

Bandwinged Grasshoppers

Subfamily Oedipodinae

The bandwinged grasshoppers are usually heavy bodied and bear enlarged hind legs. The head of these grasshoppers often appears enlarged and broadly rounded. The orientation of the face is nearly vertical, in distinct contrast to species in the subfamily Gomphocerinae, the slantfaced grasshoppers. Bandwinged grasshoppers lack the spine between the front legs (the prosternal spine) that is found in the lubber grasshoppers (subfamily Romaleinae) and spurthroated grasshoppers (subfamily Cyrtacanthacridinae). The bandwinged grasshoppers tend to be gray or brown, and often are mottled with darker spots. The pronotum often bears ridges, wrinkles, or small tubercles, imparting a rough appearance.

The bandwinged grasshoppers usually bear bright colors, but this may not be obvious. The hind wings are often yellow, orange, or reddish basally, with a broad black band crossing near the center of the wing. The colorful hind wings are hidden by the front wings (tegmina) except when in flight. Similarly, the inner face of the hind femora is often yellow, orange, red, or blue. Again, this is not usually apparent, and these species often blend exceptionally well with soil.

Males, and sometimes females, produce sound in flight (crepitation). The snapping, crackling, or buzzing sound is made by rubbing the under surface of the forewings against the veins of the hind wings. They do not always crepitate in flight, as sound production is related to the mate selection process. Also, these grasshoppers sometimes produce sound while at rest (stridulation) by rubbing the hind femora against the forewings, but the femora lack the stridulatory pegs found in the stridulatory slantfaced grasshoppers (subfamily Gomphocerinae).

The oedipodine grasshoppers normally are associated with open, sunny areas, particularly areas with bare soil. Thin, overgrazed pastures or barren areas within pastures are the preferred habitat. They feed principally on grasses. When disturbed these grasshoppers fly readily, but alight on soil rather than on plants. Their general color often varies slightly, depending on the color of the substrate in their environment. Thus, they can be very difficult to detect when they sit motionless on soil.

There are 13 species in Florida, found in 8 genera:

Arphia

- A. granulata* (Saussure)
- A. sulphurea* (Fabricius)
- A. xanthoptera* (Burmeister)

Chortophaga

- C. australior* (Rehn and Hebard)

Dissosteira

- D. carolina* (Linnaeus)

Hippiscus

- H. ocelote* (Saussure)

Pardalophora

- P. phoenicoptera* (Burmeister)

Psinidia

- P. fenestralis* (Serville)

Spharagemon

- S. bolli* Scudder
- S. crepitans* (Saussure)
- S. cristatum* (Scudder)
- S. marmorata* (Scudder)

Trimerotropis

- T. maritima* (Harris)



Southern yellowwinged grasshopper (male)

Arphia granulata (Saussure)

Southern yellowwinged grasshopper



Identification. This is the common *Arphia* species in Florida. It is light to dark brown, often bearing small dark or black speckles on the forewings and elsewhere. The forewings usually bear a narrow, pale yellow hind margin on the forewings that forms a dorsal yellow band when the wings are held at rest. In the field, the most distinctive feature of this grasshopper's appearance is the bright yellow hind wings. The hind wings also are marked with a curved black band. The hind tibiae are yellowish basally, with a black band separating the basal third of the tibia from the second third. The distal two-thirds of the hind tibiae are mostly pale or yellowish, but often contain some additional dark coloration. This portion of the tibiae is not usually mostly or entirely black, however. The dorsal median ridge on the pronotum is slightly, but distinctly, elevated. The length of males is 27–33 mm, whereas females measure about 30–35 mm.

Distribution and Ecology. *Arphia granulata* can be observed throughout most of the year in north Florida, and both adults and nymphs have been collected during the winter in South Florida. Presence of the adults is readily apparent because they make short, noisy flights in which they produce a crackling sound (crepitation) and flash their brightly colored wings. This grasshopper is found throughout Florida, and the southeastern states from Mississippi to North Carolina. It inhabits brushy fields, open woods, roadsides and, to a lesser degree, grasslands.

Arphia sulphurea (Fabricius)

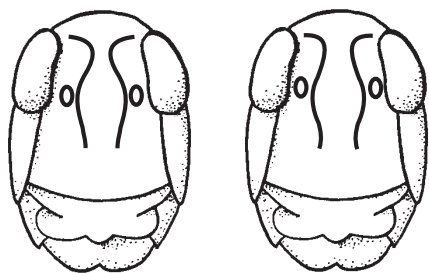
Sulfurwinged grasshopper

Identification. This species greatly resembles *Arphia granulata*, but is rare in Florida. It is pale brown to dark brown, often bearing a narrow, pale yellow stripe on the hind margin of the forewings that forms a distinct dorsal stripe on the forewings when the insect is at rest. A sprinkling of darker spots often occurs, especially in the forewings. The hind wings are yellow basally, with a curved black band crossing the wing, and the wing tip dusky. The hind tibiae are yellow basally, with a black ring separating the basal third from the second third, and the distal region variable. Adult males measure 23–31 mm in length, females 28–38 mm.

