

Spurthroated Grasshoppers

Subfamily Cyrtacanthacridinae

This subfamily is sometimes divided, with members of the genus *Schistocerca* comprising the subfamily Cyrtacanthacridinae, and several other related genera comprising the subfamily Melanoplinae. Here we do not recognize this division and retain the traditional, broader classification system.

The spurthroated grasshoppers, as the common name suggests, bear a spur or spine (the prosternal spine) ventrally between the front legs. The antennae usually are threadlike, not flattened or sword-shaped. The head is not especially large, and these grasshoppers do not appear to be especially heavy bodied. In most genera, the head has a vertical orientation, but in some groups the face is slanted. These grasshoppers may be wingless, or may bear short or long wings. The forewings (tegmina) are pigmented, but lack the transverse bands common in the bandwinged grasshoppers, subfamily Oedipodinae. The hindwings are not pigmented. The flying ability of spurthroated grasshoppers varies greatly, even within a single genus. The genus *Schistocerca* contains especially long-winged, strong fliers. They are sometimes called bird grasshoppers in recognition of their large size and strong flying abilities.

The subfamily Cyrtacanthacridinae is large and diverse, and several species are known only from Florida. The largest group is the genus *Melanoplus*, with over 200 species in North America and 26 species in Florida. It is sometimes difficult to distinguish among *Melanoplus* species, and to a lesser degree *Schistocerca* species. Thus, the sexual or terminal abdominal structures of the males are commonly used to distinguish among similar-appearing species. The characters of interest are the paired cerci; the forked, two-lobed furcula; the supra-anal plate; and the subgenital plate.

The habitat of these grasshoppers is highly variable. Although some frequent trees or the undergrowth of dense woods, most are found in open grassy or weedy areas. The dietary habits vary from monophagy, or feeding strictly on one plant genus, to polyphagy, or feeding on plants from several plant families. Species may specialize on grasses, forbs, shrubs, or trees, or may feed freely among all these plant types.

There are 45 species of Cyrtacanthacridinae in Florida, found in 9 genera:

Aptenopedes

- A. aptera* Scudder
- A. sphenarioides* Scudder

Eotettix

- E. palustris* Morse
- E. pusillus* Morse
- E. signatus* Scudder

Gymnoscirtetes

- G. morsei* Hebard
- G. pusillus* Scudder

Hesperotettix

- H. floridensis* Morse
- H. osceola* Hebard
- H. viridis* (Thomas)

Leptysma

- L. marginicollis* (Serville)

Melanoplus

- M. adelogyrus* Hubbell
- M. apalachicola* Hubbell
- M. bispinosus* Scudder
- M. davis* (Hebard)
- M. forcipatus* Hubbell
- M. furcatus* Scudder
- M. gurneyi* Strohecker
- M. impudicus* Scudder
- M. indicifer* Hubbell
- M. keeleri* (Thomas)
- M. nanciae* Deyrup
- M. ordwayae* Deyrup
- M. propinquus* Scudder
- M. puer* (Scudder)
- M. punctulatus* Scudder
- M. pygmaeus* Davis
- M. querneus* Rehn and Hebard
- M. rotundipennis* Scudder
- M. sanguinipes* (Fabricius)
- M. scapularis* Rehn and Hebard
- M. scudder* (Uhler)
- M. withlacoocheensis* Squitier and Deyrup
- M. strumosus* Morse
- M. symmetricus* Morse
- M. tepidus* Morse
- M. tequestae* Hubbell

Paroxya

- P. atlantica* Scudder
- P. clavuliger* (Serville)

Schistocerca

- S. alutacea* (Harris)
- S. americana* (Drury)
- S. ceratiola* Hubbell and Walker
- S. damnifica* (Saussure)
- S. obscura* (Fabricius)

Stenacris

- S. vitreipennis* (Marschall)



