

MORE INVASIVE INSECTS

By David Mow



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GYPSY MOTH

Gypsy moths, the most serious forest and urban landscape pest in the United States, and they are in Indiana.

Oak leaves are their preferred food, but gypsy moth caterpillars can eat the foliage of 500 species of trees and plants.

While most trees will produce new leaves after defoliation, repeated annual defoliation may kill trees in two to four years.

2

SPREAD

Because adult female gypsy moths in North America cannot fly, natural spread of the gypsy moth occurs by other means.

Young caterpillars crawl to treetops and are blown by the wind.

People can increase the rate of spread when they unknowingly carry them from infested areas.

You can help reduce losses from gypsy moth as they move through Indiana in the following ways.

3

SLOW THE SPREAD

Learn the gypsy moth's biology, how to recognize it's life stages, and where it can be found so you do not transport it to uninfested parts of the state or country.

4

IDENTIFICATION

The gypsy moth goes through four developmental stages during its life: egg, caterpillar, pupa, and adult.

Eggs—After mating, female moths lay eggs on any convenient surface. They will hide their eggs just about anywhere. This could be a branch, firewood, a picnic table, a tent, a recreational vehicle, or an automobile. Between 500 and 1000 eggs are laid in a mass that is covered with tan or buff-colored hairs. Eggs do not hatch until the following spring.

Caterpillars—In late April, small black-headed caterpillars hatch from eggs and climb to treetops, where they feed on foliage or dangle from silk strands until they are blown to other trees. After establishing themselves on a tree, caterpillars molt into a second instar that is nearly 1/2-inch long and largely black, with irregularly shaped yellow marks visible on the upper body surface. Older caterpillars (4th - 6th instars) have distinct color markings on their backs, with five pairs of blue dots followed by six pairs of red dots. Each caterpillar consumes 11 square feet of foliage over the course of its life. Most of the feeding occurs at night. Caterpillars move to the base of the tree during the day, protecting themselves from extreme heat and predation by birds.

Pupae—By early June, caterpillars stop feeding and change into pupae, their transition stage from caterpillars to adult moths. Pupae are dark brown shell-like cases that are about 2 inches long and sparsely covered with hairs. They do not spin webs or make a cocoon.



Egg Mass



Pupa



Adult Stage (male)

Adults—Adults emerge from pupal cases in July and August. Females have creamy white wings, a tan body, and cannot fly. Males are smaller, dark brown, and have feathery antennae. Both have a distinct inverted V-shape mark that points to a dot on their wings.

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MAINTAIN TREE HEALTH

In your yard, keep trees watered, particularly during dry periods in the summer.

Apply a 2-inch layer of mulch, of composted hardwood chips around the base of your trees to avoid wounding trunks with lawn mowers or weed trimmers.

Do not create a tree volcano. Leave a two-inch gap between tree and mulch.

6

DIVERSIFY YOUR PLANTINGS

When designing new plantings, be sure to include a few trees that are less preferred by the gypsy moth.

Most Preferred	Somewhat Preferred	Least Preferred
Aspen (<i>Populus</i>)	Alder (<i>Alnus</i>)	Arborvitae (<i>Thuja</i>)
Apples and crabapples (<i>Malus</i>)	Balsm fir (<i>Abies</i>)	Ash (<i>Fraxinus</i>)
Birches (<i>Betula</i>)	Black walnut (<i>Juglans</i>)	Azalea (<i>Azalea</i>)
Blue spruce (<i>Picea</i>)	Butternut (<i>Juglans</i>)	Black locust (<i>Robinia</i>)
American beech (<i>Fagus</i>)	Cherry (<i>Prunus</i>)	Catalpa (<i>Catalpa</i>)
Basswood (<i>Tilia</i>)	Eastern hemlock (<i>Tsuga</i>)	Dogwood (<i>Cornus</i>)
Hawthorn (<i>Crataegus</i>)	Easter redbud (<i>Cercis</i>)	Eastern red cedar (<i>Juniperus</i>)
Hazlenut (<i>Corylus</i>)	Elm (<i>Ulmus</i>)	Horsechestnut (<i>Aesculus</i>)
Oaks (<i>Quercus</i>)*	Hickory (<i>Carya</i>)	Lilac (<i>Syringa</i>)
Poplar (<i>Populus</i>)	Honeylocust (<i>Gleditsia</i>)	Rhododendron (<i>Rhododendron</i>)
Sweetgum (<i>Liquidambar</i>)	Hophornbeam (<i>Ostrya</i>)	Tuliptree poplar (<i>Liriodendron</i>)
Serviceberry (<i>Amelanchier</i>)	Hornbeam (<i>Carpinus</i>)	Viburnum (<i>Viburnum</i>)
Mountain ash (<i>Sorbus</i>)	Maples (<i>Acer</i>)	
Witch hazel (<i>Hamalelis</i>)	Paw paw (<i>Asimina</i>)	
White pine (<i>Pinus</i>)	Plum (<i>Prunus</i>)	
	Sassafrass (<i>Sassafrass</i>)	
	White and Norway spruce (<i>Picea</i>)	

*Oaks are most preferred of all hosts

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GYPSY MOTH MANAGEMENT

The battle to rid the Midwest of the gypsy moth was lost long ago. Treating infestations with insecticides outside the generally infested areas will slow the spread of the gypsy moth. But spraying insecticides will only temporarily reduce the number of caterpillars. The wide range of insects, diseases, and animals that feed on gypsy moth provide more long-lasting control. These natural enemies are the reason that trees and forests still thrive in areas where this pest has been present for over 100 years.

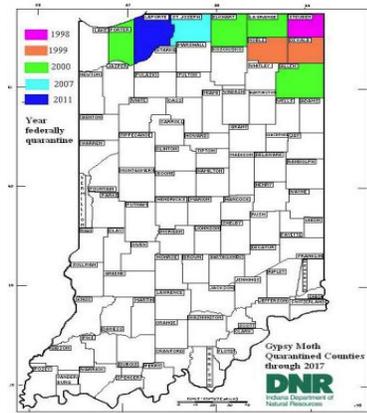
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Where gypsy moth has already been established in Indiana, environmentally safe tools that foster and conserve the natural enemies of gypsy moth will be used to maintain the appearance of urban forests and the health of woodland ecosystems.

Where it's not yet established, the Indiana Department of Natural Resources will continue the trapping program it began in 1973 to detect man-made introductions.