Similar Species. Sulfurwinged grasshopper is distinguished from the other two Florida *Arphia* species by the shape of the ridge (frontal costa) at the center of the grasshopper's face.

In *A. sulphurea*, the ridge narrows markedly above the antennae, sometimes being as little as one-half the width of the ridge lower on the face. In contrast, *A. granulata* and *A. xanthoptera* have a facial ridge that is only slightly narrowed.

Distribution and Ecology. This species is widely distributed in North America east of the Great Plains. However, it apparently is rare in Florida, having been collected only in northern Florida, and only infrequently. The normal habitat is open pine woods containing scrub oaks. It overwinters in the nymphal stage, so adults are common in spring and early summer.



Face of *Arphia sulphurea* (left) and *A. granulata* and *A. xanthoptera* (right).



Autumn yellowwinged grasshopper (female)

Arphia xanthoptera (Burmeister)

Autumn yellowwinged
grasshopper



Identification. This is the largest of the *Arphia* species found in Florida, and its large size is a distinguishing characteristic. It has a brown to blackish body with yellow (sometimes orange) hind wings that are marked with a curved black band crossing the wing. The forewings are uniformly colored brownish to blackish. The ridge (frontal costa) at the center of the face does not narrow markedly above the antennae. The dorsal median ridge on the pronotum is strongly elevated and arched. The tibiae are mostly dark, including the distal region, with a pale ring in the basal quarter. Males of *A. xanthoptera* measure 31–38 mm, 36–46 mm in females.

Similar Species. The dorsal median ridge on the pronotum of *A. xanthoptera* is distinctly elevated and arched, and this serves as the most reliable diagnostic feature to separate it from other *Arphia* species. The dark distal region of the tibiae is not entirely consistent, but a fairly reliable character to separate *A. xanthoptera* from *A. sulphurea*, and especially from *A. granulata*. The forewings of *A. xanthoptera* lack the distinct yellowish stripe that is common on the other Florida *Arphia*.

Distribution and Ecology. This species occurs in the autumn in northern Florida, but is absent from the peninsula south of Orlando. It occurs widely in the United States east to western Nebraska and Oklahoma. The habitat of *A. xanthoptera* includes weedy borders of cultivated fields, brushy fields, and open woods.



Southern greenstriped grasshopper (females)

Chortophaga australior Rehn and Hebard

Southern greenstriped
grasshopper



Identification. There are two color forms present in this species, a green form and a brown form, with intermediates found in both sexes. The principal difference between forms is found in the coloring of the head, thorax, and outer face of the hind femora. The median ridge on the pronotum is slightly elevated. An X-shaped mark is present on the dorsal surface of the pronotum in the brown forms. The leading edge of the forewings is marked with 2–3 large green or light brown spots, with the balance of the forewings colored dark brown. The most important distinguishing character of this species is



Southern greenstriped grasshopper

the color of the hind wing. Unlike Florida's other bandwinged species, southern greenstriped grasshopper lacks a bold, black, transverse band on the hind wing. The black band is present, but greatly muted, reduced to no more than a smoky area in many individuals. Similarly, the yellow in the basal area of the hind wing is muted to absent. The upper surface of the hind femora usually is marked with about 3 large dark spots; the central or largest spot is triangular when viewed from above. The hind tibiae are brown or bluish green. Males measure 21–25 mm in length, females 29–33 mm.

Distribution and Ecology. The range of southern greenstriped grasshopper is Florida and adjacent southeastern states. It is found throughout Florida in open

areas, but not in wooded sites. Favored habitats are old fields, heavily grazed pastures, and edges of crop fields and roadways.



Carolina grasshopper (female)

Dissosteira carolina (Linnaeus)

Carolina grasshopper

Identification. The color of Carolina grasshopper varies from yellowish gray to reddish brown, and it often bears numerous small dark spots over most of its body. A sharp ridge is found dorsally on the pronotum. The hind wings are black except for a marginal yellowish band and smoky gray wing tips. The black hind wings serve to distinguish this species from all other Florida grasshoppers. The hind tibiae are yellow. The males measure 37–42 mm in length, the females 42–48 mm.

Distribution and Ecology. Carolina grasshopper is a strong flier, and is often seen hovering or in the zigzag, fluttering flight of courtship. It is easily mistaken for a butterfly when in flight. It is associated with barren soil such as dirt roadways and fallow fields. This species occurs in northern Florida and widely throughout the United States.



