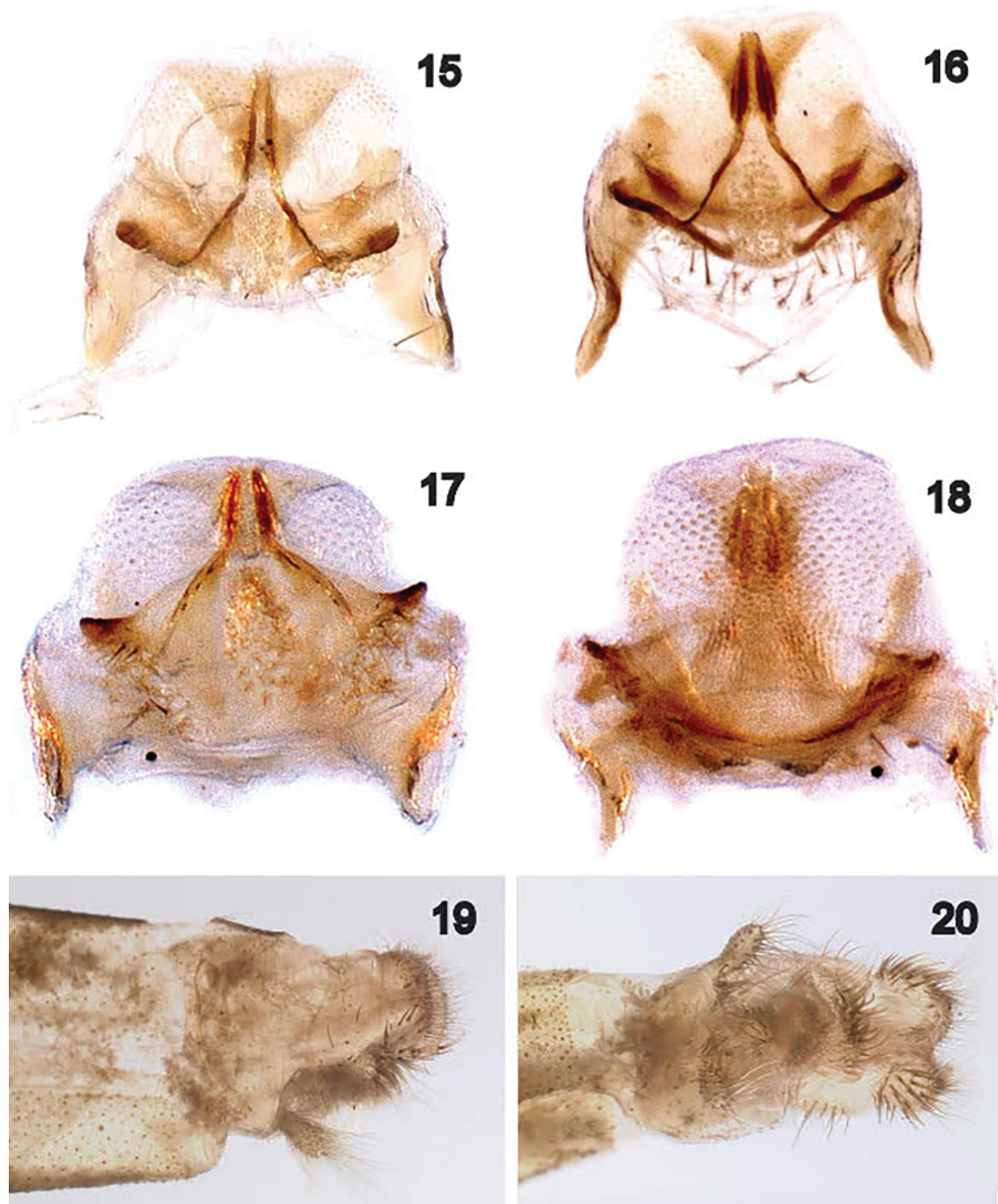
Variation. There is considerable variation in this species. The forefemoral sense hair is about 30–45% as long as femur length in the males and about 85%–125% in females. The females have the hind tibial spurs reaching to tarsomere II or III. Hind basitarsus varies from 3.5–4.0 times longer than middle diameter, which is variable in width. The pronotum can