Aptenopedes aptera
Scudder
 Wingless Florida grasshopper

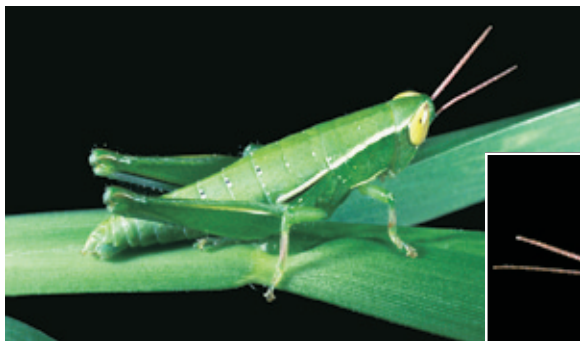
Wingless Florida grasshoppers (males)



Identification. This green grasshopper has a distinctly slanted face. The presence of a spine or spur ventrally behind the head, however, separates it from slantfaced grasshoppers, with which it is easily confused. It is also easy to confuse the nymphal and adult stages, because the adult shows virtually no evidence of wings. Obviously this species is flightless. This species usually is well marked with a yellowish or reddish stripe on the side of the pronotum, and the males usually have a distinct white stripe dorsally on the abdomen. The hind tibiae are bluish green. Females are much larger and more robust than males. The males measure 15–21 mm in length, the females 21–33 mm.

Similar Species. *Hesperotettix osceola* bears a strong resemblance to *A. aptera* because the general body form and color patterns are similar. However, the short wings of adult *H. osceola* should serve to distinguish it from wingless Florida grasshopper.

Distribution and Ecology. Wingless Florida grasshopper is found throughout Florida in arid areas, particularly in association with oak shoots and dwarf oaks in scrub habitats. It also is found in adjacent southeastern states.



Aptenopedes sphenarioides
Scudder
 Linearwinged grasshopper

Linearwinged grasshoppers (Above: female. Right: male.)



Identification. This species is usually green, but sometimes tends toward purplish brown. Like *Aptenopedes aptera*, this species has a strongly slanted face, and superficially resembles slantfaced grasshoppers, subfamilies Gomphocerinae and Acridinae. It bears the ventral spine or spur, however, that marks the subfamily Cyrtacanthacridinae. This grasshopper, in the adult stage, has its wings reduced to elongate linear pads, which is the basis of the common name. This species is flightless. A light and dark stripe is usually present laterally, running from the top of the eye to the tip of the wing pads. A similar stripe may occur down the center of the back, though this is much more frequent among males than females. The hind tibiae are bluish green. Females are considerably larger and more robust than males. The males measure 16–23 mm in length, the females 22–30 mm.

Similar Species. *Hesperotettix osceola* bears a strong resemblance to *A. sphenarioides* because the general body form and color patterns are similar. However, the short but obvious

wings of adult *H. osceola* should serve to distinguish it from linearwinged grasshopper, which bears only a small flap or pad rather than a wing.

Distribution and Ecology. This is a fairly common grasshopper found throughout Florida among grass and shrubs in open areas and open high pine, flatwood, and hammock habitats. It also occurs in adjacent southeastern states.

***Eotettix palustris* Morse** Swamp eastern grasshopper

Identification. This small but attractive grasshopper is metallic yellowish green or brownish green. A broad black stripe connects the eye to the posterior margin of the pronotum. The hind femora are yellowish, the hind tibiae pale reddish. The forewings of this flightless grasshopper are oval and shorter than the prothorax. The length of the body is 15–15.5 mm in males and 21–22 mm in females.

Similar Species. The oval forewings serve to distinguish this species from the similar *Eotettix pusillus*, which has forewings that are nearly round. It can also be distinguished from *E. signatus*, which has forewings that are longer than the pronotum and which taper to a rounded but distinct point.

Distribution and Ecology. The distribution of swamp eastern grasshopper apparently is restricted to northern Florida. It is found in moist areas of pine woods.



