



## Grasshoppers

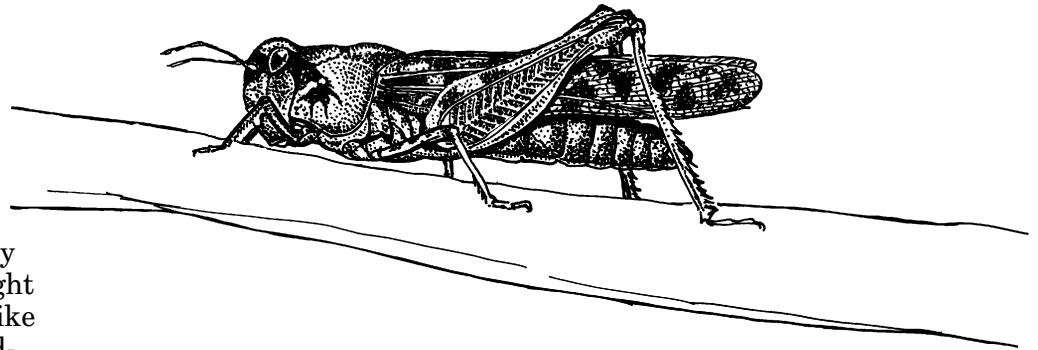
Traipse through a country garden on a warm summer day and chances are you'll see bright green grasshoppers jumping like children in a game of hide-and-seek. North Carolina's gardens and farm fields, especially, are home to this common, plant-eating insect. But at least 90 species of grasshoppers can be found in all kinds of habitats in the state. Grasshoppers share the same order, Orthoptera, as locusts, katydids and crickets; and most belong to one family—Acrididae.

### History and Status

These native arthropods are common and conspicuous in North Carolina. Populations vary from year to year depending on conditions, but hundreds of millions inhabit the state. Rich habitat diversity in North Carolina creates numerous options for different species to thrive. Yet as habitats become endangered, so will some grasshoppers. The greatest potential for demise comes in specialized or isolated habitats, such as high mountain elevations affected by development or acid rain.

### Description

Grasshoppers occur in a variety of shapes, colors and sizes. In North Carolina, they range in length from about ½ inch to 3 inches. Males and females are generally similar in appearance, but females will grow larger. Like other insects, grasshoppers have three main body sections—a head, a thorax and an abdomen—and are covered by a stiff shell called an exoskeleton.



Two short antennae on a grasshopper's head function as a nose and help distinguish it from katydids and crickets, which have long antennae. Most grasshopper species can see fairly well with two large compound eyes. They also have small round light receptors called ocelli that trigger hormonal changes and growth. Strong jaws enable grasshoppers to chew food and sometimes "bite" predators.

Six legs and generally two pairs of wings grow on the middle section, or thorax. Powerful hind jumping legs propel grasshoppers a distance up to 20 times their body length. A person jumping an equal distance would be able to bound about 120 feet. Most species have well-developed wings and can fly well. At rest, the leathery front wings enclose and protect the pleated back wings.

The long abdomen expands and contracts to pump air in and out of tiny breathing holes called spiracles. Unlike grasshoppers, female katydids and crickets have a tubelike or swordlike structure on the tip of the abdomen, called an ovipositor, used to deposit eggs in plants or the soil.

### Habitat and Habits

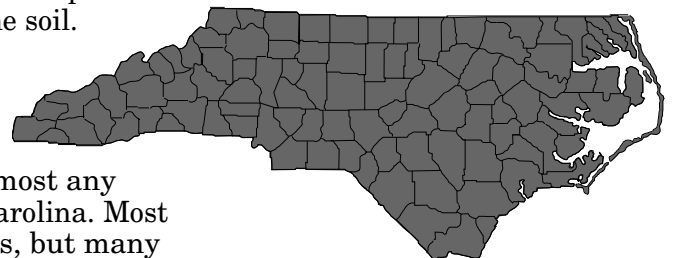
Grasshoppers can be found in almost any habitat in North Carolina. Most live in grassy fields, but many live in brackish or saltwater marshes, freshwater bays, trees,

and rock outcroppings. Different species adapt to habitats through camouflage and changes in behavior. In dry regions with sparse vegetation, grasshoppers appear gray, brown or black and, in the case of some desert species, may be irregularly shaped like rocks. In lush vegetation, they may match the green leaves they feed on, while those inhabiting beaches appear sand colored.

Camouflage is a grasshopper's first line of defense against predators such as beetles, birds, lizards, mice, frogs, spiders and occasionally snakes. The second line is jumping and flying to escape. When handled, grasshoppers also protect themselves by regurgitating a brownish liquid that looks like tobacco juice.

Grasshoppers eat mainly leaves of wild plants, but some species feed on crops such as soybeans, peanuts, wheat and corn.

Adult grasshoppers thrive in the summer, when food is plentiful; and most species begin to lay eggs in the late summer and fall. Insects in the order Orthop-



**Range Map:**  
Found statewide ■

tera undergo three stages of metamorphosis as they grow— egg, nymph and adult.

In some species of grasshopper, courtship begins as the male waves his legs to attract a female. Grasshoppers and locusts, which are a type of grasshopper, do not “sing” as katydids and crickets do. Instead, male grasshoppers rub a hind leg up and down on the front wing to create a soft buzzing or a clicking sound. Special scraper and file devices on katydids’ and crickets’ front wings enable them to make a louder, more melodious song typically heard on warm summer nights.

When a male and female grasshopper mate, the male deposits sperm into the female’s body. The female lays as few as two or as many as 120 eggs in a small burrow dug with her abdomen, then she covers them with a sticky, waterproof substance. Eggs laid in late summer or fall hatch in the spring. Nymphs look like adult grasshoppers but have no wings or sex organs. In 40 to 60 days, the young grasshoppers grow, shedding, or molting, five to six times. With the last molt, the wings appear on the adult grasshopper.

## Range and Distribution

Grasshoppers live in most parts of the world, except near the North and South poles. They thrive across the United States and North Carolina. Each county in the state hosts dozens of grasshopper species.

## People Interactions

Many people have caught grasshoppers on warm summer days. In some parts of the world, people fry grasshoppers for food and protein. Americans, more likely, find them in farms and gardens, where they occasionally feed on crops. Controlled with pesticides and by natural predators and parasites, grasshoppers are not considered serious pests to North Carolina’s crops.

The most pressing threat to grasshoppers is habitat change. Destruction and loss of habitat reduce the ability of many species to survive and thrive.

## References

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## Credits

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## GRASSHOPPERS

### Classification

Class: Insecta

Order: Orthoptera

### Average Size

Length: ½ to 3 in.

Females larger than males.

### Food

Leaves of plants; grains and other crops such as soybeans.

### Breeding

Breed in late summer and early fall. Eggs hatch in spring. Female typically lays one pod, or cluster, of eggs each year.

### Young

Called nymphs. Reach sexual maturity in 40 to 60 days. Molt five to six times before becoming an adult.

### Life Expectancy

One year.