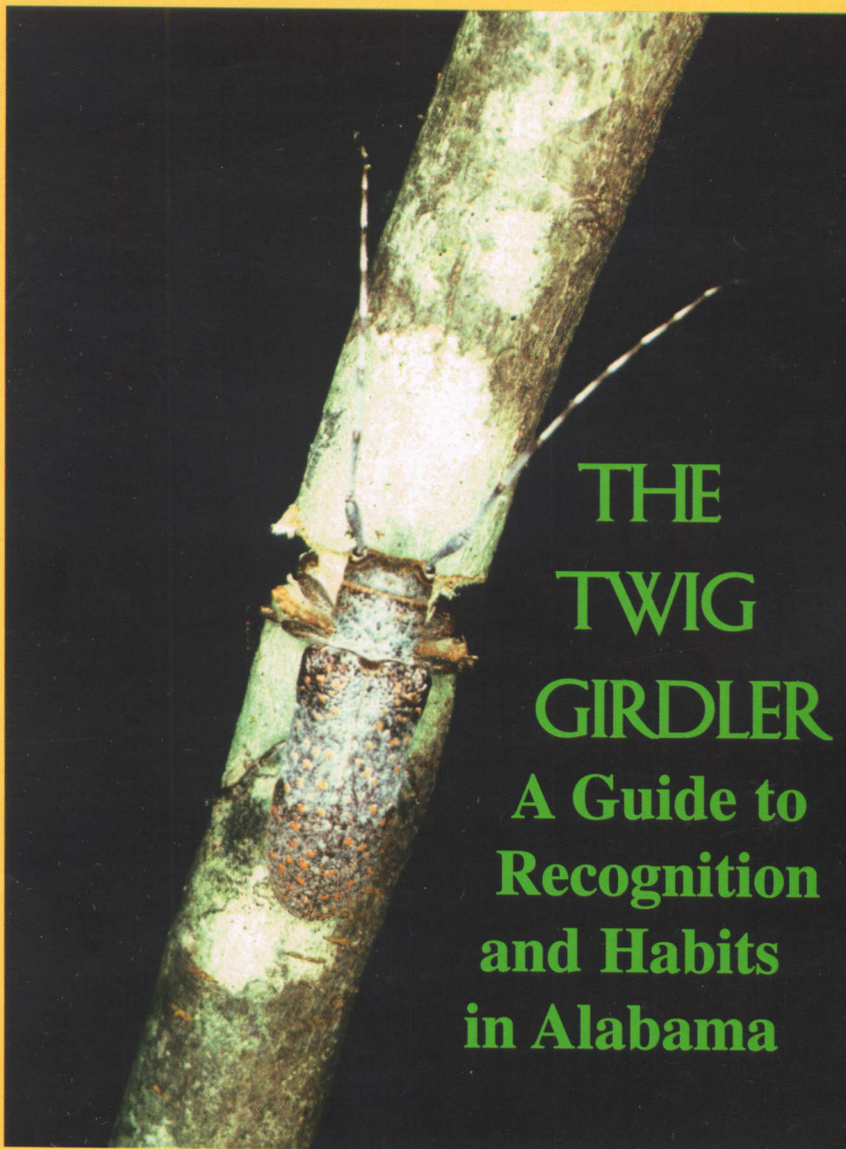


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**THE
TWIG
GIRDLER
A Guide to
Recognition
and Habits
in Alabama**

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THE TWIG GIRDLER

A Guide to Recognition and Habits in Alabama

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INTRODUCTION

THE TWIG GIRDLER² IS APPROPRIATELY NAMED, because it is indeed a girdler of twigs of several species of hardwood trees. The beetle, a common member of the longhorned wood borer family, occurs over much of the eastern and southern United States from New England to Texas and Arizona. It is most common in the South, and is found throughout Alabama wherever its host trees occur. Pecan, hickories, and persimmon are the favored hosts in the state, but elm, hackberry, basswood, sourwood, oak, honeylocust, dogwood, and some fruit trees may be attacked. Girdling occurs in late summer and fall, and is done by the female beetle in preparation for laying eggs. Girdled twigs usually break and fall. Presence on the ground of twigs that appear to have been chewed off (Photo 1) from the outside is a good sign



Photo 1. Girdled twigs from a pecan shade tree. Inset: Closeup of the end of a girdled twig.

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²*Oncideres cingulata*. Order Coleoptera; Family Cerambycidae.

that the girdler is or has been active.

Activity and habits of the twig girdler in Alabama have been noted and recorded periodically over several years. The following is a description of the beetle, its habits, damage caused, and general seasonal cycle.