Little eastern grasshopper (female)

***Eotettix pusillus* Morse** Little eastern grasshopper

Identification. This metallic grasshopper is strikingly small, males measuring only 10–15 mm in length and females 15.5–20 mm. It is metallic yellowish green, brownish green, or reddish brown. The pronotum bears a black spot laterally behind the eye, but it does not extend completely to the posterior margin of the pronotum. The hind femora and

tibiae are reddish gold or greenish gold. Most abdominal segments are partially black, which results in a black vertical banding pattern. The forewings of this flightless species are almost round, an important distinguishing character, and shorter than the pronotum. Interestingly, the nymphal stage differs completely in color, possessing a black body with a red and gold head.

Similar Species. The black spot on the lateral lobe of the pronotum does not extend to the posterior margin of the pronotum, as occurs in *Eotettix palustris* and *E. signatus*. The hind tibiae of the other Florida *Eotettix* species are reddish, whereas in *E. pusillus* they tend toward gold.

Distribution and Ecology. Little eastern grasshopper occurs in northern Florida and other southeastern states. It is found in open pine and oak woods.

***Eotettix signatus* Scudder** Handsome Florida grasshopper

Identification. This species is metallic yellowish green or bluish green. The forewings of this flightless species are elongate oval and as long as, or longer than, the pronotum. This species is marked with a lateral black stripe running from the eye to the posterior edge of the pronotum. The hind tibiae are red. The males measure 18–21 mm in length, the females 19.5–30.6 mm.



Handsome Florida grasshopper (female)

Similar Species. The length and shape of the forewings serve to distinguish *E. signatus* from *E. palustris* and *E. pusillus*. The latter two species have round to oval forewings that are shorter than the pronotum.

Distribution and Ecology. *Eotettix signatus* occurs throughout Florida, but its distribution apparently is restricted to Florida. The habitat of this species is variable. It can be found in moist or fairly dry areas, in open pine forests or on prairie. Sometimes it is abundant adjacent to ponds.

***Gymnoscirtetes morsei* Hebard** Morse's wingless grasshopper

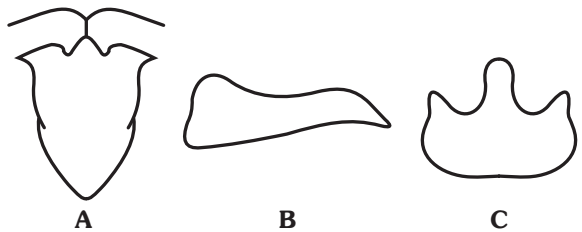
Identification. This species is wingless, greenish yellow to tan, and bears a blackish lateral stripe running from each eye to about the midpoint of the abdomen. Thus, it is very similar in appearance to *Gymnoscirtetes pusillus* Scudder. The male measures 14–16 mm in length, the female 19.5–21.5 mm.

In males, the cerci taper gradually to a sharp point, but the dorsal edge is strongly curved. The furcula is apparent, but not elongate. The tip of the subgenital plate is extended and elevated. It is about twice as high as it is wide. The lateral margins of the subgenital plate also are strongly elevated.

Similar Species. *Gymnoscirtetes morsei* is slightly larger than *G. pusillus*. In *G. pusillus* the tubercle at the tip of the subgenital plate in males is about as

broad as high, whereas in *G. morsei* the tubercle is twice as high as wide. The lateral margins of the subgenital plate are strongly elevated, a character absent from *G. pusillus*. In addition, the dorsal edge of the cerci in *G. pusillus* is relatively straight, orienting downward only slightly at the tip, whereas in *G. morsei* the dorsal edge is strongly curved.

Distribution and Ecology. Morse's wingless grasshopper is known only from northern Florida and southern Alabama, but may inhabit nearby southern Georgia as well. It is found in wet areas and among wiregrass in pine forests.



Supra-anal plate and furcula (A), cercus (B) and subgenital plate (C) of male *G. morsei*.