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MAP OF GYPSY INDIANA COUNTIES QUARANTINED FOR GYPSY MOTH



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CONTROL

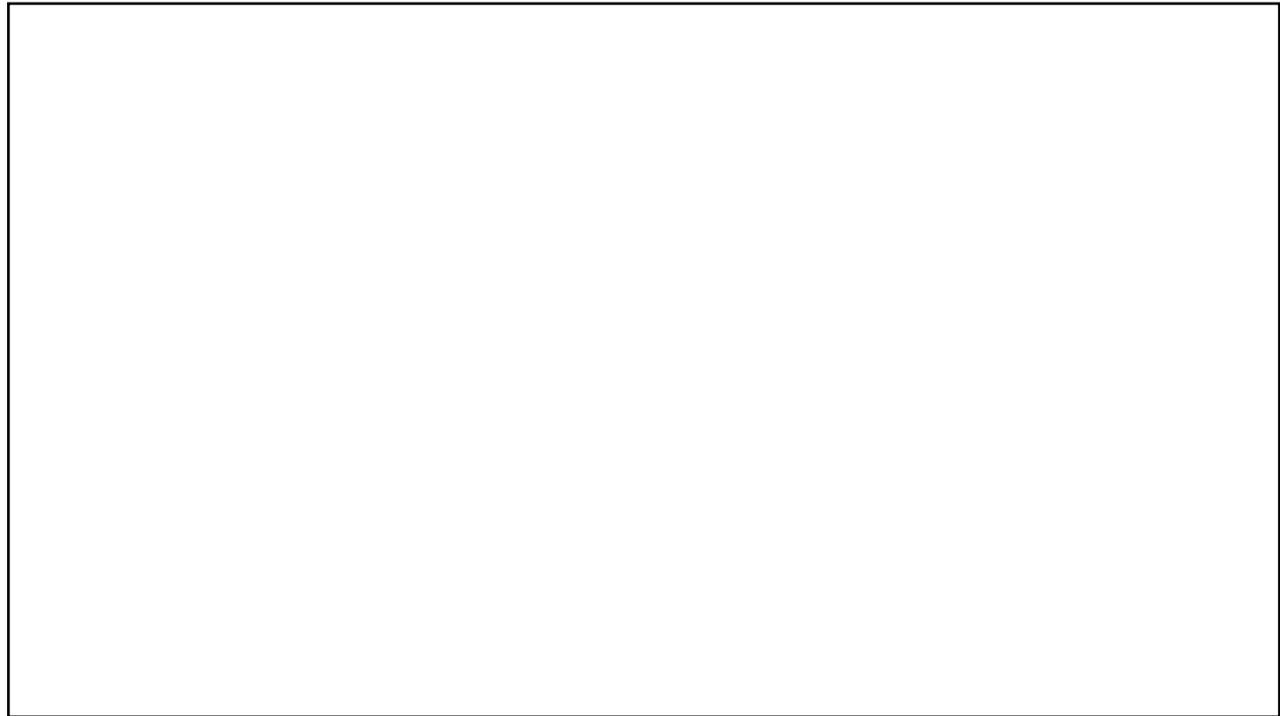
Timely application of biological insecticides like *Bacillus thuringiensis* when caterpillars are less than 1-inch long can protect the health of valued trees in your landscape without harming the natural enemies of gypsy moth and other landscape pests.

Application of insecticides with the active ingredient Spinosad can kill even longer caterpillars and still have less of an impact on beneficial insects than most other products.

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Commonly available broad-spectrum insecticides with the active ingredient, acephate, bifenthrin, carbaryl, cyfluthrin, fluvalinate, malathion, or permethrin can kill caterpillars when applied in accordance with label directions.

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JAPANESE BEETLES

Infestations of Japanese beetles are found in rural and urban areas throughout Indiana and the Midwest region.

This insect is most damaging to lawns, trees, fruit, flowers and gardens in urban landscapes but may also cause economic injury to some agriculture crops.

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DESCRIPTION

Adult Japanese beetles are about $\frac{1}{2}$ inch long, metallic green and bronze in color, with a row of white hairy tufts along each side of the body.

Immature form of this pest are light colored-C-shaped grubs with a light brown head and can be found in the soil from mid-July through the following June.

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HABITS / ADULT

Adult beetles are most active from mid-June through August and can feed on more than 400 different species of plants.

They are especially fond of roses, grapes, smartweed, soybeans, corn silks, flowers of all kinds, flowering crabapple, plum and linden trees. Personal observation, include elm and evening primrose.

Adults can fly considerable distances (1-2 miles) to feed on leafy plants or to lay eggs.

In areas of heavy infestations, the adults will attack and injure foliage and flowers.

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HABITS / GRUBS

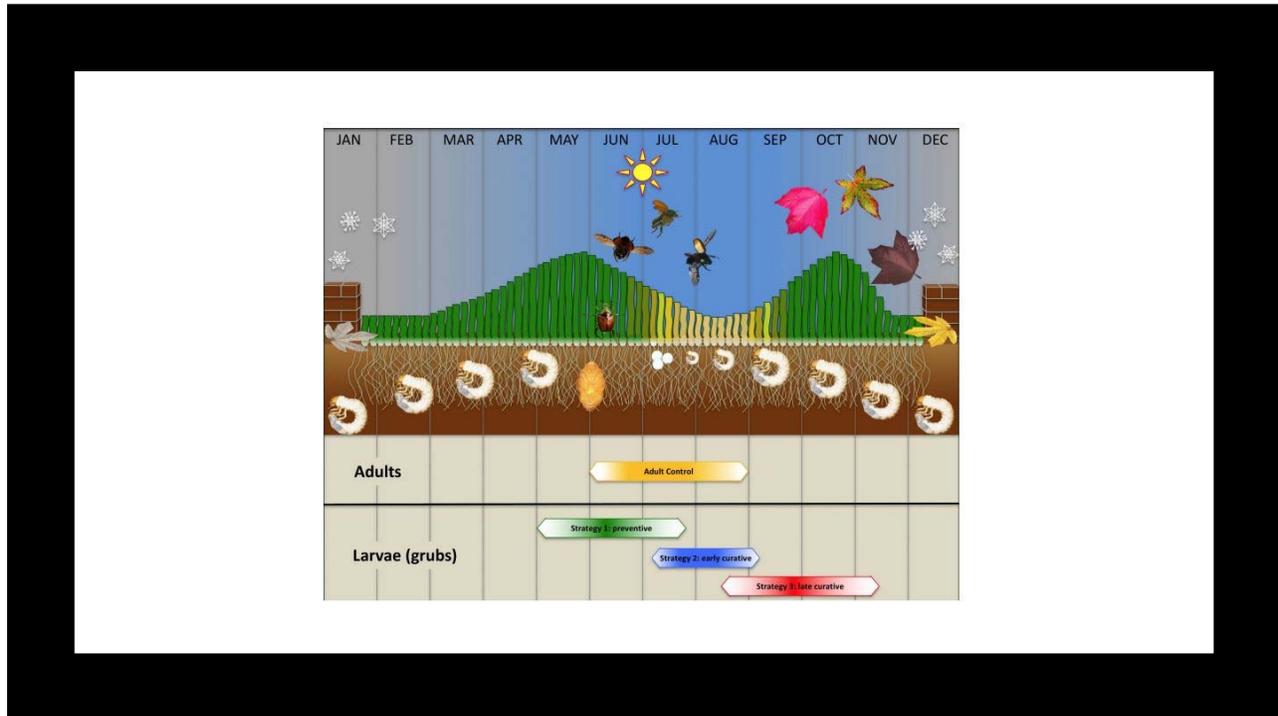
Grubs develop in lawns, turf, and cultivated land from eggs laid by the female during the summer.

