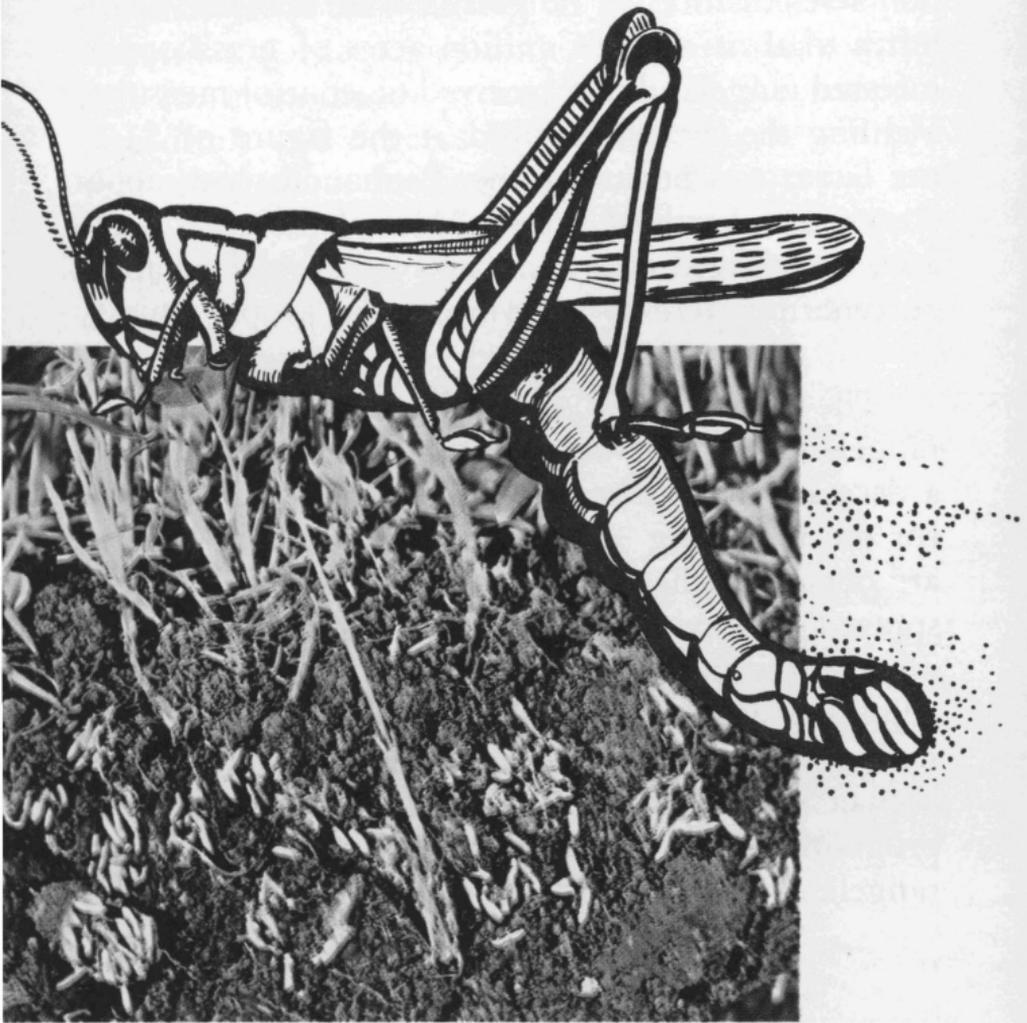


# Grasshoppers common to Texas



TEXAS AGRICULTURAL EXTENSION SERVICE  
*J. E. Hutchison, Director, College Station, Texas*

THIS LEAFLET IS DESIGNED TO AID IN THE IDENTIFICATION OF SOME OF THE GRASSHOPPERS COMMON IN THE STATE.

EVERY YEAR, GRASSHOPPERS destroy crops in some parts of the State. During severe outbreaks, the losses run into millions of dollars.

In Texas alone, about 5 million acres were infested in the Panhandle area, according to the 1958 adult grasshopper survey. Only a little over 1 million acres of infested rangeland were sprayed. This left a total of about 4 million acres of grasshopper-infested rangeland that received no control measures. Valuing the grass destroyed at the figure of \$1.25 per acre, ranchmen in the Panhandle lost about \$5,000,000 worth of grass. Most of the grass could have been saved at a nominal average cost of about 60 cents per acre by spraying at the proper time.

The benefits of a successful control program on rangeland are not only helpful the first year, but a decrease in grasshopper populations will be noted for the following 3 to 4 years. Maximum benefits are obtained when several sections in one block are sprayed. Spraying small areas is helpful in reducing initial infestations, but grasshoppers migrating from adjoining areas may reinfest the treated rangeland within a short time. To conduct a successful grasshopper control program, it is important that the program be initiated on time and on all the infested rangeland in the area.