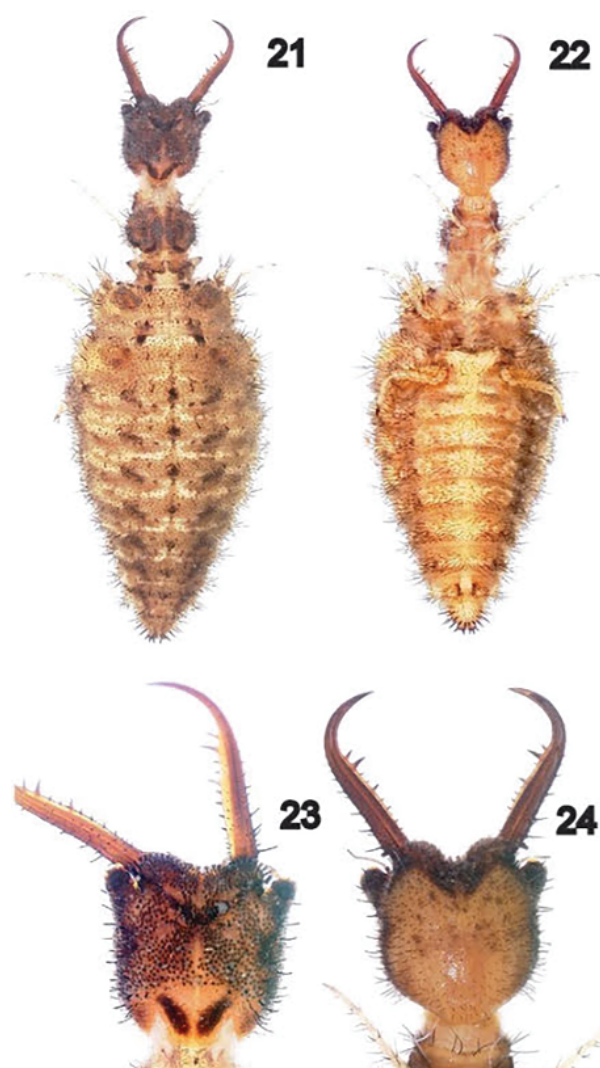
Figures 11–14. Adults of *Dejunaleon* spp. (11) Wings, *Dejunaleon loja* Miller. (12) Whole dorsal view, *Dejunaleon loja* Miller. (13) Wings, *Dejunaleon maculosus* Stange. (14) Male ectoproct, *Dejunaleon loja* Miller, lateral view.

have two or more elongate white setae laterally and the scutelli sometimes have reduced or absent white setae posteriorly. There is some variation in the male genitalia, especially in the length of the gonarcus (compare Fig. 15 and 16). There is also variation in the shape of the gonarcus and the proportions of the parameres; Forewing length 19.5 mm–23.5 mm; width (widest point) 4.7 mm–4.9 mm; hindwing length 18.8 mm–21.5 mm, width 3.9 mm–5.2 mm; wing span forewings 40.0 mm–48.0 mm. Body length (males) 30 mm–32 mm, (females) 25 mm–28 mm.

Larva. (Fig. 21–29). **Coloration:** General coloration light brown (Fig. 21); dorsal head capsule and mandibles medium brown, with pairs of laterally pointing submedian dark brown dashes anteriorly and posteriorly; dorsal prothorax with two pairs of longitudinal dark brown stripes; mesothorax and metathorax dorsally with submedian darker brown markings; dorsal abdomen with both median and a pair of submedian darker brown markings; ventral coloration insipid pale brown except random dark spotting on pale ventral head capsule and a pair of dark submedian markings on sternite VIII. **Chaetotaxy:** Mandible without setae between middle and distal tooth; two setae between basal and middle tooth; outer lateral setae on mandibles extending to distal tooth; dorsal setae on mandibles reach to middle tooth; four prominent setae on inner lateral surface of mandibles between first tooth and where mandible passes beneath head capsule with more fine ones basally; setae of dorsal head capsule bead-like posteriorly and medially, grading to slightly longer and highly expanded and flattened anteriorly, microspinose projections up to $\frac{1}{2}$ diameter of setae; thorax and abdomen mostly covered with light brown bead-like microspinose setae; meso- and metathorax also with clusters of sausage shaped, submedian, black, microspinose setae; dorsal abdomen with same microspinose black setal clusters arranged down middle to tergite 5; ventral thorax and abdomen with mostly elongate flat ended setae with irregular



Figures 15–20. Genitalia of *Dejunaleon* spp. **(15)** Posterior view of male genitalia, *Dejunaleon loja* Miller, showing range of variation from Figure 16. **(16)** Posterior view male genitalia, *Dejunaleon loja* Miller. **(17)** Male genitalia, *Dejunaleon maculosus* Stange, posterior view. **(18)** Male genitalia, *Dejunaleon maculosus* Stange, anterior view. **(19)** Female terminalia, *Dejunaleon loja* Miller, lateral view; **(20)** Female terminalia, *Dejunaleon loja* Miller, ventral view.



