

Host Plants of the Brown Marmorated Stink Bug in the U.S.

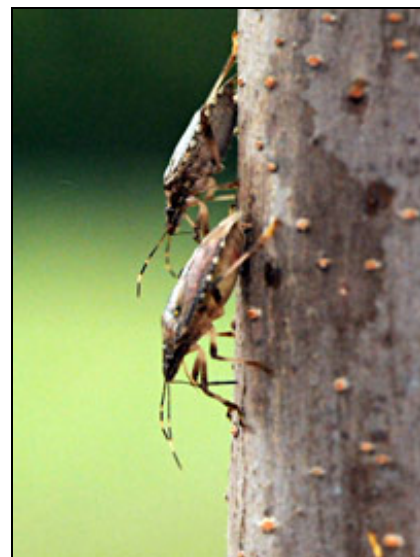
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Since its initial discovery in eastern Pennsylvania in the mid-1990s, the invasive brown marmorated stink bug (BMSB, *Halyomorpha halys* [Heteroptera: Pentatomidae]) has become a conspicuous insect in residential areas and farms in the mid-Atlantic U.S. As part of several ongoing research projects, entomologists have been observing which plants this insect typically uses for food and reproduction in its new environment. BMSB is a tree-loving bug but has a very broad host plant range. We have observed it on hundreds of plant species in Delaware, Maryland, New Jersey, North Carolina, Oregon, Pennsylvania, Virginia, and West Virginia.

In the spring, BMSB adults emerge from overwintering sites and become active during warm sunny days. During this time, adult bugs can be found on virtually any plant that exposes them to the sun. Trees, shrubs, and ornamental plants that are near BMSB overwintering shelters often serve as the best places to observe early bug activity. Tall plants and trees tend to have more bugs on them than plants lower to the ground. As adult bug activity increases throughout the month of May and as mating, egg laying, and nymphal development occurs throughout the summer, BMSB can be found on a wide range of plant species (Table 1). Plants bearing reproductive structures, such as fruiting bodies, buds, and pods, tend to have more bugs than plants without these parts. Furthermore, BMSB prefers certain species of plants more than others, often at particular times during the growing season. These plants, listed in boldface in Table 1, may provide the most suitable habitat and/or nutrition for BMSB. The list of host plants for this bug will undoubtedly grow as the pest spreads to new regions.







*Brown marmorated stink bug adults feeding through the bark of an elm tree (*Ulmus* sp.) (photo: M. Raupp)*

Table 1. Plants hosting BMSB adults and immature stages in the United States. Plant species in bold represent those with the highest densities of bugs in a given habitat.