Wrinkled grasshopper (male)

Hippiscus ocelote (Saussure)

Wrinkled grasshopper

Identification. This is a large, heavy-bodied species. It is gray and brown. The pronotum is usually rough or wrinkled, which is the basis of the common name. The pronotum often has a light X-shaped mark dorsally on the pronotum, especially on males. The forewings bear large dark spots and light bands; the latter con-



Wrinkled grasshopper

verge at the tips to form a light-colored “V” dorsally when the wings are closed. The hind wings are usually pale pinkish or orangish basally, but sometimes tend toward yellow. The hind wings also have a broad dark band centrally, but with the tip poorly pigmented. The hind tibiae are yellow. Males measure 28–36 mm in length, females 39–44 mm.

Distribution and Ecology. *Hippiscus ocelote* usually is found in pastures with thin or low-growing grass. It feeds on grass, and is an occasional pasture pest in Florida. Females are poor fliers, but males are active. This species is found in northern Florida, and occurs widely east of the Rocky Mountains.



***Pardalophora
phoenicoptera*
(Burmeister)**

Orangewinged grasshopper



Orangewinged grasshopper
(Above left: male. Above right: female.)

is viewed from above. Some individuals bear an infusion of green on the head, thorax, and hind femora. The basis of the common name is the bright orange or rose-colored hind wing, which also bears a broad, curved black line crossing centrally. The distal portion of the hind wing is smoky. The inner face of the hind femora are bright blue and orange. The hind tibiae are orange. The males of this grasshopper measure 36–42 mm, females 45–55 mm.

Distribution and Ecology. This species occurs throughout Florida and the eastern United States. It is obvious early in the season because the nymphs overwinter, and the adults are present in the spring, when few other grasshoppers are mature. Orangewinged grasshopper prefers an open habitat such as old fields and sandy areas, but may also be found in tall grass, brush, and wooded areas if plant density is low. The male is an active flier, the heavy-bodied female tending to remain on the soil. Sound production may occur on the ground (stridulation) or in flight (crepitation), but this is not a particularly noisy species.



Longhorn bandwinged grasshopper (female)

Psinidia fenestralis (Serville)

Longhorn bandwinged
grasshopper



Identification. This small, thin-bodied species is distinguished principally by its relatively long antennae. The antennal segments are somewhat flattened and the basal segments slightly larger. The general color of *P. fenestralis* is usually gray and brown, but ranges from yellowish to blackish; its overall color tends to match its habitat. A narrow yellowish stripe runs from the back of the eye onto the prothorax. The leading edge of the forewings tends to be marked with alternating light and dark spots. The hind wings bear an unusually wide, curved black band centrally. The basal region of the hind wings is usually orange, but sometimes rose or yellow. The distal portion of the hind wing is variably smoky or partially blackened. The hind tibiae are yellowish but bear a black band. The body length is 20–27 mm in males, 26–33 mm in females.

Distribution and Ecology. This species is found throughout Florida, and the United States east of the Mississippi River. Its habitat is open grassy areas, and specifically barren patches of sand within this general habitat. When disturbed, these grasshoppers fly only a short distance and alight on bare soil, where they blend in remarkably well with the background, becoming almost invisible. Males sometimes crepitate while flying. Adults or nymphs can be found throughout the year.



Boll's grasshopper (female)

Spharagemon bolli Scudder Boll's grasshopper



Identification. Boll's grasshopper is a grayish or reddish brown species, often covered with minute dark spots that blend together on the forewings to form diffuse, broad, transverse bands. The hind wings bear a curved, black transverse band centrally, are pale yellow basally, and transparent or smoky distally. The dorsal ridge of the pronotum is slightly elevated. The outer face of the hind femora are weakly or indistinctly banded, but the inner face bears alternating black and pale yellow bands. The hind tibiae are yellowish basally and reddish orange distally, with a narrow black band separating the yellow and orange. The length of the males is 30–34 mm, and females measure 35–45 mm.

Similar Species. The narrowness of the black band on the hind tibiae is useful in separating this species from the similar *Spharagemon crepitans*, which has a broader black tibial band.

Distribution and Ecology. Although this species is found widely in the United States, from the Atlantic Ocean to the Rocky Mountains, in Florida it is known only from the north-western Panhandle region. The preferred habitat is open, sunny woods, although sometimes it is found along the margins. Males crepitate and stridulate frequently, and frequently hover about one meter above the ground while displaying.