Figures 21–24. Larva of *Dejunaleon loja* Miller. (21) Dorsal view. (22) Ventral view. (23) Dorsal view of head. (24) Ventral view of head

surfaces; ventral head with short flat-ended fine setae posteriorly, grading to short heavier dolichasters anteriorly; digging setae black and smooth as in Fig. 27. **Structure:** Three segmented palpi equal in length to basal width of mandible; mandible length equal to length of ventral head capsule measured at midline; spacing between center points of 2nd and 3rd teeth 1/3 of that between 2nd and 1st tooth; mesothoracic spiracle borne on tubercle which is a little broader than long; abdominal spiracles not enlarged nor borne on tubercles; sternite VIII with pair of odontoid processes; rastrum with three large, equal teeth and a small mesal tooth on each side.

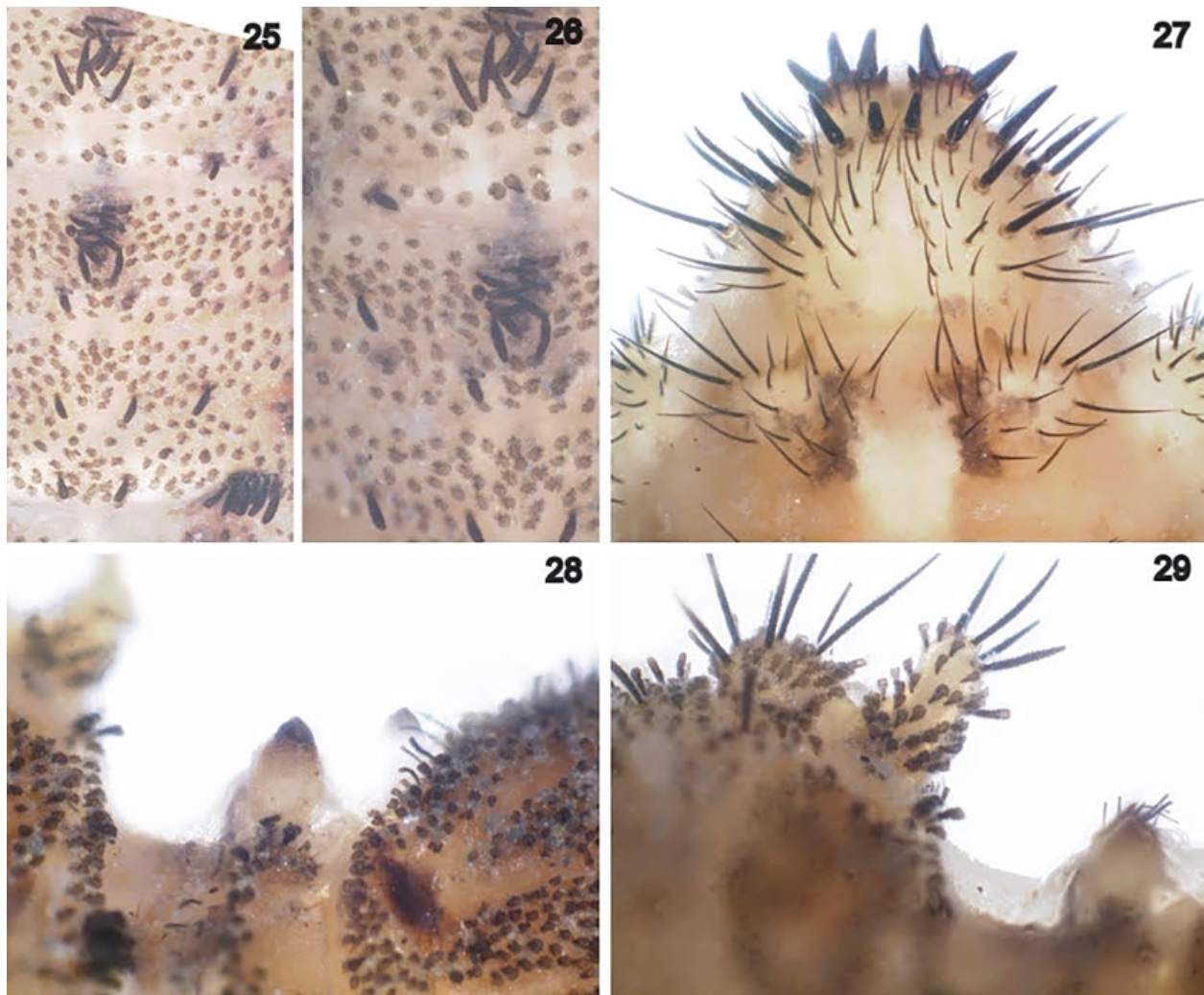
Biology. Dust-covered larvae were discovered in shallow loose soil on a 45% slope beneath plants. Their microspinose setae allow them to cover themselves with enough surrounding fine dust to visually blend in well with their substrate. They were found near the base of an *Agave* in the sun and rain protected zone. Presence or absence of clear ocelli was not noted, and the character cannot be determined from our preserved specimens, making it impossible to determine if they are both night and day feeders. Development in the cocoon required 30 days. The structure of the digging setae on females suggests that they test the substrate and oviposit on fine particle soil. The larvae are distinctive in having an abundance of microspinose dolichasters on the body which function to hold fine dust as camouflage, similar to those found in the genus *Glenurus* Hagen.