 <u>Habitat*</u>	 <u>Genus</u>	 <u>Species</u>	 <u>Common Name</u>	 <u>Image</u>
Orn.	<i>Abelia</i>	× <i>grandiflora</i>	glossy abelia	
Agric.	<i>Abelmoschus</i>	<i>esculentus</i>	okra	
Orn.	<i>Acer</i>	<i>buergerianum</i>	trident maple	
Orn.	<i>Acer</i>	<i>circinatum</i>	vine maple	
Orn.	<i>Acer</i>	<i>japonicum</i>	Amur (Japanese Downy) maple	
Orn.	<i>Acer</i>	<i>macrophyllum</i>	bigleaf maple	
Orn.	<i>Acer</i>	× <i>tegmentosum</i>	Manchurian snakebark maple	
Orn.	<i>Acer</i>	<i>griseum</i>	paperbark maple	
Orn.	<i>Acer</i>	<i>negundo</i>	boxelder	
Orn.	<i>Acer</i>	<i>palmatum</i>	Japanese maple	
Orn.	<i>Acer</i>	<i>platanoides</i>	Norway maple	
Orn.	<i>Acer</i>	× <i>freemanii</i>	Freeman maple	
Orn.	<i>Acer</i>	<i>rubrum</i>	red maple	
Orn./Wild	<i>Acer</i>	<i>saccharum</i>	sugar maple	
Orn.	<i>Acer</i>	<i>saccharinum</i>	silver maple	
Orn.	<i>Acer</i>	<i>pensylvanicum</i>	striped maple	
Orn.	<i>Acer</i>	<i>campestre</i>	hedge maple	
Orn.	<i>Aesculus</i>	× <i>carnea</i>	red horse-chestnut	
Orn.	<i>Aesculus</i>	<i>glabra</i>	Ohio buckeye	
Wild	<i>Ailanthus</i>	<i>altissima</i>	tree of heaven	
Agric./Orn.	<i>Amaranthus</i>	<i>caudatus</i>	love-lies-bleeding (amaranth)	
Orn.	<i>Amelanchier</i>	<i>laevis</i> (syn. × <i>grandiflora</i>)	Allegheny (apple) serviceberry	
Agric./Orn.	<i>Antirrhinum</i>	<i>majus</i>	garden snapdragon	
Wild	<i>Arctium</i>	<i>minus</i>	lesser burdock	
Agric.	<i>Armoracia</i>	<i>rusticana</i>	horseradish	
Wild	<i>Asimina</i>	<i>triloba</i>	pawpaw	
Orn.	<i>Baptisia</i>	<i>australis</i>	blue wild indigo	
Agric.	<i>Beta</i>	<i>vulgaris</i> ssp. <i>cicla</i>	Swiss chard	
Orn./Wild	<i>Betula</i>	<i>nigra</i>	river birch	
Orn.	<i>Betula</i>	<i>papyrifera</i>	paper birch	
Orn.	<i>Betula</i>	<i>pendula</i>	European white birch	
Agric.	<i>Brassica</i>	<i>juncea</i>	wild mustard	
Agric.	<i>Brassica</i>	<i>oleracea</i>	cabbage, collards	
Orn.	<i>Buddleja</i>	spp.	butterflybush	
Agric.	<i>Cannabis</i>	<i>sativa</i>	hemp	
Agric.	<i>Capsicum</i>	<i>annuum</i>	cayenne pepper	
Orn.	<i>Caragana</i>	<i>arborescens</i>	Siberian peashrub	
Orn.	<i>Carpinus</i>	<i>betulus</i>	European hornbeam	
Agric./Orn.	<i>Carya</i>	<i>illinoensis</i>	pecan	
Wild	<i>Carya</i>	<i>ovata</i>	shagbark hickory	
Orn.	<i>Catalpa</i>	spp.	catalpa	
Orn.	<i>Celastrus</i>	<i>orbiculatus</i>	Oriental bittersweet	
Orn.	<i>Celosia</i>	spp.	cock's comb	
Orn.	<i>Celtis</i>	<i>koraiensis</i>	Korean hackberry	
Wild	<i>Celtis</i>	<i>occidentalis</i>	common hackberry	
Orn.	<i>Cephalanthus</i>	<i>occidentalis</i>	common buttonbush	
Orn.	<i>Cercidiphyllum</i>	<i>japonicum</i>	katsura tree	