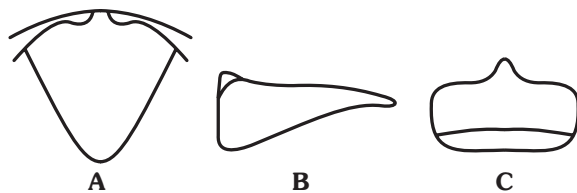
Little wingless grasshopper (female)

***Gymnoscirtetes pusillus* Scudder**

Little wingless grasshopper

Identification. This small grasshopper is greenish yellow to tan in color, and bears a black and white lateral stripe running from each eye to about the midpoint of the abdomen or beyond. The adult is wingless. Little wingless grasshopper greatly resembles *Gymnoscirtetes morsei* Hebard, Morse's wingless grasshopper. The males measure 12.5–15 mm in length and the females 17–22 mm.

In males, the furcula is barely visible. The cerci taper gradually to a point, but the dorsal edge is almost straight. The tip of the subgenital plate is slightly extended into a tubercle about as high as it is wide.



Supra-anal plate and furcula (A), cercus (B) and subgenital plate (C) of male *G. pusillus*.

Similar Species. In *G. pusillus* the tubercle at the tip of the subgenital plate in males is about as broad as high, whereas in *G. morsei* the tubercle is twice as high as wide. The lateral margins of the subgenital plate are not elevated, as occurs in *G. morsei*. Also, the cercus of *G. pusillus* is relatively straight, with only the tip curved slightly downward, whereas in *G. morsei* it is strongly curved.

Distribution and Ecology. The habitat of little wingless grasshopper is wet areas of pine forests, where it inhabits the undergrowth, or adjacent to ponds. This is an agile species that easily eludes capture. It has been found throughout Florida except for the southernmost areas, and is also known from Georgia.

Hesperotettix floridensis Morse

Florida purplestriped grasshopper

Identification. This is a fairly large, robust grasshopper. Despite the common name, it is principally bright green. The only purple stripe is a narrow dorsal stripe on the pronotum, and this is often absent. Portions of the femora tend to be purplish, however. The pronotum is a large structure, and rather rough in texture. The forewings are oval and short, measuring about one and a half times as long as broad. The hind tibiae are green or bluish green. Males of this species measure 17.5–21 mm, females 24–30 mm.

Distribution and Ecology. Florida purplestriped grasshopper is apparently restricted to northern Florida and adjacent areas of Georgia. Its habitat is brushy and wet areas, and open woods.



Florida purplestriped grasshopper (female)



Osceola's grasshopper (female)

Hesperotettix osceola Hebard

Osceola's grasshopper

Identification. This is a principally green species, but the forewings are colored by a narrow stripe of reddish purple edged with white. A dorsal white stripe extends the length of the pronotum and abdomen, and a short black and white stripe occurs laterally behind each eye. The light dorsal stripe on the pronotum is bordered by dark stripes. The forewings are usually shorter than the the prothorax. The hind tibiae are greenish blue. Males measure 14–19 mm in length, females 18–21 mm.

Similar Species. The short forewings and white abdominal stripe distinguish this species from the similar *H. viridis*. *Hesperotettix osceola* also resembles *Aptenopedes aptera* and *A. sphenarioides*, but the *Aptenopedes* species lack true wings.

Distribution and Ecology. This uncommon species is found only in Florida. Its habitat is scrub oak woods and other open, arid locations.



Meadow purplestriped grasshopper (female)

Hesperotettix viridis (Thomas)

Meadow purplestriped grasshopper

Identification. This is a colorful species, although the eastern form found in Florida is much less striking than the form found in western states. It is principally green, but the forewings are colored by a broad stripe of reddish purple edged with white. Purplish coloration is found dorsally along the abdomen and some-

times occurs laterally on the pronotum of some individuals. A short black and white stripe occurs laterally behind each eye. The light stripe on the dorsal surface of the pronotum is bordered by dark stripes. The forewings may be long, reaching the tip of the abdomen or slightly beyond, or may be abbreviated, extending about two thirds the length of the abdomen. The hind tibiae are blue. The length of males is 16–18 mm; females measure 18–28 mm.

Similar Species. The forewings are always longer than the pronotum in this species, a character that distinguishes it from *H. osceola*. *Hesperotettix viridis* is quite variable in appearance, however, so its specific status is subject to debate, and it has acquired several names.