Crepitating grasshopper (female)

Identification. This grayish brown or reddish brown grasshopper occasionally has diffuse, broad dark bands across the forewings, but usually they are lacking. The hind wings are pale yellow basally, but are crossed by a wide, curved black band. Distally, the hind wing is smoky or colorless. The medial ridge of the pronotum is slightly elevated. The hind tibiae are yellowish basally and reddish orange distally, with a broad black band centrally. The length of males is 30–34 mm, females 37–42 mm.

Similar Species. The transverse black band of the hind wing is wider, and located more centrally, than the corresponding band in *Spharagemon bolli*. The width of the black band on the hind tibiae is similar to the width of the orange distal portion, considerably wider than in *S. bolli*, a very similar species.

Distribution and Ecology. Crepitating grasshopper is confined almost entirely to Florida, although a few specimens have been collected from southern Georgia. It occurs widely in the state, and has been collected from diverse habitats. Surprisingly, it may be found in oak woods in shaded areas not typically inhabited by grasshoppers.

Spharagemon crepitans (Saussure)

Crepitating grasshopper



Ridgeback sand grasshopper

Identification. This grayish or brownish grasshopper is heavily mottled with black spots. The speckling on the forewings can be aggregated into irregular transverse bands and black wing tips. The sharp ridge found dorsally on the pronotum is higher than any other Florida species. The hind wings of ridgeback sand grasshopper are yellow basally, with a curved black band centrally, and a colorless or smoky wing tip. The hind femora

Spharagemon cristatum (Scudder)

Ridgeback sand grasshopper



are speckled brown on the outer face, but the inner face bears alternating bands of black and yellow. The hind tibiae are pale yellow basally, but principally dark orange or red. The body length is 29–39 mm in males, 34–45 mm in females.

Similar Species. The only other species that have nearly such an elevated pronotal ridge are *Dissosteira carolina*, Carolina grasshopper, and *Arphia xanthoptera*, autumn yellowwinged grasshopper. However, *D. carolina* has black hind wings, and *A. xanthoptera* is uniformly dark, so they are readily distinguished.

Distribution and Ecology. Ridgeback sand grasshopper is found throughout northern Florida south to about Orlando. It also occurs in adjacent southeastern states and in the southern Great Plains. The common habitat is fallow crop fields, old fields, margins of woods, and sandy roadsides.



Marbled grasshopper (female)

Identification. Marbled grasshopper is gray and brown, but has well-marked, blackish transverse bands on the leading edge of the forewings that merge into a solid black trailing edge. The hind wings of *S. marmorata* bear an unusually wide, curved black band centrally. The basal region of the hind wings is orange-yellow or dark yellow. The distal portion of the hind wing is smoky or partially blackened. The hind tibiae are orange or red, with a pale yellowish ring basally. The body length of marbled grasshopper is 26–31 mm in males, and 27–35 mm in females.

Similar Species. The banding pattern of the forewings helps distinguish this species from *Psidinia fenestralis*, a co-occurring species in sandy habitats. Tibia color also serves to distinguish *S. marmorata* from *P. fenestralis*, the latter species having yellow and black hind tibiae.

Distribution and Ecology. Marbled grasshopper can be found throughout Florida. It also occurs in adjacent states, along the east coast to New England, and in the United States and Canada surrounding the Great Lakes. This species frequents open, sandy areas. Sand dunes along beaches, disturbed areas of pastures, and sunny, sandy areas of open woods commonly are inhabited by this species. Males crepitate loudly during their lengthy, zigzag flights. While on the ground they also stridulate and make complicated leg-lifting movements as part of their courtship ritual. These grasshoppers can often be found throughout the year in Florida.

Spharagemon marmorata (Scudder)

Marbled grasshopper





Seaside grasshopper (male)

Trimerotropis maritima (Harris)

Seaside grasshopper



Identification. This grasshopper is light gray to dark grayish brown. It bears numerous small brown speckles over most of its body, and weakly to strongly marked wide transverse bands on the forewings. The hind wings are pale yellow basally, and marked with a curved black transverse band centrally. The distal portion of the hind wing is transparent. The median ridge on the pronotum is barely elevated. The outer face of the hind femora is gray and brown, with only weak evidence of bands. The inner face, however, is pale yellow with three black bands. The hind tibiae are yellow to red. The length of this species is 29–33 mm in males and 30–40 in females.

Distribution and Ecology. Found throughout Florida, this species also occurs throughout the eastern United States west to the Rocky Mountains. This is a sand-loving grasshopper, found in arid, barren areas. A common resident of ocean, lake and river margins, *T. maritima* also frequents fallow crop fields and sandy roadways. When disturbed it is likely to crouch motionless, blending well with its sandy background. It is a strong flier, however, and can travel long distances. Males display both crepitation and stridulation in their courtship ritual.