Orn./Wild	Cercis	canadensis	eastern redbud	
Orn.	<i>Cercis</i>	<i>canadensis</i> var. <i>texensis</i>	Texas redbud	
Wild	<i>Chenopodium</i>	<i>berlandieri</i>	pitseed goosefoot	
Orn.	<i>Chionanthus</i>	<i>retusus</i>	Chinese fringetree	
Orn.	<i>Chionanthus</i>	<i>virginicus</i>	white fringetree	
Orn.	<i>Cladrastis</i>	<i>kentukea</i> (syn. <i>lutea</i>)	Kentucky (American) yellowwood	
Orn.	<i>Cornus</i>	<i>macrophylla</i>	(large-leaf) dogwood	
Orn.	<i>Cornus</i>	<i>officinalis</i>	Asiatic (Japanese cornel) dogwood	
Orn.	<i>Cornus</i>	<i>kousa</i>	kousa dogwood	
Orn./Wild	<i>Cornus</i>	<i>florida</i>	flowering dogwood	
Orn.	<i>Cornus</i>	<i>racemosa</i>	gray dogwood	
Orn.	<i>Cornus</i>	<i>sericea</i>	redosier dogwood	
Orn.	<i>Cornus</i>	× <i>Stellar series</i>	dogwood	
Agric.	<i>Corylus</i>	<i>colurna</i>	filbert, hazelnut	
Orn.	<i>Crataegus</i>	<i>laevigata</i>	smooth (English) hawthorn	
Wild	<i>Crataegus</i>	<i>monogyna</i>	oneseed hawthorn	
Orn.	<i>Crataegus</i>	<i>viridis</i>	green hawthorn	
Agric.	<i>Cucumis</i>	<i>sativus</i>	garden cucumber	
Agric.	<i>Cucurbita</i>	<i>pepo</i>	field pumpkin (summer squash)	
Orn.	<i>Diospyros</i>	<i>kaki</i>	Japanese persimmon	
Orn./Wild	<i>Elaeagnus</i>	<i>angustifolia</i>	Russian olive	
Wild	<i>Elaeagnus</i>	<i>umbellata</i>	autumn olive	
Agric.	<i>Ficus</i>	<i>carica</i>	edible fig	
Orn.	<i>Forsythia</i>	<i>suspensa</i>	weeping forsythia	
Wild	<i>Fraxinus</i>	<i>pennsylvanica</i>	green ash	
Wild	<i>Fraxinus</i>	<i>americana</i>	white (American) ash	
Orn.	<i>Ginkgo</i>	<i>biloba</i>	maidenhair tree (ginkgo)	
Orn.	<i>Gleditsia</i>	<i>triacanthos</i> var. <i>inermis</i>	thornless common honeylocust	
Agric.	<i>Glycine</i>	<i>max</i>	soybean	
Orn.	<i>Halesia</i>	<i>tetraptera</i>	mountain (Carolina) silverbell	
Wild	<i>Hamamelis</i>	<i>virginiana</i>	American witchhazel	
Wild	<i>Hamamelis</i>	<i>japonica</i>	invasive witchhazel	
Agric.	<i>Helianthus</i>	spp.	sunflower	
Orn.	<i>Heptacodium</i>	<i>miconioides</i>	seven sons flower	
Orn.	<i>Hibiscus</i>	<i>moscheutos</i>	crimson-eyed rosemallow	
Orn.	<i>Hibiscus</i>	<i>syriacus</i>	rose of Sharon (hibiscus)	
Agric.	<i>Humulus</i>	<i>lupulus</i>	common hop	
Orn.	<i>Ilex</i>	<i>aquifolium</i>	English holly	
Wild	<i>Juglans</i>	<i>nigra</i>	black walnut	
Orn.	<i>Juniperus</i>	<i>virginiana</i>	eastern redcedar	
Orn.	<i>Koelreuteria</i>	<i>paniculata</i>	goldenrain tree	
Orn.	<i>Lagerstroemia</i>	<i>indica</i>	crapemyrtle	
Orn.	<i>Larix</i>	<i>kaempferi</i> (syn. <i>leptolepis</i>)	Japanese larch	
Orn./Wild	<i>Ligustrum</i>	<i>sinense</i>	Chinese privet	
Orn./Wild	<i>Ligustrum</i>	<i>japonicum</i>	Japanese or wax-leaf privet	
Orn.	<i>Liquidambar</i>	<i>styraciflua</i>	sweetgum	
Wild	<i>Liriodendron</i>	<i>tulipifera</i>	tuliptree	
Wild	<i>Lonicera</i>	spp.	honeysuckle	
Wild	<i>Lonicera</i>	<i>tatarica</i>	Tatarian honeysuckle	
Wild	<i>Lythrum</i>	<i>salicaria</i>	purple loosestrife	
Orn.	<i>Magnolia</i>	<i>stellata</i>	star magnolia	
Orn.	<i>Magnolia</i>	<i>grandiflora</i>	southern magnolia	