Distribution and Ecology. Meadow purplestriped grasshopper is found in northern Florida, and throughout most of the United States. It normally is found inhabiting weedy and brushy locations, particularly dry habitats.

Leptysma marginicollis (Serville)

Cattail toothpick grasshopper

Identification. This slender, elongate grasshopper has a very pointed head and flattened, sword-shaped antennae. Thus, it superficially resembles gomphocerine grasshoppers, but is easily distinguished by the presence of the spur or spine ventrally between the front legs. Cattail toothpick grasshopper is usually brownish with a whitish, yellow, or brown stripe from the eye to the base of the front legs. The head is as long as, or longer than, the pronotum. Dorsally, the body may also be reddish or pinkish. The front wings are sharply pointed, extending 3–5 mm beyond the tip of the abdomen. The body length is 28–31 mm in males and 31–38 mm in females.

Similar Species. This species is easily confused with *Stenacris vitreipennis*, but in *L. marginicollis* the head is at least as long as the pronotum, whereas in *S. vitreipennis* the head is shorter than the pronotum. The antennal segments are considerably wider than in *S. vitreipennis*.

Distribution and Ecology. Cattail toothpick grasshopper inhabits wet areas, and is usually found on emergent vegetation such as cattails and sedges. Adults fly readily when disturbed but never alight on soil. They usually land on the stem of emergent vegetation and move quickly to the side opposite the source of disturbance. This species is known throughout Florida except for the Keys, and also occurs in other eastern and southwestern states.



Cattail toothpick grasshopper (female)

Melanoplus adelogyrus Hubbell

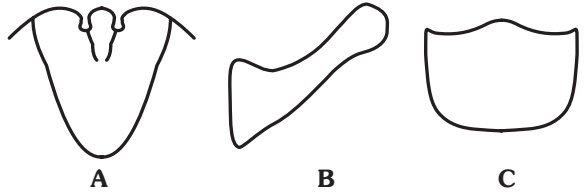
St. Johns' spurthroat grasshopper

Identification. This is a small, short-winged species. The forewings are shorter than the pronotum, and elongate-oval. The forewings are widely separated dorsally. The general color is reddish brown or purplish gray above, and yellowish below. The males have behind the eye a shiny black stripe that extends across the pronotum to the first abdominal segments, but this pattern is indistinct in females. This black stripe is very wide on the anterior portion of the pronotum, narrowing markedly on the posterior region of the pronotum. The hind femora are dull yellow, sometimes with black spots but not complete bands. The hind tibiae are purplish green. The males measure 12.5–15 mm, the females 17–21 mm.

In males, the furcula is very short. The dorsal edge of the cerci is depressed toward the midpoint of the cerci, with the tip expanded slightly, bluntly rounded, and flattened. The subgenital plate is only weakly elongated.

Similar Species. The shape of the black stripe on the pronotum is important in distinguishing *Melanoplus adelogyrus* from *M. apalachicola*, *M. gurneyi*, *M. ordwayae*, and *M. tequestae*. The flattened tip of the cerci is a useful character for separating *M. adelogyrus* from the very similar *M. puer*.

Distribution and Ecology. *Melanoplus adelogyrus* is found only in high pine and scrub habitat in northeastern Florida, east of the St. Johns River in Volusia County. Apparently this broad river has served as an ecological barrier, allowing *M. adelogyrus* to evolve and differentiate from *M. puer*. This latter species is found west of the St. Johns River.



Supra-anal plate and furcula (A), cercus (B) and subgenital plate (C) of male *M. adelogyrus*.