These grubs feed primarily on soil organic matter, thatch and the roots of grasses and other plants.

They pass the winter in the grub stage, complete their growth the following spring and emerge as beetles beginning in June.

The grubs may seriously damage lawns and cultivated crops by feeding on plant roots.

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CONTROL ON ORNAMENTALS

To protect ornamentals against the feeding of adult Japanese beetles, leaves should be coated with insecticide during the adult flight period.

Typically, this may entail two treatments during the peak beetle flight.

Homeowners should make their first application before damage becomes intolerable and beetles are still abundant.

The need for repeat applications can be curtailed by inspecting plants for additional beetle damage prior to applying a second treatment.

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Neem products containing Azadirachtin can be effective repellants that can reduce defoliation when applied regularly (but no more than weekly) during beetle flight.

Apply before defoliation becomes intolerable.

In years when beetle populations are very high, noticeable defoliation may occur because adults will consume a small amount of insecticide tainted leaves before, they are killed.

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Insecticide	Formulation	Amount per 100 gallons	Amount per gallon	General Use Restriction (check label) H = Homeowner C = Commercial
Acephate (Orthene)	75% S 15.6% EC	1/3 lb. 1 1/5 cup	1/3 tsp. 1 1/2 Tbsp.	H, C
Azadirachtin (Various products)	Varies	See label	See label	Works as repellant
<i>Bacillus thuringiensis galleriae</i> (beetle-GONE)	76.5%	-	1.5 lbs.	H, C, bee safe
Bifenthrin (Talstar L&T and other site specific products)	0.7 F	5.5 - 10.9 oz.	1/3 - 2/3 tsp.	H, C
Carbaryl (Sevin and others)	4 F 2 F	1 qt. 2 qt.	2 tsp. 4 tsp.	H, C
Chlorantraniliprole (Acelepryn)	18.4% EC	2 - 4 oz.	1/8 - 1/4 tsp.	H, C, bee safe
Cyantraniliprole (Mainspring GNL)	18.7% SC	2 - 8 oz.	1/8 - 1/2 tsp.	H, C
Cyfluthrin (Tempo, Decathlon) (Bayer Lawn & Garden)	20 WP 0.75 EC	1.3 oz. -	- 1 Tbsp.	H, C H (Bayer)
Deltamethrin (Deltaguard (T&O))	4.75% EC	4 - 8 oz.	1/4 - 1/2 tsp.	H, C
Fluvalinate (Mavrik)	2 F	5 - 10 oz.	1/4 - 1/2 tsp.	H, C
Imidacloprid (Bayer Tree and Shrub)	2.9% C	See label	See label	Soil application H
Lambda-cyhalothrin (Scimitar CS)	9.7% EC	1.5 - 5 oz.	-	C
Permethrin (Astro EC)	36.8% EC	4 - 8 oz.	1/4 - 1/2 tsp.	H, C
Spectracide Bug Stop (Eight)	2.5% EC	-	2 Tbsp.	

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Soil applications of insecticides on flowering trees should be delayed until after petals have fallen.

Concentrate control efforts on trees that are susceptible to beetles.

When possible, replant with species that are resistant to adult feeding.

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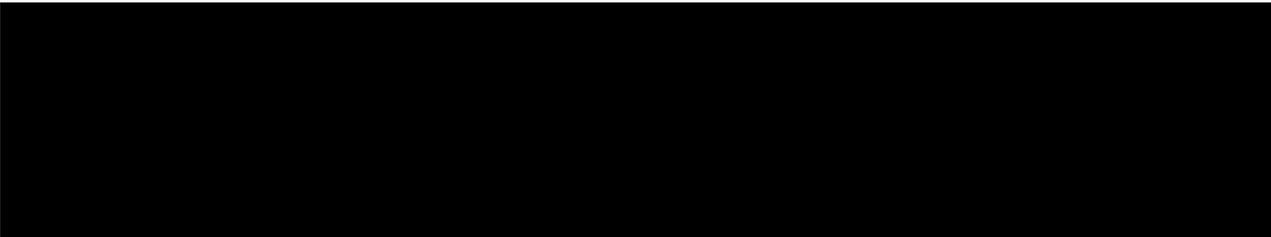


