

# WHEN ARE PREDATORS LIKELY TO BE IN MY FIELD?

PREDATOR	MONTH											
	J	F	M	A	M	J	J	A	S	O	N	D
Big-Eyed Bug				High	High	High	High	High	High			
Assassin Bug				High	High	High	High	High	High			
Damsel Bug						High	High	High	High			
Minute Pirate Bug										High	High	High
Ground Beetle				High	High	High	High	High	High			
Lady Beetle						High	High	High	High			
Lacewing										High	High	High
Spiders			High									

High presence in field

Medium presence in field

Low presence in field

*Data partially from fields with cover crop residue. All predators can be observed and collected during the day.*

## Acknowledgments

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*Field Guide to Predators, Parasites and Pathogens Attacking Insect and Mite Pests of Cotton* by Allen Knutson and John Ruberson  
 "Insect Management in Cotton: An Initiative of the Australian Cotton Cooperative Research Centre"

Photos:

Aphids (4387054), Mississippi State University, Bugwood.org  
 Assassin bug (5367967, 5367980), big-eyed bug nymph (1242039), big-eyed bug (5367925), brown stinkbug (1242026), fire ant close-up (5367982), spined soldier bug nymph (1242093), and tarnished plant bug (5367937), Russ Ottens, University of Georgia, Bugwood.org  
 Brown lacewing (5351009) and lacewing eggs (5490113), David Cappaert, Bugwood.org  
 Cobweb weaver (5526012), Sarah Jane Rose, The Ohio State University, Bugwood.org  
 Corn earworm (1235128), Clemson University - USDA Cooperative Extension Slide Series, Bugwood.org  
 Damsel bug nymph (5507033) and damsel bug (5507032), Phil Sloderbeck, Kansas State University, Bugwood.org  
 Fire ant group (2666066) and minute pirate bug (2666062), John Ruberson, Kansas State University, Bugwood.org  
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 Lady beetle larvae (1366008), Susan Ellis, Bugwood.org  
 Lady beetle (5526787), Jim Jasinski, Ohio State University Extension, Bugwood.org  
 Long-horned grasshopper (1225071), Edward L. Manigault, Clemson University Donated Collection, Bugwood.org  
 Long-horned grasshopper close-up (2154085), rove beetle (1386032), and wolf spider (5439120), Joseph Berger, Bugwood.org  
 Lynx spider (1576386), Gerald Holmes, California Polytechnic State University at San Luis Obispo, Bugwood.org  
 Minute pirate bug nymph (5471119), Adam Sisson, Iowa State University, Bugwood.org  
 Rove beetle (5368120), Merle Shepard, Gerald R. Carner, and P.A.C Ooi, Insects and their Natural Enemies Associated with Vegetables and Soybean in Southeast Asia, Bugwood.org  
 Spined soldier bug (1472044), Frank French, Georgia Southern University, Bugwood.org  
 Southern green stink bug (4387037), Phillip Roberts, University of Georgia, Bugwood.org  
 Tiger beetle (5379921), Jessica Louque, Smithers Viscient, Bugwood.org  
 Thrips and pupating convergent lady beetle, Schmidt lab  
 Whiteflies (1599599), John C. French Sr., Retired, Auburn University, University of Georgia, Clemson University, and University of Missouri, Bugwood.org

Drawings:  
 Spined soldier bug scale drawing by Clercq (2004), with permission from Springer  
 Cover art and scale drawings for minute pirate bug, ground beetle, and big-eyed bug by Megan McCoy

## Visual Reference Guide to Common Predators and Pests in Georgia Cotton

Carson Bowers, Jason Schmidt, Melissa Thompson, Phillip Roberts, Michael Toews

## Pests

**Scouting** for key pests and beneficials is critical for informed and cost effective management decisions.



**Thrips**  
 Consistent early-season pest of seedling cotton



**Southern green stinkbug**  
 Potentially serious late-season pest of cotton



**Whitefly**  
 Potentially serious mid- to late-season pest of cotton



**Corn earworm**  
 Pest of cotton bolls



**Brown stinkbug**  
 Late-season pest of cotton bolls



**Tarnished plant bug**  
 Occasional mid- to late-season pest of cotton



**Aphid**  
 Potential early- to late-season pest of cotton

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## Key to Symbols for Predator Habitat Preferences

**A** All: found in all or almost all habitat types

**C** Canopy: found in the cotton canopy or among cotton flowers

**G** Ground: found primarily on the soil or leaf litter

**Gm** Grass margins: found in grassy field margins or cover crop residue

## Grasshoppers

*Tettigoniidae: Orthoptera*

### Long-horned grasshoppers

Feed on: aphids, thrips, lepidopteran eggs and larvae



**Gm C**

## Ants

*Hymenoptera*

### Fire ants

Feed on: lepidopteran larvae and eggs, aphids, soil insects, stink bug eggs, whitefly larvae, spider mites, beetle larvae, most soft-bodied insects, nectar



**A**

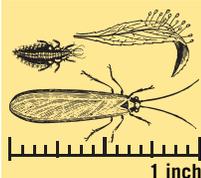
## Lacewings

*Neuroptera*

### Brown and green lacewings

Larvae feed on: aphids, spider mites, other small insects

Brown lacewing adults are predatory while green lacewing adults feed on pollen and nectar.



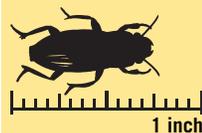
**C**

## Beetles

*Coleoptera*

### Ground and tiger beetles

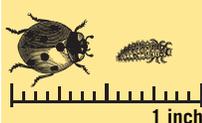
Feed on: lepidopteran larvae, aphids, soil insects, weed seeds



**G**

### Lady beetles

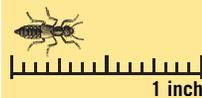
Feed on: aphids, lepidopteran eggs and larvae, spider mites, cotton nectar, pollen



**C**

### Rove beetles

Feed on: aphids, spiders, other small insects



**A**

## Spiders

*Araneae*



### Ground hunters

Wolf spider



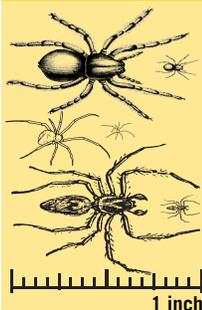
### Canopy web builders

Cobweb weaver



### Ambushers/stalkers

Lynx spider



**Gm G**

**C**

Feed on: lepidopteran eggs and larvae, whiteflies, plant bugs and hoppers, aphids, thrips

These spiders are just a few examples of this diverse group of predators found in cotton.

## True Bugs

*Hemiptera*

### Big-eyed bugs

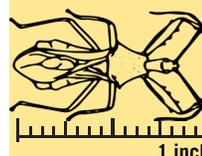
Feed on: lepidopteran eggs and larvae, aphids, mites, whiteflies, plant bugs, cotton nectar, plant sap



**Gm C**

### Assassin bugs

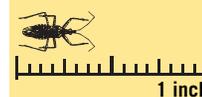
Feed on: lepidopteran eggs and larvae, aphids, thrips



**Gm C**

### Damsel bugs

Feed on: lepidopteran eggs and larvae, aphids, mites, whiteflies, plant bugs, fleahoppers, beneficials



**Gm C**

### Minute pirate bugs

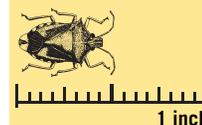
Feed on: lepidopteran eggs and larvae, aphids, mites, whiteflies, thrips, pollen



**C**

### Spined soldier bugs

Feed on: caterpillars, beetle larvae



**C**