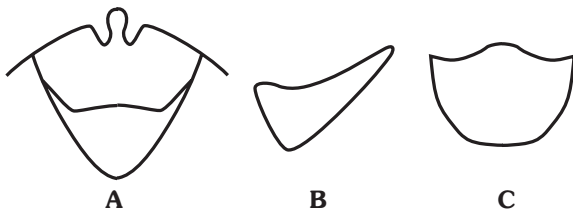


Apalachicola spurthroat grasshopper (male)

Melanoplus apalachicola Hubbell

Apalachicola spurthroat grasshopper

Identification. A small short-winged species, *Melanoplus apalachicola* is closely related to *M. puer*, and very similar in appearance to *M. tequestae*. The forewings are shorter than the pronotum, elongate-oval, and widely separated dorsally. The general color is reddish brown or purplish gray above, and yellowish below. The pronotum is more elongate and narrow than in related species. The males have a shiny black stripe behind the eye that extends across the pronotum, but this pattern is indistinct in females. This black stripe is narrow and has parallel sides on the anterior portion of the pronotum, widening slightly on the posterior region of the pronotum. The hind femora are dull yellow, sometimes with



Supra-anal plate and furcula (A), cercus (B) and subgenital plate (C) of male *M. apalachicola*.

black spots but not complete bands. The hind tibiae are purplish green. The males measure 13–14.5 mm in length, the females 17–20.5 mm.

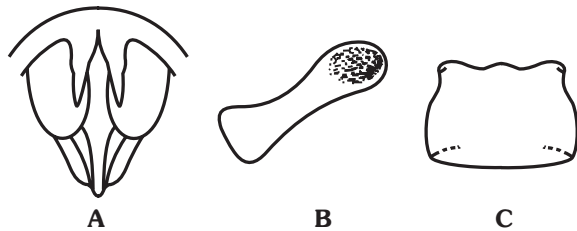
In males, the furcula is short and rounded, but well developed. The cerci are tapered, but although the ventral margin tapers evenly throughout its length, the dorsal margin is tapered abruptly at the base, leaving the remainder of the dorsal margin almost straight.

Similar Species. The shape of the black stripe on the lateral lobe of the pronotum is an important character to distinguish *M. apalachicola*, *M. gurneyi*, *M. ordwayae*, and *M. tequestae* from *M. puer* and *M. adelogyrus*. The presence of a furcula serves to distinguish *M. apalachicola* from *M. tequestae* and *M. ordwayae*, which lack a visible furcula. The abrupt tapering of the dorsal margin at the base of the cerci distinguish *M. apalachicola* from *M. gurneyi*, in which both the dorsal and ventral margins taper gradually and symmetrically to the tip.

Distribution and Ecology. This species is known only from the sandy uplands west of Tallahassee in Gadsden and Liberty counties in northwest Florida. The high pine habitat is mostly turkey oak, blue jack oak, or longleaf pine, with an understory of wiregrass and oak seedlings.



Twospined spurthroat grasshopper (male)



Supra-anal plate and furcula (A), cercus (B) and subgenital plate (C) of male *M. bispinosus*.

the middle and rounded distally; the outer face of the tip is grooved or recessed.

Distribution and Ecology. This species is found through most of Florida, though rarely in large numbers. It occurs in other southeastern states and west to Texas and Kansas. Twospined spurthroat grasshopper frequents pastures, crop fields, and roadsides.

Melanoplus bispinosus Scudder

Twospined spurthroat grasshopper

Identification. This medium-sized *Melanoplus* is grayish brown to reddish brown. A dark bar extends from the eye onto the lateral lobe of the pronotum. The front wings are marked with a row of dark spots centrally. The forewings extend to the tip of the abdomen or beyond. The hind femora bear large dark spots that fail to constitute transverse stripes. The hind tibiae are bluish green or blue. Males measure 25–30 mm in length, females 26–32 mm.

In males, the furcula is slightly divergent, and extends to about one-half the length of the supra-anal plate. The large “spinelike” furcula apparently is the basis for the name of this grasshopper. The cerci are elongate, narrowed at the



Davis' oak grasshopper (male)

Melanoplus davisii (Hebard)

Davis' oak grasshopper

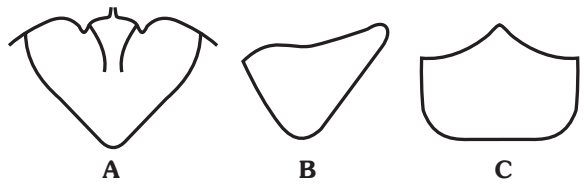
Identification. This is among the largest of the short-winged *Melanoplus*, but otherwise indistinct. General color is brown, olive, or yellowish brown above and yellowish below, with a black stripe extending from the eye onto the pronotum. The forewings are oval, shorter than the pronotum, and overlap dorsally. The hind femora are reddish yellow,

with two transverse bars that tend to be present in males but absent in females. The hind tibiae are red. The males measure 18–22 mm, the females 25–27 mm.