*Dissosteira longipennis* (Thomas)—The High Plains grasshopper is one of the migratory grasshoppers and hatches early in the season. The eggs are laid in beds and nymph populations of 1,000 plus per square yard are common. They have been known to band together and make county-wide marches. Flights of adults occur from middle to late June and have been observed as high as 12,000 feet elevation. This species is rarely found below the "cap rock." After flight, adults collect on egg beds and completely strip the ground of vegetation. Only solitary specimens have been observed in the past several years. The adults disappear about September.

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It has been estimated that six or seven grasshoppers per square yard on 10 acres can consume grass at about the same rate as a cow. When the infestation reaches 30 to 60 grasshoppers per square yard, all the grass may be destroyed.

Observers have noted that certain species of grasshoppers may vary in numbers in the grasshopper population of a given year. One year a certain species may make up 50 percent or more of the grasshopper population; the next year 95 percent and the following year it might not even occur in injurious numbers.

There have been outbreaks in the past that involved a single species as in the case of *Dissosteira longipennis* (Thomas)<sup>1</sup> in 1930 and *Melanoplus bilituratus* (Walker) in 1940. The most recent outbreaks consist of a number of different species. Usually one species will dominate a portion of an area or even the whole area as *Aulocara elliotti* (Thomas) did in 1956. In 1957, *Aulocara elliotti* was the dominant species in the central and eastern part of the Panhandle but *Metator pardalinus* (Sassure) moved into the northwest and northern part

The scientific names are given here since most grasshoppers listed do not have common names.



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of the area and was the dominant species in that section. In 1955, *Aulocara elliotti* was dominant in Sherman and Hansford counties early in the season but was later replaced by another species.

Grasshoppers that feed primarily on crops and most of the range species survive the winter in the egg stage only. The eggs are laid in the summer and fall, remain in the ground during winter and generally hatch in April, May and June. Several range species of little economic importance hatch in the fall and pass the winter in the halfgrown stage. When the immature hoppers are seen moving about during warm periods in winter, or early spring, they are often thought to be newly hatched and may cause concern in that area.

The breeding area may cover several acres or only a few square feet. The female deposits her eggs in grass sod or the bare ground and digs the tunnel, usually an inch or more in depth, for the eggs with the ovipositor of her abdomen. During the egg laying process, the female secretes a sticky substance which covers the outside of the egg mass and forms the egg pod. Low temperatures during the egg-laying period greatly reduce the number of eggs laid. The number of eggs in each pod varies widely among the species. Some range species have



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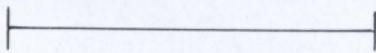
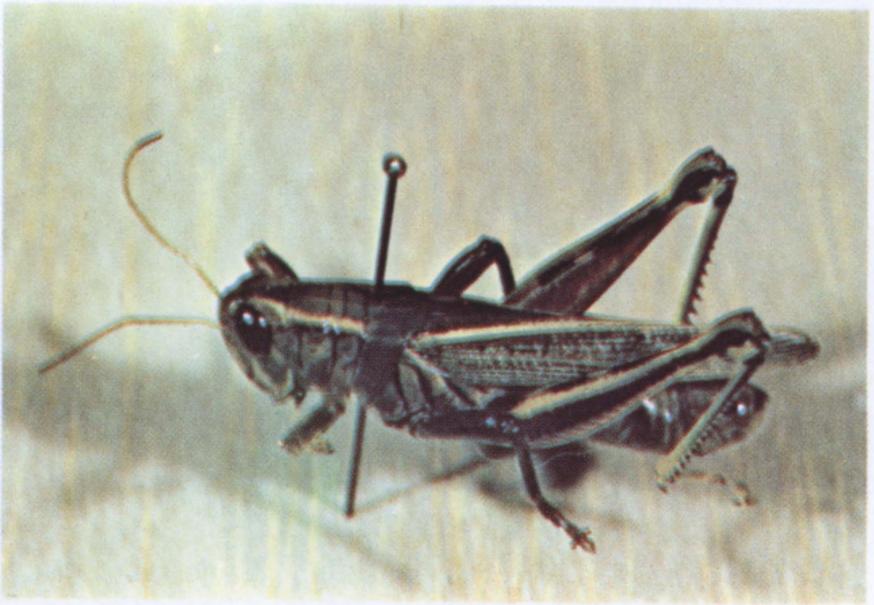
only two to six eggs to the pod, while others may contain 50 to 75 eggs per pod. The number of pods laid by an individual hopper also varies among species; a range of eight to 21 pods has been recorded.

The most critical period in the life of a new grasshopper is at hatching or soon thereafter. An abnormal warm period may appear in early spring and force the hatch prematurely. If the temperature drops (68 degrees F. and below), it will prevent the general feeding necessary for survival and the number of new hoppers will be reduced greatly. Also, periods of a week or more of continuously cloudy, wet weather are favorable for the development of bacterial and fungal diseases which attack the young hoppers. The length of the wet weather period, and not the total amount of rainfall, is the important factor.