Table 2. Landscape Plants Nearly Always Severely Attacked by Adult Japanese Beetle ¹		Table 3. Landscape Plants Relatively Free of Feeding by Adult Japanese Beetle ¹	
Scientific Name	Common Name	Scientific Name	Common Name
<i>Acer palmatum</i>	Japanese maple	<i>Acer negundo</i>	Boxelder*
<i>Acer platanoides</i>	Norway maple	<i>Acer rubrum</i>	Red maple
<i>Aesculus hippocastanum</i>	Horsechestnut	<i>Acer saccharinum</i>	Silver maple
<i>Atibaca rosea</i>	Hollyhock	<i>Buxus sempervirens</i>	Boxwood
<i>Betula populifolia</i>	Gray birch	<i>Carya ovata</i>	Shagbark hickory
<i>Castanea dentata</i>	American chestnut	<i>Cornus florida</i>	Flowering dogwood
<i>Hibiscus syriacus</i>	Rose-of-Sharon	<i>Diospyros virginiana</i>	Persimmon
	Shrub Althea	<i>Euonymus species</i>	Euonymus (all species)
<i>Juglans nigra</i>	Black walnut	<i>Fraxinus americana</i>	White ash
<i>Malus species</i>	Flowering crabapple, apple	<i>Fraxinus pennsylvanica</i>	Green ash
<i>Plananus acerifolia</i>	London planetree	<i>Ilex species</i>	Holly (all species)
<i>Populus nigra italica</i>	Lombardy poplar	<i>Jaglans cinerea</i>	Butternut
<i>Prunus species</i>	Cherry, black cherry, plum, peach, etc.	<i>Liriodendron tulipifera</i>	Tuliptree
<i>Rosa species</i>	Roses	<i>Liquidamar styraciflua</i>	American sweetgum
<i>Sassafras albidum</i>	Sassafras	<i>Magnolia species</i>	Magnolia (all species)
<i>Sorbus americana</i>	American mountain-ash	<i>Morus rubra</i>	Red mulberry
<i>Tilia americana</i>	American linden	<i>Populus alba</i>	White poplar
<i>Ulmus americana</i>	American elm	<i>Pyrus communis</i>	Common pear
<i>Ulmus protera</i>	English elm	<i>Quercus alba</i>	White oak
<i>Vitis species</i>	Grape	<i>Quercus coccinea</i>	Scarlet oak
		<i>Quercus rubra</i>	Red oak
		<i>Quercus velutina</i>	Black oak*
		<i>Sambucus canadensis</i>	American elder*
		<i>Syringa vulgaris</i>	Common lilac

¹Courtesy of Sheiner, Townsend and Potter, University of Kentucky

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CONTROL ON FOOD PLANTS

Foliar applications of insecticides bifenthrin, carbaryl, cyfluthrin, neem, and permethrin are safe to use on fruit and vegetables if harvest restrictions on the label are followed.

Sevin is also available as a 5% dust to be used at a rate of ½ pound per 1,000 square feet.

(See also [Extension Publication E-21-W"Managing Insects in the Home Garden"](#)).

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TRAPS

Pheromone traps have long been used to monitor the activity of the Japanese beetle.

The "Bag-A-Bug" trap utilizes both a pheromone and a floral scent to catch both sexes of the beetle.

However, these traps are **not** recommended for beetle management because they attract more beetles than they can control, often resulting in increased plant damage.

Do not put traps in or near plants that are susceptible to Japanese beetles.

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PROTECTING LAWNS

Several insecticides will protect turfgrass lawns from Japanese beetle grubs and other soil insects if applied at the proper time and according to label directions.

(see also [Extension Publication E-271-W “Managing White Grubs in Turfgrass”](#))

As a general rule of thumb, smaller grubs are easier to control using insecticides.

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STRATEGY

#1 Preventive: This relies on the use of insecticide formulations that remain active in the soil for an extended period of time.

#2 Early Curative: This targets early or late instar grubs in areas where densities are high enough for concern, but before damage is visible. Population densities of less than 5 grubs/ft² rarely need treatment.

#3 Late Curative: This is often referred to as rescue strategy because it targets white grubs after damage has been noticed.

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CULTURAL TOOLS

Sound cultural practices that include, 1)selection of turfgrass species and cultivars that are well adapted for a specific site and 2) use proper mowing, fertilization, irrigation, thatch management and cultivation to promote healthy, vigorous turf.

Well maintained turfgrass is capable of tolerating or quickly recovering from most grub feeding.

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BIOLOGICAL CONTROLS

Although a host of pathogens, predators and parasites attack and kill white grubs, commercially available, effective biological controls are limited.

Nonetheless, these products can provide reasonable levels of control and are generally safer than chemical insecticides.

Biological insecticides tend to be more expensive than chemical insecticides, more variable in the level and speed of control provided, and sometimes require special handling and application procedures.

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Table 4. Active ingredients of chemical and biological insecticide products recommended for use against Japanese beetle grubs in turfgrass and their relative suitability for use in different management strategies.

Insecticide * (Trade Names)	Insecticide Class	Management Strategy		
		Preventive	Early Curative	Late Curative
SYNTHETIC INSECTICIDES				
Carbaryl (Sevin)	Carbamate		X	X
Chlorantraniliprole (Acelepryn)	Diamide	X	X	
Cyantraniliprole (Ference)	Diamide	X	X	
Clothianidin (Arena, Aloft, Others)	Neonicotinoid	X	X	X
Imidacloprid (Merit, Triple Crown, Others)	Neonicotinoid	X	X	X
Thiamethoxam (Meridian)	Neonicotinoid	X	X	X
Trichlorfon (Dylox)	Organophos- phate		X	X
BIOLOGICAL/BIORATIONAL INSECTICIDES				
<i>Bacillus thuringiensis galleriae</i> (GrubGONE G)	Microbial		X	X
<i>Metarhizium brunneum</i> (Met 52)	Microbial			X
<i>Paenibacillus popilliae</i> (Milky Spore)	Microbial	X		
<i>Heterorhabditis bacteriophora</i> (Nemasys G, NemaSeek)	Parasitic Nema- tode		X	X
* Always consult label directions for specific timing and application recommendations.				

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ASIAN JUMPING WORMS

Jumping worms are in the Midwest and can-do serious damage to your yard and the environment.

No one is sure how jumping worms were introduced into North America, but it is likely that they were brought over from Asia in soil used for potted plants, landscaping material, or agricultural material.