Rearing data. Loja. 12 km. west Catamayo (E-8): 1m, cocoon May 30, '90, emerged July 19, 1999; 1f, cocoon Aug. 19, 1989, emerged Aug. 1989; 1f, cocoon July 23, 1990, emerged Aug. 1990 (in alcohol); San Pedro de la Bendita, 1f, pupated Aug. 13, emerged Sept. 20, 1989. El Oro. 7 km. E. Piñas: 1f, cocoon Aug. 12, 1989, emerged Sept. 11, 1989.

Paratypes. 16 males, 22 females, 2 larvae, July to October.

ECUADOR. El Oro: 10 km. east Piñas, 7.VII.1989, R. Miller and L. Stange (12m, 11f, FSCA; TAMU; USNM); 15 km. east Piñas, 6.VII.1989, R. Miller and L. Stange (2m, 6f, FSCA); 10 km. west Zaruma, 6.VII.1989, reared, R. Miller and L. Stange (1f, FSCA). Loja: 14 km. west Catamayo, Ecuador, 1770 m., 9.VII.1989, R. Miller and L. Stange reared (1m, 2f, FSCA); Chaguarpamba, 5.VII.1989, R. Miller and L. Stange (1m, 1f, FSCA); San Pedro de la Bendita, 12 km. W. Catamayo 5800', 7.VII.1989, (2 larvae, 1f, FSCA). PERU. Ayahaca: Dept. Piura, 18 km above Puente Tandopa (Rio Quiroz), 1000-1700 m. 23.IX.1964, Hutchinson & Wright (1f, CASC)

Discussion. The lack of numerous dark spots on the forewing (Fig. 4) distinguishes this species from *Dejunaleon maculosus*. Also, the male genitalia are different. The male and female appear to be nearly identical in all non-genitalia details except for the length of the hind tibial spurs and length of the femoral sense hair. The male has the hind tibial spurs shorter than the hind basitarsus whereas the



Figures 25–29. Larva of *Dejunaleon loja* Miller. **(25)** Pattern of dorsal abdominal microspinose dolichogasters. **(26)** Close-up of bead-like and sausage-shaped microspinose dolichogasters on dorsal abdomen. **(27)** Ventral view posterior digging setae. **(28)** Mesothoracic spiracle. **(29)** Mesothoracic scolus-like process bearing microspinose dolichogasters.

female has the tibial spurs longer. The range of variation in some characters presents the possibility that the paratypes represent two or more closely related species. The genitalia varied more than would normally be expected. Because there were too many intermediate conditions, and not enough clear delineations in the characters, the decision was made to call it one variable species until future samples are available for study from more localities. An abundance of microspinose dolichogasters on the body which function to hold fine dust as camouflage separate them from many other genera in the Brachynemurini.