DESCRIPTION OF LIFE STAGES

There are four life stages: egg, larva, pupa, and adult. Adults (Photo 2A, B) are grayish brown with a lighter band across the back, and 12-17 mm long (average length of 20 adults collected at Auburn was 15 mm).³ Color is near that of bark of host twigs, thus adults on trees are inconspicuous and easily overlooked (Photo 2B). Antennae (feelers) are slightly longer than the body of the beetle, and each antenna has 11 segments.

Eggs (Photo 3) are elongate-oval, about 2.5 mm long (mean of 20 measured), and white to cream in color. They are found in the bark of twigs girdled by the female.

Larvae (Photo 4) are white, legless grubs, 16-25 mm long when fully grown. They are distinctly segmented, and taper toward the rear.

Pupae (Photo 5) are about as long as full-grown larvae. They are bare (no covering cocoon), and the antennae, legs, and elytra (wing covers) are visible. Color is white to cream but becomes darker as pupae near the change to adulthood.

³One inch equals about 25 mm.

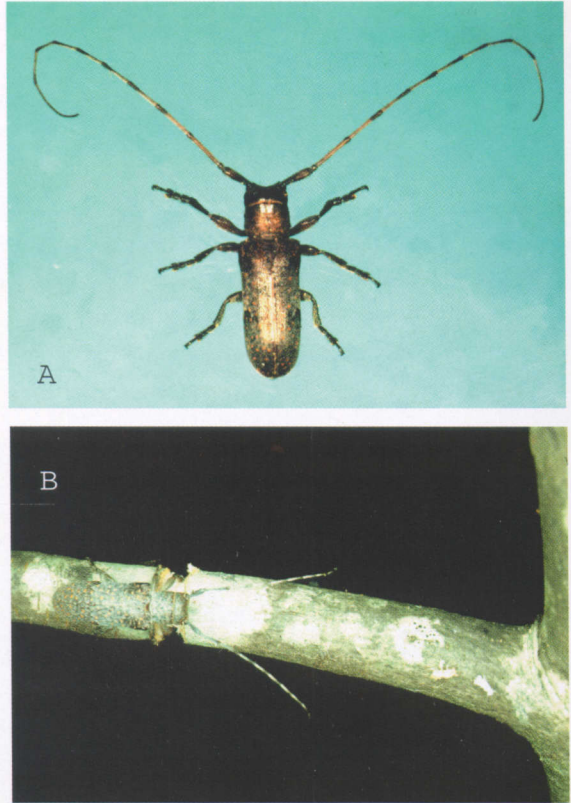


Photo 2A, B. Twig girdler adults. Note the match of beetle color to that of the bark of the hickory branch in B.



Photo 3. Twig girdler egg in the bark of pecan twig.



Photo 4. Full-grown girdler larva; larva is preparing to pupate and has plugged the tunnel behind it with wood chips.

LIFE CYCLE AND HABITS

The twig girdler requires a full year to complete its life cycle, figure 1. Most of this period is spent as larvae tunneling and feeding unheard and unseen in dead girdled twigs on the ground. Adults begin to appear during the first half of September, and are often present throughout much of the fall. They feed on live twigs of host trees, removing small patches of bark (Photo 6) near ends



Photo 5. Twig girdler pupa.

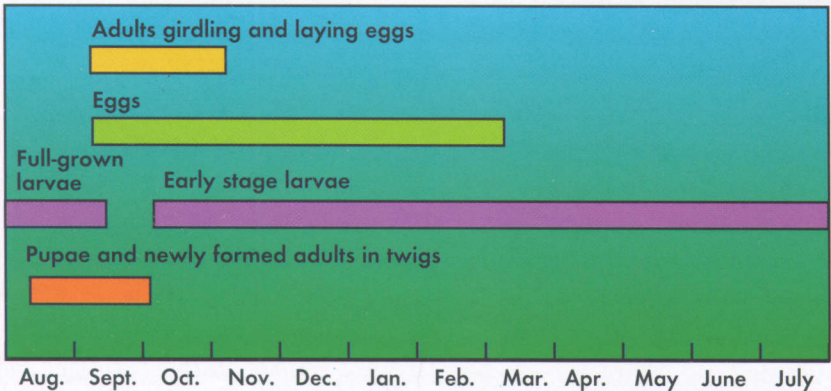


Figure 1. Seasonal development and general life cycle of the twig girdler in Alabama.



Photo 6. Typical adult feeding sign on bark of hickory twig.



Photo 7. Typical fresh girdle on hickory twig.

of twigs. Damage from adult feeding is usually minor and often goes unnoticed.