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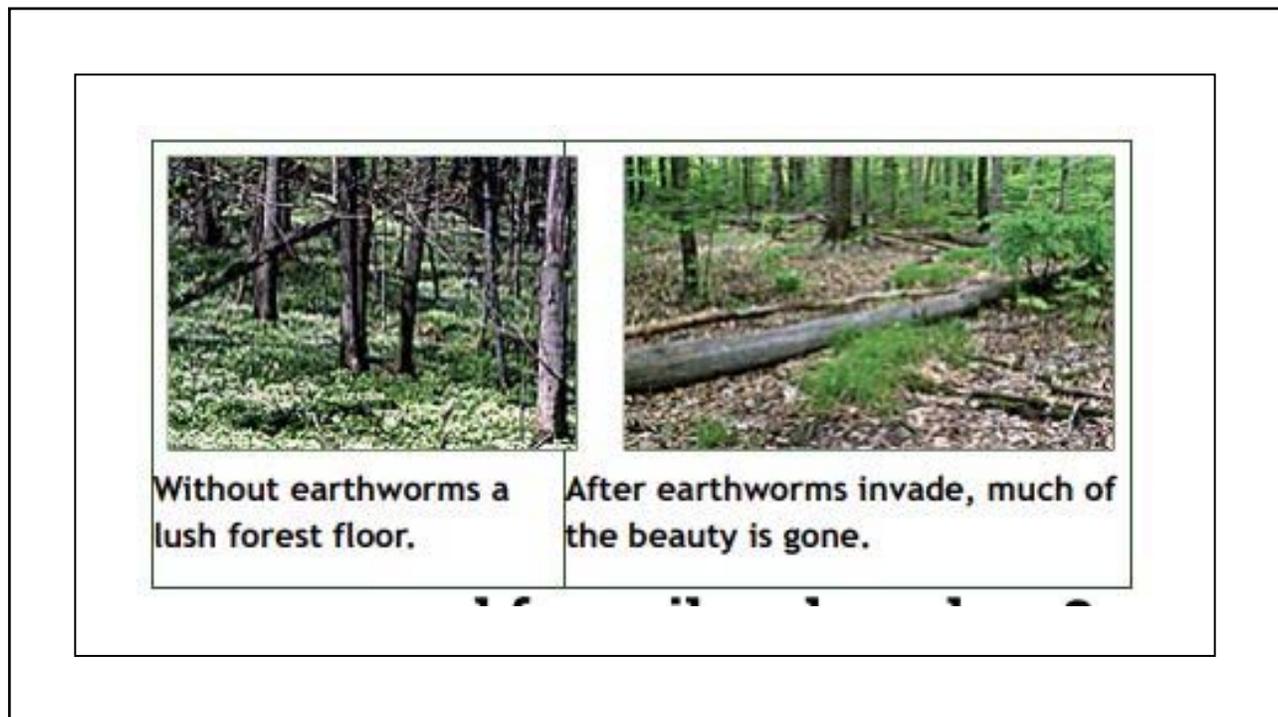
WHAT DO THEY DO?

These worms are hungry and reproduce quickly! Unlike most other earthworms which prefer lower layers of soil, jumping worms prefer the top layer where organic material needed for plant growth is concentrated.

They quickly eat the organic matter in the topsoil which makes it difficult for plants to grow and other soil animals (fungi) to survive.

In forests this change can greatly reduce the number of plants in the understory and in gardens or other maintained landscapes it can make it difficult to keep plants alive.

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WHAT DO THEY LOOK LIKE?

Jumping worms get their name from their distinctive behavior.

As a defense against predators, they thrash wildly and twist their bodies when touched.

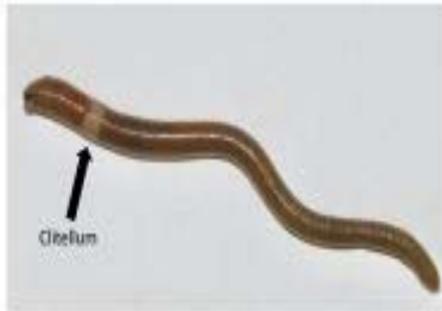
Jumping worms are shiny, slightly iridescent, and grey-brown rather than the duller red-brown seen in other earthworms.

They have large bodies (4-8 in) with a milky-white ring around them.

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COMPARISON

JUMPING WORM



COMMON EARTHWORM



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WHAT TO LOOK FOR

Even if you don't see one of these worms you might notice signs of their presence.

Soil in heavily invaded areas takes on a distinctive grainy, coffee ground-like consistency.



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HOW DO THEY SPREAD?

Jumping worms are usually spread through the movement of soil, compost, and mulch as well as for fishing bait and for vermiculture.

They can also be spread in dirt trapped in tractors and other machinery (logging skidders).

Worms may be transported as adults or as small cocoons, so it is easy to miss them.

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WHAT CAN YOU DO?

Unfortunately, there is currently no good way to eradicate them.

However, you can minimize their spread on your property and to other areas.

Following these tips will reduce the chance of spreading jumping worms and their cocoons.

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TIPS

- Check any plants, soil, or compost for worms before you use it.
- If possible, remove the soil from any plants you buy for your landscape and throw it away in a sealed plastic bag.
- If you have jumping worms on your property, avoid moving organic matter (like compost and soil) from invaded areas to new areas or running machinery through invaded areas.
- Clean dirt off any machinery before you move it to a new area.

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MORE TIPS

- If you find any jumping worms, put them in a sealed bag and throw them in the trash. Do not put them back in your yard or compost.
- If you buy worms for fishing or vermiculture make sure they are not jumping worms (*Amyntas sp.*).
- Don't dump fishing bait or vermiculture worms on the ground when you're done with them. Put them in a sealed container or bag and throw them in the trash.

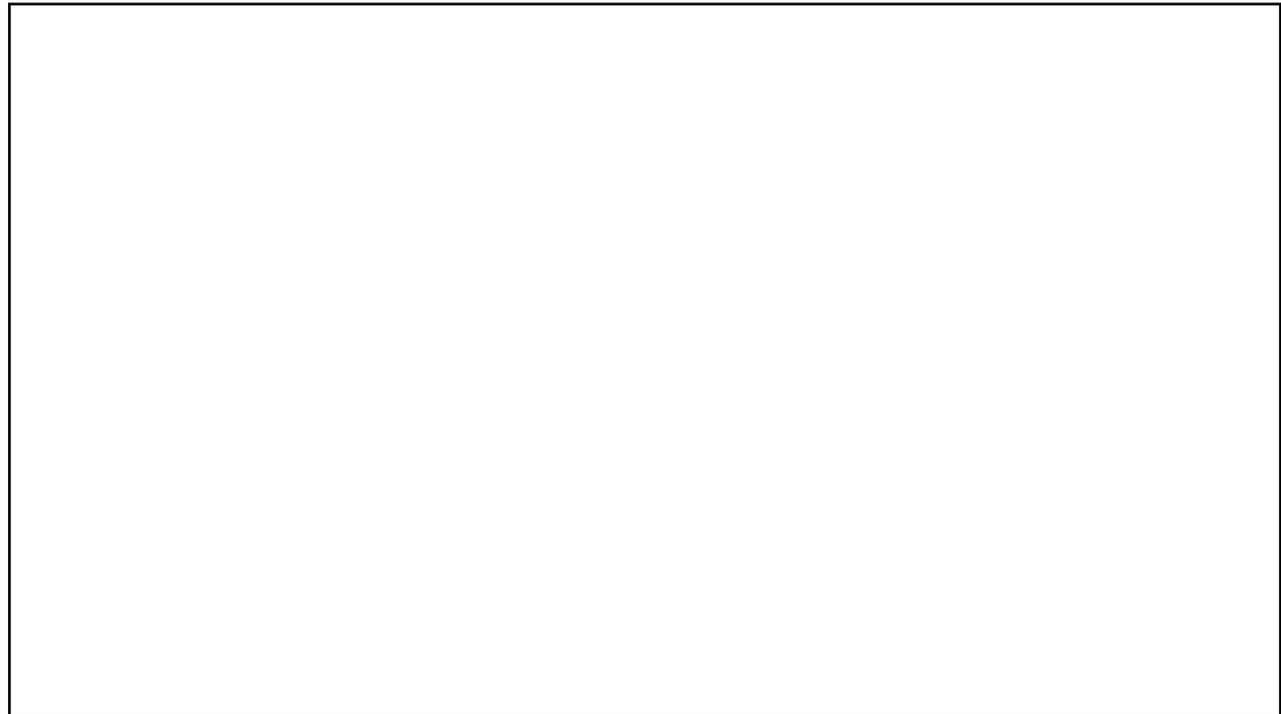
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SITTINGS