In males, the furcula consists only of minute, rounded appendages. The cerci are broad and short, turning upward distally to a flattened, blunt tip.

Similar Species. *Melanoplus davisi* shares the overlapping forewing character with *M. scapularis*, *M. strumosus*, and *M. scudderi*. It is difficult to confuse *M. davisi* with *M. scapularis* due to the shape of the cerci, which is expanded distally in the latter species. Similarly, in *M. strumosus* the cerci are long, slender, and constricted at the middle, so this species is easily distinguished. *Melanoplus scudderi* is more similar, with both species having cerci that turn upward distally into a blunt tip. However, the furcula of *M. davisi* appears to be minute rounded appendages, whereas in *M. scudderi* they are pointed. Also, the tip of the cerci is much wider in *M. scudderi* than in *M. davisi*.

Distribution and Ecology. This grasshopper is found in northern Florida, but apparently does not occur in adjacent states. High pine is the favored habitat, where it feeds on understory, particularly low-growing oak.



Supra-anal plate and furcula (A), cercus (B) and subgenital plate (C) of male *M. davisi*.

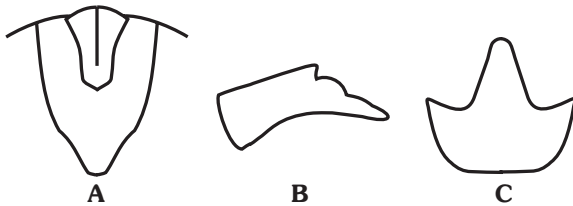


Toothcercus spurthroat grasshopper (male)

Melanoplus forcipatus Hubbell

Toothcercus spurthroat grasshopper

Identification. This small short-winged species is very similar in appearance to *M. nanciae* and related *Melanoplus* species in the *puer* group. The forewings are shorter than the pronotum, truncate-oval, and widely separated above. The general color is reddish brown or purplish gray above, and yellowish below. The males have behind the eye a shiny black stripe that extends across the pronotum and is nearly equal in width from the anterior to the posterior edge of the lateral lobe. This pattern is indistinct in females. The hind femora are dull yellow, sometimes with black spots but not complete bands. The hind tibiae are purplish green. The males measure



Supra-anal plate and furcula (A), cercus (B) and subgenital plate (C) of male *M. forcipatus*.

11.5–14.5 mm in length, the females 17–20.5 mm.

In males, the furcula is not visible. The cerci are distinctive and serve to identify this species readily. Basally the cerci are broad, with the upper and lower margins nearly parallel. Beyond the middle, however, the cerci fork into a short stubby dorsal projection and a long, tapering, downward-curving and flattened ventral projection. The cerci also curve inward markedly and bear small teeth or projections dorsally or on the inner face. The supra-anal plate is less broad and less shield-like than in many species, with the plate tapering rapidly in the basal half, and less so in the distal half.

Similar Species. *Melanoplus forcipatus* closely resembles *M. indicifer* Hubbell. However, the cercus of *M. forcipatus* bears a relatively prominent, broad, and strongly curved ventral projection, and small toothlike projections dorsally and on the inner face. In contrast, the cercus of *M. indicifer* is less prominent, not usually bearing teeth dorsally and on the inner face, and with the ventral projection narrow and not strongly curved. Although these two species are closely related, they do not occur in the same geographic areas of Florida, with *M. indicifer* restricted to the east coast of Florida near Palm Beach.

Distribution and Ecology. The distribution and habitat of *Melanoplus forcipatus* is largely the same as *M. tequestae*, the scrub oak habitat of the sandy ridges of central Florida.