The photographs in this leaflet show specimens collected in Potter, Moore, Sherman, Dallam and Hartley counties in June 1958 and represent only a part of the species that occur each year.

*Straight lines below photographs denote approximate length of actual grasshopper.*

*Melanoplus bilituratus* (Walker)—The migratory grasshopper. It was formerly known as *Melanoplus mexicanus*. It hatches early and may have a second generation in September and October. First adults appear during the latter part of May or early June. This species is a general feeder but seems to prefer grain and range grass. Flights of this grasshopper occur in late June or early July. The second generation usually does not have as heavy flights but will move south with the first cold front in the fall. It may cause heavy damage to fall-planted wheat. Spring populations often exceed 100 per square yard. The female deposits her eggs in range sod and stubble fields. This species is known to be most destructive.



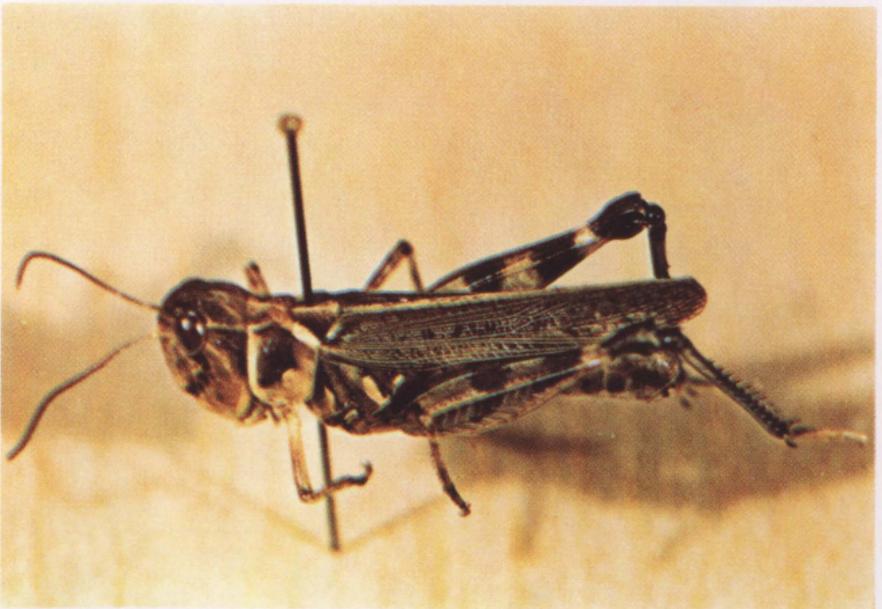
*Melanoplus bivittatus* (Say)—The two-striped grasshopper. It frequents cropland, but can be found on rangeland along streams and weedy low places. It hatches early in the spring and is a general feeder but seems to prefer legumes. It is rarely found south of the Red River watershed. This grasshopper is highly susceptible to diseases. The eggs are deposited in clump grasses and resemble the eggs of the differential grasshopper, only darker in color. The adults disappear in September.



*Metator pardalinus* (Sassure) — This grass-feeding species is a range grasshopper and hatches fairly early in the year. The adults and nymphs are semi-migratory and tend to congregate. The female lays her eggs usually in low places on good sod. Adults usually disappear before the middle of August. Populations up to 100 plus per square yard have been found.



*Melanoplus differentialis* (Thomas)—The differential grasshopper is found throughout the State and is the dominant species in the heavy Blackland Prairie. The female deposits large egg pods, containing 50 to 75 eggs, in heavy sod along roadsides, fence rows, field margins and low areas along creeks and ravines. The eggs are laid during the summer and fall and hatch in the spring. There is only one generation each year. This species can build up to sufficient numbers to cause heavy crop damage.



*Aulocara elliotti* (Thomas)—This is one of the first species to hatch in the spring. It may hatch as early as April 10, if sufficient moisture is present. This species is a grass feeder. The eggs are laid in the space between the grass plants scattered over the range. Adults usually disappear by August 1 in a normal year. Populations of over 100 per square yard have been found.



*Aeolopides turnbulli bruneri* (Caudell)—This species of grasshopper hatches during June and July and usually feeds on Russian thistle. It is found in mixed populations but never in sufficient numbers to do damage as a single species.

Grateful acknowledgment is made to John M. Landrum, Plant Pest Control Division, USDA, for providing information about the biology of the different species of grasshoppers.

*For additional information, contact your county agent or write to the extension entomologists, College Station, Texas.*

### *Cover Photo*

Eggs of the *Melanoplus differentialis* (Thomas). In the lower left corner is a typical egg pod broken open. The other eggs were broken out of pods when the soil was disturbed.