If you see these report them to.

- The GLEDN phone app
- EDDMaps
- 1-866 NO EXOTIC (1-866-663-9684)
- depp@dnr.in.gov

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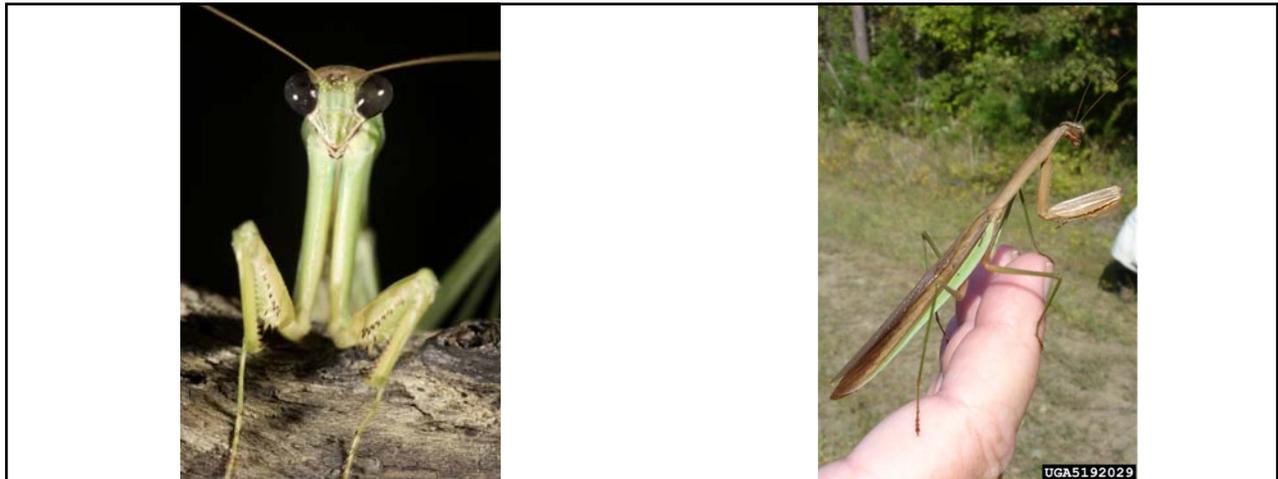
CHINESE MANTIS

Chinese mantises can reach 5 inches long and range from pale green to tan-usually tan, with a green line running down the side (the edges of the forewings).

The head is triangular and swivels, so the mantis can track prey without otherwise moving.

Examine the face shield (the part of the face in front of the antennae and between the eyes): in the Chinese mantis, it is square and has vertical stripes.

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CHINESE MANTIS

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Immature mantids look a lot like adults, but without fully developed wings.

Very young mantids often have the abdomen tip curled upward.

Egg cases resemble tan toasted marshmallows.

They are fairly round, about as long, about as long as wide, Ping-Pong-ball size; usually attached to twigs of bushes and small trees.

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SIMILAR SPECIES

The European mantis (*Mantis religiosa*) is another nonnative mantis introduced to America, but it grows only to about 3 inches, and its color ranges from tan to bright green.

A key diagnostic feature is a round black dot on the underside of the basal joint (coxa) of the big forelegs. Sometimes this black dot has a white center.

This spot can be hard to see when their “arms” are held together.

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NATIVE SPECIE

The Carolina mantis (*Stagmomantis carolina*); is smaller, only reaching about 2 ½ inches.

It is pale green to tan or mottled gray, and the wings extend only three-fourths of the way down the abdomen in adult females.

Females lay a frothy egg case, called an ootheca, on twigs or stems in the fall.

Egg case hardens to a small brown or tan, long and narrow pouch containing 30-40 eggs.

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CAROLINA MANTIS

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CONSERVATION

Chinese mantises were introduced to North America in 1896 and have spread since then.

Because they have been widespread for so long, it is difficult to determine what their ecological impact has been on native ecosystems.

Nonnative mantids may be outcompeting our native mantids, contributing to their decline

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To help reduce their negative impact on native populations, you can selectively destroy individual Chinese and European mantids and their egg cases and let our native Carolina mantis species alone.

However other people may purchase nonnative Chinese mantid egg cases and release them in a rather inefficient attempt to battle garden or crop pests.

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NONNATIVE OR INVASIVE?

The distinction between nonnative and invasive usually hinges on whether or not the nonnative organism take over or disrupts healthy ecosystems, or clearly causes serious declines of native organisms.

The distinction between beneficial and pest usually hinges on the organism's role in human economic (usually agricultural) interests-weighing its total impact, including both pros and cons.

The case of the Chinese mantis seem complicated, by some combination of the following possible factors.