Etymology. Noun in apposition. Named for one of the Ecuadorian Departments where adults were collected.

***Dejunaleon maculosus* Stange, new species**

Fig. 2, 4, 10, 12, 15, 17, 18

Holotype male. Ecuador, El Oro / 10 km. east Piñas / 4.VII.1989, R. Miller & L. Stange (FSCA).

Diagnosis. Basitarsus of hind leg about 2.8 times longer than middle diameter; forefemoral sensory hair less, about one-third as long as femur, longer than that of midfemur; male with tibial spurs about as long as basitarsus of hindleg; forewing with many dark brown spots (figure 12); distal tarsomere all dark brown; genitalia as in figures 17, 18.

Description. Length from head to apex of tergite IX 31 mm; forewing length 29.5 mm, width 4.5 mm; hindwing length 19.0 mm, width 4.0 mm. **Coloration:** Face (Fig. 2) pale brown with yellow brown stripe well below antennal bases; narrow median black line extends irregularly from yellow brown band to anterior vertex row; mouthparts pale brown, palpmacula yellowish; antenna with scape and pedicel pale brown posteriorly with irregular darker brown areas mostly at middle, darker brown anteriorly; flagellomeres nearly all reddish brown; vertex (Fig. 4) mostly straw brown with darker brown laterally at middle row, small yellow brown area at middle posteriorly; pronotum straw brown with dark brown band extending posteriorly to about furrow, some darker brown laterally; pterothoracic nota mostly straw brown with darker brown areas laterally and dark brown line medially from prescutum to metapostnotum; scutelli nearly all pale brown with some darker brown laterally and at midline; thoracic pleura (Fig. 6) nearly all pale brown with some darker brown dorsally; coxae all pale brown; fore femur and mid femur with double dark brown stripe on anterior surface; hindfemur and tibia nearly all pale brown; tarsi black except nearly all pale brown basitarsus; forewing with many dark brown spots (Fig. 12); hindwing unmarked except several dark spots along radial vein. **Chaetotaxy:** Pronotum with several elongate white setae laterally; scutelli with curved white setae posteriorly; coxae, femora, and tibiae with many stout white setae, longer than femur diameter; forefemoral sensory hair less than one-third as long as femur, longer than that of midfemur. **Structure:** Distal palpomere (Fig. 2) of labius moderately swollen; antenna (fig. 4) with flagellomeres much broader than long; hind basitarsus (Fig. 10) about 2.8 times longer than middle diameter; hind tibial spurs of male about equal to length of basitarsus and pretarsal claws; forefemoral sensory hair about one-third as long as femur, equal to that of midfemur; male genitalia (compressed; Fig. 17, 18) with huge mediuncus similar to that in *Dejunaleon ecuadorae*; paramere halves in two sections, hinged to one another with dorsal section vertical and fused to mediuncus; ventral section expanding ventrally from hinged base with highly sclerotized laterally projecting teeth. Male genitalia (uncompressed; Fig. 17, 18) with genitalia with upper section of parameres fused to mediuncus and pointing posteriorly; lower section of parameres vertical forming a ballooned structure enclosing an oblong sac-like structure between parameres with about 40 tiny setae with large bases; gonarcus fused with mediuncus anteriorly.

Distribution. 1 male, July.

ECUADOR. **El Oro:** 10 km. east Piñas, 4.VII.1989, R. Miller and L. Stange (FSCA).

Discussion. The numerous dark spots on the forewing (Fig. 4) distinguish this species from *Dejunaleon loja*. The male genitalia differ significantly from those of *E. loja* especially in the shape of the paramere, which is larger. The holotypes of both species were captured at the same locality on the same day. Larvae of this species were not found.

Etymology. The species name refers to the numerous dark brown spots on the forewing, which are called maculae in Latin.