Girdling and oviposition begin in mid-September and may continue into November, figure 1. The female beetle cuts a V-notch completely around the twig, usually leaving it attached to the branch by a core of wood (Photo 7). Bark adjacent to the girdle often has several transverse markings (Photo 7). These apparently are made by the girdling female; the reason or purpose has not yet been explained. Several hours may be spent girdling a single twig and one female may girdle several. Diameter of twigs at the girdle is usually around 9-10 mm, figure 2A (range 6-13 mm for over 300 twigs measured at Auburn).

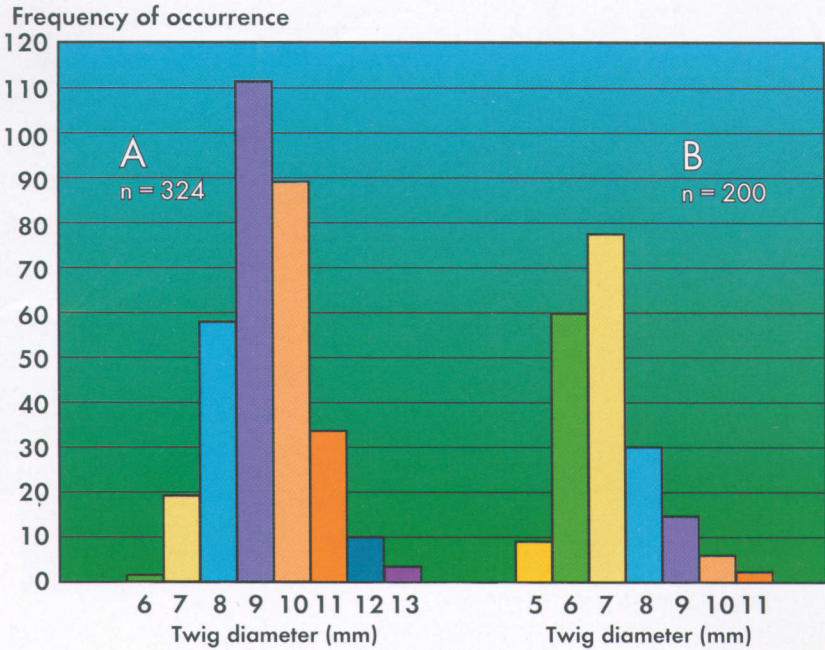


Figure 2. Diameter of girdled twigs: (A) at the girdle; and, (B) at the outermost egg niche (determined on twigs with three or more niches).

Length of severed twigs varies from around 30 cm up to one m.⁴

Eggs are laid in the bark of girdled twigs. The female cuts a small pit or niche (Photo 8) and inserts a single egg under the bark in the bottom of the pit (Photo 3). The opening to the egg is then sealed with a substance secreted by the female; sealed sites tend to glisten. Oviposition niches are usually located at the base of leaf buds or secondary twigs (Photo 8). Bark below each niche often shows crosswise markings similar to those seen at the girdle (Photo 7). Oviposition may occur all along the length of twigs, but its outermost extent appears to be limited by twig diameter. Of 200 twigs examined, few eggs were found beyond where twig diameter had decreased to less than 6 mm, figure 2B. The number of eggs per twig varies greatly. Among 480 twigs collected in Auburn and Lee County, the number of egg niches per twig ranged from 0 to 17, but about 60% contained 3 to 6 niches. Girdled twigs usually break and fall, but a few may remain attached throughout the year (Photo 9).

Eggs begin to hatch in 20-25 days (around October 1, at Auburn). In Alabama, 430 cm equals one foot; one meter (m) is about 40 inches.



Photo 8. Egg niche at the base of a secondary twig. Typically, eggs are laid at bases of leaf buds and secondary twigs. Inset: Closeup of niche.



most eggs hatch during the fall; however, unhatched eggs have been found during winter into early March, figure 1. Larvae tunnel and feed in girdled twigs throughout most of the year, becoming fully grown by mid-August to mid-September. During development, larvae cut small holes in walls of tunneled twigs to expel frass and wood particles (Photo 10). Full-grown larvae then plug tunnels with wood chips (Photo 4), and pupate. Pupae transform to adults in 10 to 14 days, but

Photo 9. Young hickory with girdled stem. Note that this stem has been girdled in two places. The upper segment broke and fell as usual; the lower remained in place and the larva completed development in the attached dead segment.

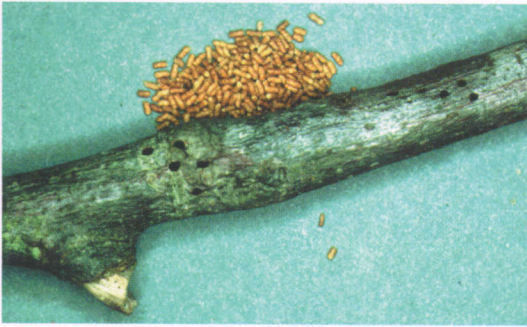


Photo 10. Girdled hickory twig showing holes and frass ejected by the fully grown larva.

newly formed adults may remain in larval tunnels for several days before emerging. Pupae and new adults may be found in twigs on the ground from about mid-August through September, figure 1. During the first half of September, new adults begin to chew out of the old girdled twigs and move to live host trees to feed, girdle, and start a new cycle. Only one generation occurs each year.