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FACTORS

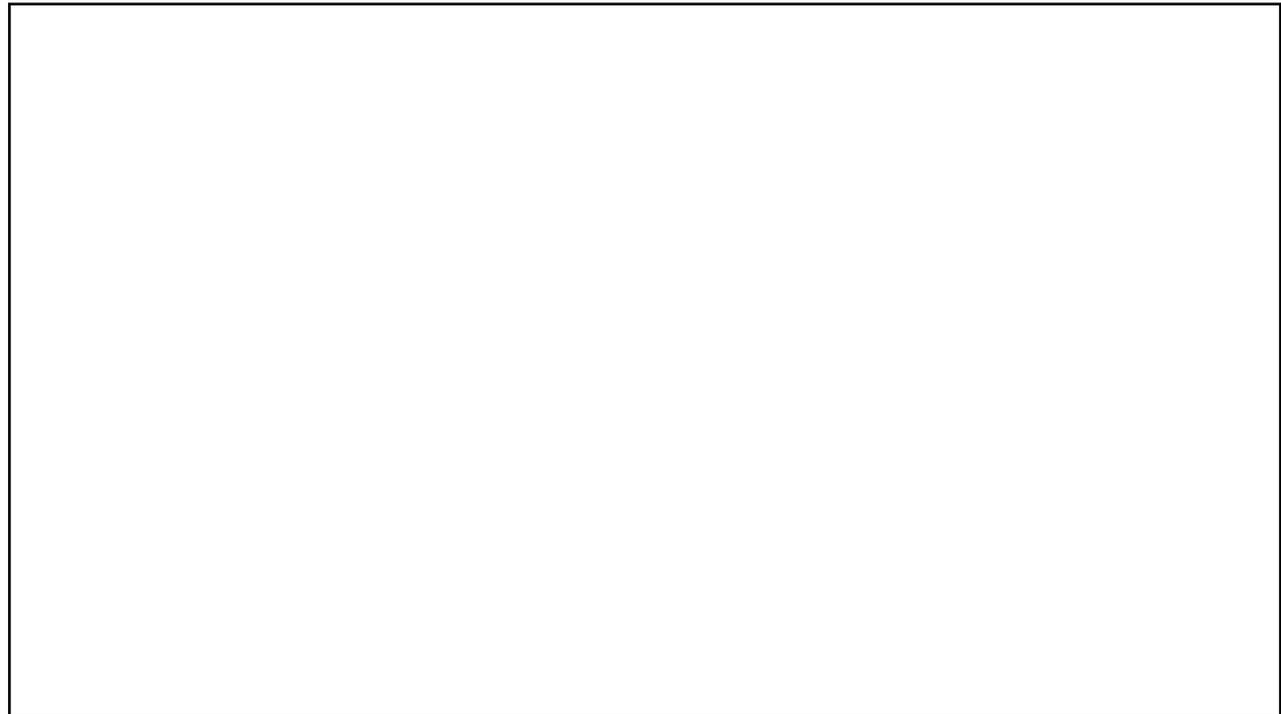
- The amount of unequivocal data on the Chinese mantis's impact on native ecosystems and/or populations of native organisms.
- The longstanding, already widespread North American distribution of the Chinese mantis, which complicates a researcher's ability to gauge its environmental impact and hampers any attempts to contain or control its numbers.
- The costs, and likelihood of success, of trying to control its numbers.

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FACTORS

- The continuing desire of people to be free to buy, sell, and use them as biocontrol agents.
- The issue's position relative to a lengthy list of conservation and agricultural priorities.

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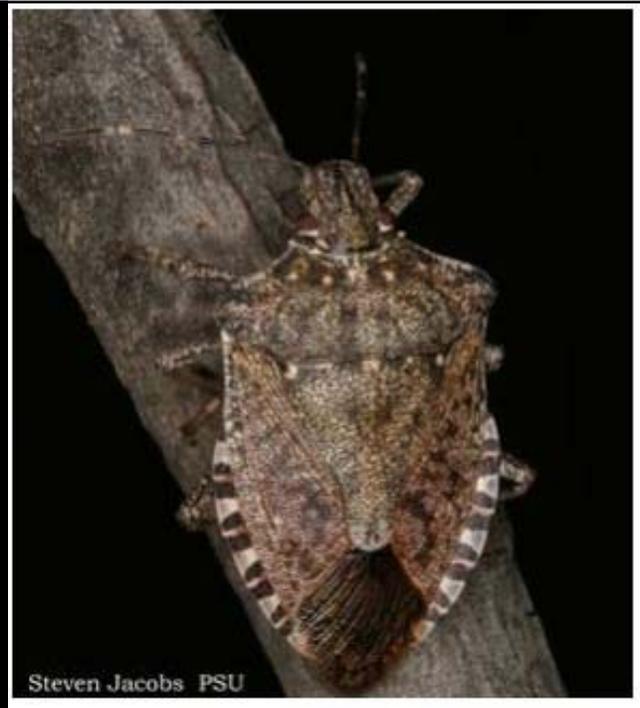
BROWN MARMORATED STINK BUG

It is an invasive bug that is a serious pest of fruit, vegetable, and other crops.

It also becomes a nuisance pest of homes as it is attracted to the outside of houses on warm fall days in search of protected, overwintering sites and can enter houses in large numbers.

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ADULT



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DISTRIBUTION

It was accidentally introduced from east Asia (China, Japan, Korea) into eastern Pennsylvania and was first collected in Allentown in 1988, although it probably arrived several years earlier.

It has since spread throughout most of eastern and western North America and will likely be found continent wide within a few years.

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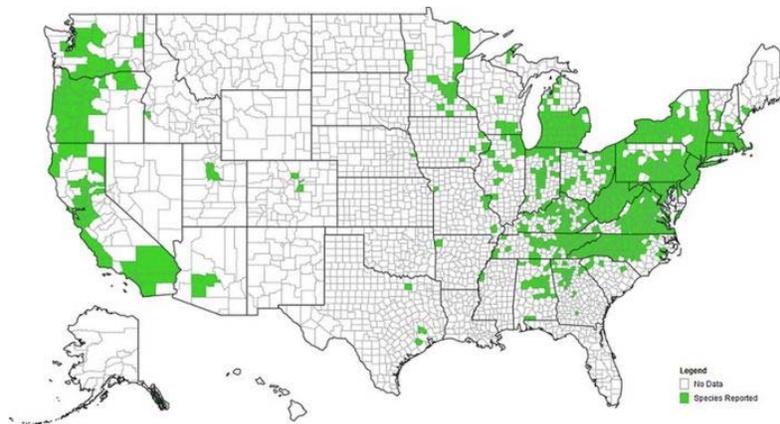


Figure 2. US counties where BMSB has been detected as of November 2017. Map via EDDMapS.