Wild	<i>Mahonia</i>	<i>aquifolium</i>	hollyleaved barberry (Oregon grape)	
Orn./Agric.	Malus	domestica	apple	
Orn./Wild	Malus	x zumi	crab apple	
Orn./Agric.	Malus	pumila (syn. domestica)	paradise apple	
Orn.	Malus	sargentii	Sargent's crab apple	
Orn.	Malus	baccata	Siberian crab apple	
Orn.	<i>Metasequoia</i>	<i>glyptostroboides</i>	dawn redwood	
Wild	Mimosa	spp.	sensitive plant (mimosa)	
Wild	Morus	alba	white mulberry	
Wild	<i>Musineon</i>	<i>divaricatum</i>	leafy wildparsley	
Orn.	<i>Nyssa</i>	<i>sylvatica</i>	blackgum (tupelo)	
Wild	Paulownia	tomentosa	princesstree (paulownia)	
Orn.	Phalaenopsis	spp.	moth orchid	
Agric.	<i>Phaseolus</i>	spp.	bean	
Wild	<i>Photinia</i> (syn. <i>Aronia</i>)	spp.	chokeberry	
Wild	<i>Phytolacca</i>	<i>americana</i>	American pokeweed	
Orn.	<i>Pistacia</i>	<i>chinensis</i>	Chinese pistache	
Orn.	<i>Platanus</i>	<i>occidentalis</i>	American sycamore	
Agric.	Prunus	armeniaca	apricot	
Agric.	Prunus	persica	peach	
Orn.	Prunus	avium	sweet cherry	
Orn.	Prunus	cerasifera	cherry plum	
Orn./Agric.	Prunus	x incam	cherry	
Orn.	Prunus	incisa	Fuji cherry	
Orn.	Prunus	laurocerasus	cherry laurel	
Wild/Agric.	Prunus	serotina	black cherry	
Orn.	Prunus	serrulata	Japanese flowering cherry	
Orn.	Prunus	subhirtella	winter-flowering (Higan) cherry	
Orn.	<i>Pseudocyonia</i>	<i>sinensis</i>	Chinese-quince	
Orn.	<i>Pyracantha</i>	spp.	firethorn	
Orn.	<i>Pyrus</i>	<i>fauriei</i>	Korean sun pear	
Orn./Agric.	Pyrus	spp.	pear	
Orn.	<i>Pyrus</i>	<i>calleryana</i>	Callery (Bradford) pear	
Orn./Agric.	<i>Pyrus</i>	<i>pyrifolia</i>	Chinese (Asian) pear	
Orn.	<i>Quercus</i>	<i>robur</i>	English oak	
Orn.	<i>Quercus</i>	<i>alba</i>	white oak	
Orn.	<i>Quercus</i>	<i>rubra</i>	northern red oak	
Orn.	<i>Quercus</i>	<i>coccinea</i>	scarlet oak	
Wild	<i>Rhamnus</i>	<i>cathartica</i>	common buckthorn	
Orn./Wild	<i>Rhus</i>	<i>typhina</i>	staghorn sumac	
Wild	<i>Robinia</i>	<i>pseudoacacia</i>	black locust	
Orn.	<i>Rosa</i>	<i>canina</i>	dog (native) rose	
Wild	<i>Rosa</i>	<i>multiflora</i>	multiflora rose	
Orn.	<i>Rosa</i>	<i>rugosa</i>	rugosa rose	
Agric./Wild	<i>Rubus</i>	spp.	raspberry, blackberry	
Agric.	<i>Rubus</i>	<i>phoenicolasius</i>	wine raspberry (wineberry)	
Orn./Wild	<i>Salix</i>	spp.	willow	
Wild	<i>Sassafras</i>	<i>albidum</i>	sassafras	
Agric.	<i>Secale</i>	<i>cereale</i>	cereal rye	
Agric.	Solanum	melongena	eggplant	
Agric.	Solanum	lycopersicum	garden tomato	

Orn.	<i>Sophora</i>	<i>japonica</i>	Japanese pagoda tree	
Orn.	<i>Sorbus</i>	<i>airia</i>	winterbeam	
Wild	<i>Sorbus</i>	<i>americana</i>	American mountain ash	
Orn.	<i>Spiraea</i>	spp.	spirea	
Orn.	<i>Stewartia</i>	<i>pseudocamellia</i>	Japanese stewartia	
Orn.	<i>Stewartia</i>	<i>koreana</i>	Korean stewartia	
Orn.	<i>Styrax</i>	<i>japonicus</i>	Japanese snowbell	
Orn.	<i>Symphytum</i>	spp.	comfrey	
Orn.	<i>Syringa</i>	<i>pekinensis</i>	Peking (Chinese) tree lilac	
Orn.	<i>Tetradium</i> (syn. <i>Euodia</i>)	<i>daniellii</i> (syn. <i>hupehensis</i>)	bee-bee tree (Korean euodia)	
Orn.	<i>Tilia</i>	<i>americana</i>	American basswood	
Orn.	<i>Tilia</i>	<i>tomentosa</i>	silver linden	
Orn.	<i>Tilia</i>	<i>cordata</i>	littleleaf linden	
Wild	<i>Tsuga</i>	<i>canadensis</i>	eastern hemlock	
Orn.	<i>Ulmus</i>	<i>parvifolia</i>	Chinese elm	
Orn.	<i>Ulmus</i>	<i>americana</i>	American elm	
Orn.	<i>Ulmus</i>	<i>procera</i> (syn. <i>minor</i>)	English (smoothleaf) elm	
Agric.	<i>Vaccinium</i>	<i>corymbosum</i>	highbush blueberry	
Orn.	<i>Viburnum</i>	<i>dilatatum</i>	linden arrowwood	
Orn.	<i>Viburnum</i>	<i>prunifolium</i>	viburnum (blackhaw)	
Orn.	<i>Viburnum</i>	× <i>burkwoodii</i>	viburnum	
Agric.	<i>Vitis</i>	<i>vinifera</i>	wine grape	
Wild	<i>Vitis</i>	<i>riparia</i>	riverbank wild grape	
Agric.	<i>Zea</i>	<i>mays</i>	corn	

* Orn. = ornamental/landscape; Agric. = agricultural crop; Wild = wild, woodland