DAMAGE

Typically in Alabama, girdler damage is most common among young hickories in natural stands, and pecans and other hosts maintained as shade and ornamental trees. Damage is the result of girdling of twigs, small branches, and stems by the adult female. Structures beyond the girdle die and usually break and fall. Among large established trees, girdling is confined to small twigs in the periphery of the crown. In trees with well-developed crowns, loss of a few twigs

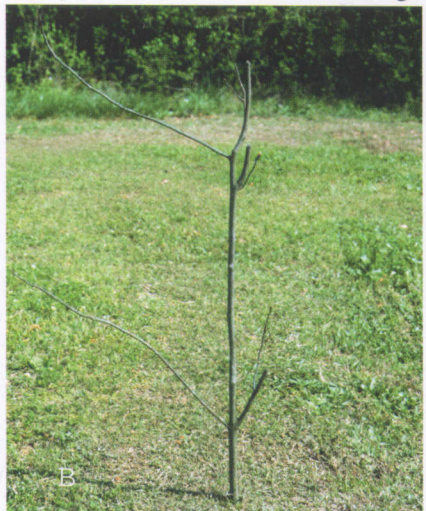


Photo 11. Young hickories showing typical damage caused by the twig girdler: (A) girdled leader; (B) leader and branches girdled.

among many results in little or no real damage. However, among seedlings, sprouts, and small, young trees, damage can be severe. In host trees of this size, stems and main branches of many are of the diameter (6-13 mm) preferred by females for girdling and oviposition, figure 2A. Girdling of these structures deprives the tree of all or much of its crown. As a result, trees may die, or, become stunted and severely deformed (Photo 11A,B).

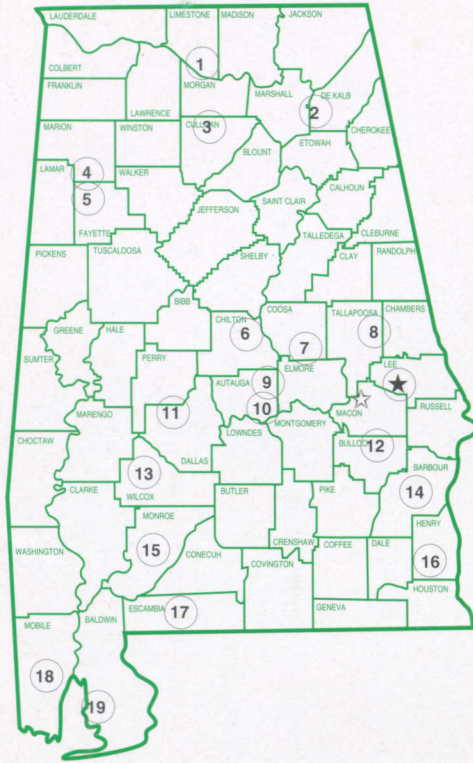
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Alabama's Agricultural Experiment Station System

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With an agricultural research unit in every major soil area, Auburn University serves the needs of field crop, livestock, forestry, and horticultural producers in each region in Alabama. Every citizen of the state has a stake in this research program, since any advantage from new and more economical ways of producing and handling farm products directly benefits the consuming public.



Research Unit Identification

★ Main Agricultural Experiment Station, Auburn.

☆ E. V. Smith Research Center, Shorter.

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| 1. Tennessee Valley Substation, Belle Mina. | 11. Black Belt Substation, Marion Junction. |
| 2. Sand Mountain Substation, Crossville. | 12. The Turnipseed-Ikenberry Place, Union Springs. |
| 3. North Alabama Horticulture Substation, Cullman. | 13. Lower Coastal Plain Substation, Camden. |
| 4. Upper Coastal Plain Substation, Winfield. | 14. Forestry Unit, Barbour County. |
| 5. Forestry Unit, Fayette County. | 15. Monroeville Experiment Field, Monroeville. |
| 6. Chilton Area Horticulture Substation, Clanton. | 16. Wiregrass Substation, Headland. |
| 7. Forestry Unit, Coosa County. | 17. Brewton Experiment Field, Brewton. |
| 8. Piedmont Substation, Camp Hill. | 18. Ornamental Horticulture Substation, Spring Hill. |
| 9. Forestry Unit, Autauga County. | 19. Gulf Coast Substation, Fairhope. |
| 10. Prattville Experiment Field, Prattville. | |