Key to genera of Brachynemurini (Adults)

1. Hindwing vein CuA runs along posterior fork of MP2 for a long distance, with 3 or more cross veins between them, or posterior area of hindwing broad, at least twice as high before median fork as corresponding area of forewing (Stange 1970, fig. 37) (*Brachynemurina*) 2
- Hindwing vein CuA bends to posterior margin at or before medial fork, only 1 or 2 cross veins between CuA and posterior fork of MP2; posterior area of hindwing less than twice as high as corresponding area of forewing (Stange 1970, fig. 36) except *Clathroneuria coquilletti* (Currie) (*Austroleontina*) 7

- 2(1). Forefemoral sense hair absent **3**
 — Forefemoral sense hair present **4**
- 3(2). Antennal fossae separated by about width of pedicel; frons without setae; forewing costal area with costal cells interconnected; male ectoproct with postventral lobe more than six times longer than middle diameter (North America) ***Atricholeon Stange***
 — Antennal fossae separated by about twice width of pedicel; frons with setae; forewing costal area with cells not interconnected; male ectoproct with postventral lobe as long as wide (Venezuela) ***Venezueleon Stange***
- 4(2). Pretarsal claws as long as distal tarsomere; frons with numerous setae; forewing CuP + 1A parallels posterior branch of CuA for a distance, about equal to that between hindwing CuA and posterior branch of MP2; forefemoral sense hair as long as femur (Venezuela to Argentina) ***Ameromyia Banks***
 — Pretarsal claws much shorter than distal tarsomere **or** frons without setae; forewing CuP + 1A runs to posterior margin at or before posterior fork of MP2 or forefemoral sense hair shorter than femur (North America) **5**
- 5(4). Pretarsal claws shorter than hind basitarsus; tibial spurs longer than greatest tarsomere diameter; male ectoproct with postventral lobe about as long as wide, ventrally with short process ***Mexoleon Stange***
 — Pretarsal claws longer than basitarsus, or tibial spurs absent or vestigial; male ectoproct with postventral lobe longer than wide (except *Scotoleon stangei* Miller), ventrally without short process **6**
- 6(5). Posterior area of hindwing broad, at least twice as broad at medial fork as corresponding area of forewing; four to six cross veins between hindwing CuA and hind margin; male pilula axillaris absent; setal bases on male tergite IV often spined; vertex with dark brown pigment, when present, restricted to scars ***Scotoleon Banks***
 — Posterior area of hindwing narrow, less than twice as wide at medial fork as corresponding area of forewing, more than ten cross veins between CuA and hind margin of hindwing or (in *B. sackeni* Hagen) vertex scars yellowish with dark brown pigment in interscar areas; setal bases on male tergite IV not spined; pilula axillaris present or absent ***Brachynemurus Hagen***
- 7(1). Pretarsal claws capable of closing upon distal tarsomere which is enlarged with patch of specialized setae; male antenna with numerous calli; labial palpus elongate, distal palpomere about as long as interocular distance (Venezuela) ***Stangeleon Miller***
 — Pretarsal claws not capable of closing upon distal tarsomere which is not enlarged; male antenna without calli; labial palpus short; distal palpomere shorter than interocular distance **8**
- 8(7). Forefemur without row of long, white setae; (*Dejuna* variable and is keyed twice) **9**
 — Forefemur with row of at least three long, white setae on exterior face **12**
- 9(8). Male ectoproct with conspicuous median lobe in addition to postventral lobe; female abdomen usually longer than wings (southwestern United States and northern Mexico) ***Clathroneuria Banks***
 — Male ectoproct without median lobe, sometimes without postventral lobe; female abdomen usually shorter than wings **10**
- 10(9). Hindwing as long as forewing, in repose clearly extends beyond apex of forewing; forefemoral sense hair no more than one-half length of femur (Mexico to Costa Rica) ***Dejuna Navás***
 — Hindwing shorter than forewing, in repose apices of wings coincide; forefemoral sense hair as long as forefemur (South America) **11**