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DESCRIPTION

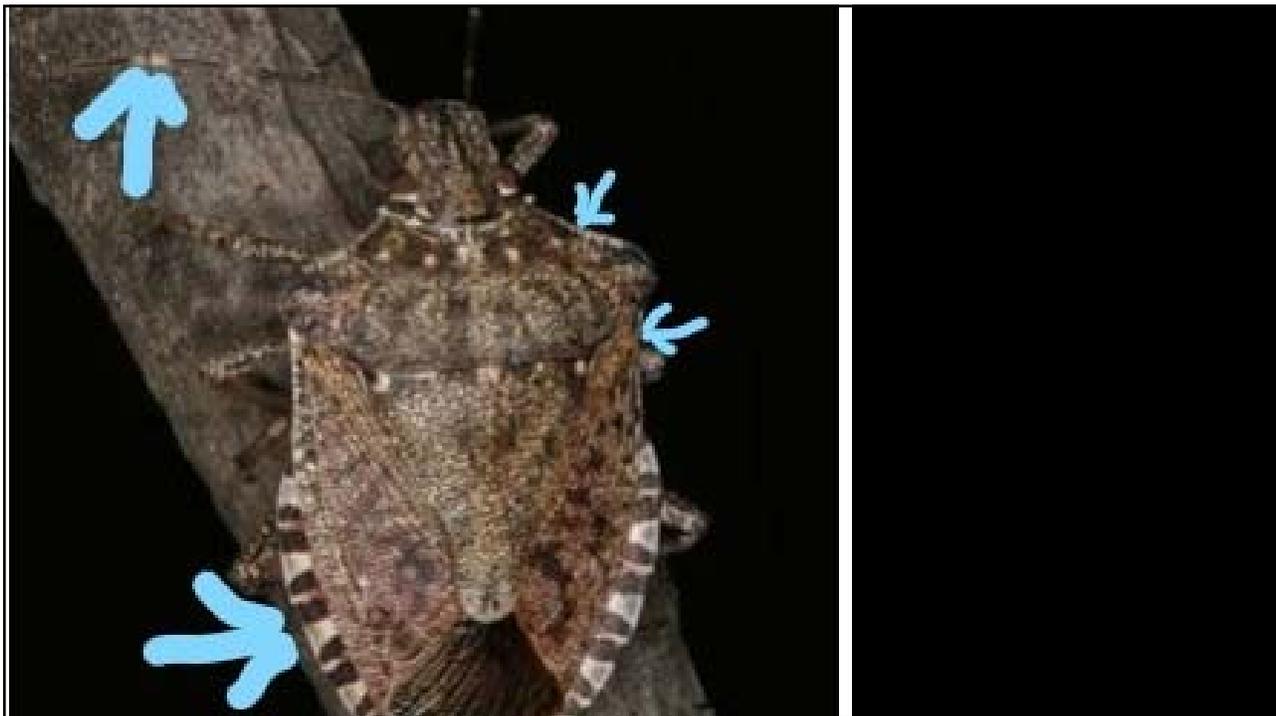
Adults are approximately 17 mm (.66 inch) long and are shades of brown on both the upper and lower body surfaces.

They are “shield shaped like other stink bugs, almost as wide as they are long.

To distinguish them from other stink bugs, look for lighter bands on the antennae and darker bands on the membranous, overlapping part at the rear of the front pair of wings.

They have patches of coppery or bluish-metallic colored punctures (small round depressions) on the head and pronotum.

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EGGS

The eggs are elliptical, light yellow to yellow-red with minute spines forming fine lines.

They are attached, side-by-side, to the underside of leaves in masses of 20 to 30 eggs.



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NYMPHS

There are five nymphal instars (immature stages).

They range in size from the first instar at 2.4 mm to the fifth instar that is 12 mm in length.

The eyes are a deep red.

The abdomen is yellowish red in the first instar and progresses to off-white with reddish spots in the fifth instar.

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Protuberances are found before each of the abdominal scent glands on the dorsal (back) surface.

The legs, head and thorax are black.

Spines are located on the femur, before each eye, and several on the lateral margins of the thorax.

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LIFE CYCLE

This species has a single generation per year, although warm spring and summer conditions may permit the development of two generations.

Adults emerge in the spring (late April to mid-May) and mate and deposit eggs from May through August.

The eggs hatch into small black and red nymphs that go through five molts.

Adults begin to search for overwintering sites starting in September through October.

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AGRICULTURAL DAMAGE

Brown marmorated stink bug feeds on a wide variety of host plants, including a variety of fruits (e.g., apples, stone fruit including peaches and apricots, figs, mulberries, citrus fruits and persimmons), crops (e.g., beans, corn, tomatoes and soybeans) and many ornamental plants and weeds. For a list of high, moderate and low risk crops, see StopBMSB WEBSITE.

<https://www.stopbmsb.org/where-is-bmsb/host-plants/>

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APPLE DAMAGE

Feeding on tree fruits such as apple results in a characteristic distortion referred to as “cat facing” that renders the fruit unmarketable as a fresh product



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BEANS

Feeding in beans and okra may cause scarred, sunken areas and deformed pods.



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PEPPERS

Feeding on fleshy fruit, such as tomatoes and peppers, can produce spongy areas and internal tissue damage.



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TOMATO

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CORN



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HUMAN HEALTH

Brown marmorated stink bugs can produce allergic reactions (rhinitis and/or conjunctivitis) in individuals who are sensitive to the bugs odor (the defensive chemicals can be an aeroallergen).

Individuals sensitive to the odors of cockroaches and lady beetles may be particularly affected by BMSB.

Additionally, if the insects are crushed or smashed against exposed skin, they can produce dermatitis at the point of contact: there has not been much research in this regard, although it appears to affect only a small percentage of the population.

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DAMAGE TO STRUCTURES

The stink bug will not reproduce inside structures or cause damage.

If many of them are crushed or sucked into a vacuum, their smell can be quite apparent.

Mechanical exclusion is the best method to keep stink bugs from entering homes and buildings.

Cracks around windows, doors, siding, utility pipes, behind chimneys, and underneath the wood fascia and other openings should be sealed with good quality silicone or silicone-latex caulk.

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CONTROL

There are controls for brown marmorated stink bugs, both biological and chemical, that can be found on this paper that can be downloaded as a PDF.

<https://academic.oup.com/jipm/article/5/3/A1/2193939>

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