- 11(10). Male sternite IX enlarged, nearly as wide as sternite VIII; female ectoproct without digging setae (Argentina) ***Ensorra Navás***
 — Male sternite IX much smaller than sternite VIII; female ectoproct with digging setae (South America) ***Argentoleon Stange***
- 12(8). Forefemur with row long white setae usually clavate; ocular rim usually with several short setae that project over eye **13**
 — Forefemur with row of long white setae tapered, not clavate; ocular rim without setae **15**
- 13(12). Male ectoproct with postventral lobe shorter than mid length diameter; female terminalia with sclerotized pregenital plate bearing median tooth; posterior gonapophysis at most three times longer than middle diameter, with scraping setae (North America) ***Chaetoleon Banks***
 — Male ectoproct with postventral lobe at least twice as long as middle diameter; female terminalia with a membranous pregenital plate; posterior gonapophysis more than four times as long as diameter at mid length, without scraping setae (Neotropics) **14**
- 14(13). Males: ectoproct much longer than abdominal segment VIII; abdomen shorter than wings. Females: posterior gonapophysis with several apical scraping setae; ectoproct and lateral gonapophysis with silken hairs; abdomen shorter than wings (Argentina)
 ***Abatoleon Banks***
 — Males: ectoproct much shorter than abdominal segment VIII; abdomen longer than wings. Females: posterior gonapophysis without scraping setae; ventral side of ectoproct and lateral gonapophysis with digging setae; abdomen longer than wings
 ***Peruveleon Miller and Stange***
- 15(12). Hindwing as long as forewing, in repose clearly extends beyond apex of forewing; pilula axillaris large (Mexico to Costa Rica) ***Dejuna Navás***
 — Hindwing shorter than the forewing, in repose coincides with apex of forewing; male pilula axillaris large or small (South America) **16**
- 16(15). Male ectoproct without postventral lobe, or lobe less than twice as long as wide; male pilula axillaris large (South America) ***Austroleon Banks***
 — Male ectoproct at least five times longer than middle diameter; male pilula axillaris small (Ecuador; northern Peru) ***Dejunaleon n. gen.***

Key to genera of Brachynemurini (Larvae)

1. Sternite VIII without pair of odontoid processes **2**
 — Sternite VIII with pair of odontoid processes **3**
- 2(1). Mesothoracic spiracle not borne on tubercle ***Scotoleon Banks***
 — Mesothoracic spiracle borne on tubercle ***Atricholeon Stange; Dejuna Navás***
- 3(1). Abdominal spiracles enlarged and/or borne on tubercles **4**
 — Abdominal spiracles not enlarged nor borne on tubercles **7**
- 4(3). Head capsule about twice as wide as long in dorsal view (Venezuela) ***Stangeleon Miller***
 — Head capsule less than 1.5 times as wide as long in dorsal view **5**
- 5(4). Mandible longer than head capsule, with distal tooth separated from middle tooth by at least length of distal tooth; mesothoracic spiracle borne on tubercle that is shorter than basal width ***Mexoleon Stange***

- Mandible as long as head capsule, with distal tooth separated from middle tooth by less than one-half length of distal tooth; mesothoracic spiracle borne on tubercle that is longer than basal width **6**
- 6(5). Mandible with distance between base and basal tooth longer than between basal and distal tooth; abdominal spiracles often with associated secondary “tube-like” structures; submedian tooth on sternite VIII shorter than basal widths ***Peruveleon* Miller and Stange**
- Mandible with distance between base and basal tooth equal to that between basal and distal teeth; abdominal spiracles without associated tube-like structures; submedian tooth of sternite VIII longer than basal width ***Argentoleon* Stange; *Austroleon* Banks**
- 7(3). Found in North America **8**
- Found in South America **9**
- 8(7). Mandible elongate with distance between base and basal tooth much longer than that between basal and distal teeth ***Chaetoleon* Banks**
- Mandible shorter with distance between base and basal tooth less than that between basal and distal teeth ***Brachynemurus* Hagen**
- 9(7). Ventral surface of head capsule with dolichasters **10**
- Ventral surface of head capsule without dolichasters **11**
- 10(9). Head capsule longer than wide (measured ventrally); abdominal tergites with numerous thread-like setae between regular setae ***Ameromyia* Banks (modesta group)**
- Head capsule about as wide as long (measured ventrally); abdominal tergites without thread-like setae ***Venezueleon* Stange**
- 11(9). Mesothoracic spiracle borne on tubercle that is longer than its basal width
..... ***Austroleon* Banks**
- Mesothoracic spiracle borne on tubercle that is shorter than its basal width **12**
- 12(11). Mandible with distance between base and basal tooth about equal or less than that between teeth ***Peruveleon* Miller and Stange**
- Mandible with distance between base and basal tooth much longer than that between teeth ..
..... **13**
- 13(12). Dorsal surface of head capsule with many dolichogasters; submedian clumps of short dolichogasters on mesothorax and metathorax; first three tergites with dense clump of short dolichasters at middle ***Dejunaleon* n. gen.**
- Dorsal surface of head capsule without dolichogasters; mesothorax and metathorax and first three tergites without dense clump of short dolichogasters at middle
..... ***Ameromyia* Banks (nigriventris group)**

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