

# NEBRASKA INVASIVE INSECTS FIELD GUIDE



*Helping you  
identify harmful  
species in  
Nebraska.*

*REPORT A SIGHTING!  
[neinvasives.com](http://neinvasives.com)*



# WHAT ARE INVASIVE SPECIES?

Invasive species are plants, animals or pathogens that are non-native to an ecosystem. They cause harm to the economy, environment or human health. They negatively affect native species and ecosystems and interfere with outdoor recreation opportunities.

## WHAT CAN YOU DO? HELP PREVENT THE SPREAD

- ✓ Buy and burn locally sourced firewood
- ✓ Inspect firewood before using it
- ✓ Only use firewood within the same county it was harvested
- ✓ Inspect and clean your boots, waders, bikes and off-road vehicles thoroughly before leaving the area
- ✓ Learn to identify invasive insects using this guide
- ✓ Become aware of federal and local quarantines for invasive insect species
- ✓ Ask your political representatives to support invasive species prevention efforts
- ✓ Report sightings on [NEINVASIVES.COM](http://NEINVASIVES.COM) or by calling a hotline number below:



Nebraska  
Invasive Species  
Program  
**402-472-3133**

Nebraska  
Department of  
Agriculture  
**402-471-2351**

National  
Emerald Ash  
Borer Hotline  
**866-322-4512**

Asian  
Longhorned  
Beetle Hotline  
**866-702-9938**

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*Throughout this guide, each species will be labeled with an orange or blue ribbon, which indicates the species presence in Nebraska:*

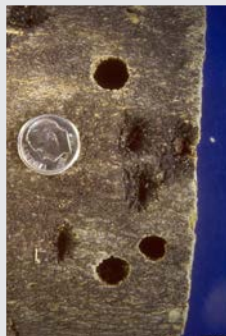
*Orange ribbon:  
the species is present  
in Nebraska.*

PRESENT

*Blue ribbon: The  
species has not been  
found in Nebraska.*

UNKNOWN

## ASIAN LONGHORNED BEETLE



*Photo: Steven Katovich, USDA Forest Service*

*Photos: Vicky Klasmer, Instituto Nacional de Tecnologia Agropecuaria*

# ASIAN LONGHORNED BEETLE

## Federal Quarantine

*Anoplophora glabripennis*

Order: Coleoptera, Family: Cerambycidae

UNKNOWN

**DESCRIPTION** – Also referred to as ALB; longhorned beetle, roundheaded borer. Large beetle is black with white spots and has blueish appearing legs; about 1-1.5 in. long (color pattern is opposite of the cottonwood borer, which is native but looks very similar). Antennae are black with white bands. Beetle has a one year lifecycle (in most places). Larvae are white and may grow to 1.5 – 2 inches long.

**HOST PLANTS** – Prefers maple, willow, elm, horsechestnut and birch, but feeds on 13 different genera of hardwoods.

### PATHWAY OF INTRODUCTION AND SPREAD –

These beetles were introduced into the U.S. in wooden packing material which was sent from Asia. The first reproducing population was found in New York in 1996. The beetles are spread in wood products and on vehicles. Never move firewood out of the county it was harvested in. Educate yourself on ALB Quarantines.

**SYMPTOMS** – Larval galleries under the bark, top dieback and out of season yellowing of leaves. Dime-sized (1/4” or larger), perfectly round exit holes in the tree. Frass and sap may be found at exit holes.

**LOCATION IN NEBRASKA** – No known to occur in Nebraska. The only known infestations in the U.S. are in Ohio, New York and Massachusetts. Populations have been eradicated in Illinois and New Jersey. Visit [asianlonghornbeetle.com](http://asianlonghornbeetle.com).

## BROWN MARMORATED STINK BUG



*Photos: Gary Bernon, USDA-APHIS*

# BROWN MARMORATED STINK BUG

*Halyomorpha halys*

Order: Hemiptera, Family: Pentatomidae

**DESCRIPTION** – Typical of other stink bugs, has a shield shaped body and emits a pungent odor when disturbed. With a mottled brown, 1/2 in. body, it has characteristic alternating dark and light bands across the last two antennal segments that appear as a single white band in both nymphs and adults (the most distinguishing characteristic).

**HOST PLANTS** – Pests of various crops, but in the U.S. it has been primarily reported as a household nuisance and ornamental pest. Has been found feeding in apple orchards, and in Asia, feeds on ornamental plants, weeds, soybeans, apples, peaches, figs, mulberries, citrus fruits, and persimmons.

## **PATHWAY OF INTRODUCTION AND SPREAD** –

Introduced from Asia, has been expanding its range since its U.S. discovery in Allentown, Pennsylvania, in 2001. Spreads by hitchhiking or through commercial sale of infested host plants.

**SYMPTOMS** – Small necrotic spots on fruit and leaf surfaces often result from feeding damage.

**LOCATION IN NEBRASKA** – A single infestation occurred in Nebraska in 2010. No established populations have been confirmed.

## CEREAL LEAF BEETLE



*Photos: Kansas Dept.  
of Agriculture*



*Photo: Pest & Diseases Image Library*



# CEREAL LEAF BEETLE

*Oulema melanopus*

Order: Coleoptera, Family: Chrysomelidae

**DESCRIPTION** – Adults  $\frac{1}{4}$  inch long with brightly colored orange-red thorax, yellow legs and metallic blue head and wing covers. The larva has a light yellow body with brown head and legs. The body is protected by a layer of slimy fecal material which makes them look like a slug.

**HOST PLANTS** – Cereal leaf beetle has a wide host range including barley, oats, wheat, and rye. May also feed on corn, sorghum, or grass weeds including wild oats, quackgrass, reed canary grass, ryegrass, foxtail, orchard grass, wild rye, smooth brome and fescues. In some parts of its range it is controlled by an introduced species of parasitic wasp (*Anaphes flavipes*).

## **PATHWAY OF INTRODUCTION AND SPREAD** –

Imported insect pest from Europe. It was first detected in Michigan in 1962. Spreads through movement of infested agricultural commodities

**SYMPTOMS** – Both adults and larvae of the cereal leaf beetle damage grain crops by feeding on the leaves. Feeding typically occurs on the upper leaf surface and is characterized by elongated slits.

**LOCATION IN NEBRASKA** – No known infestations in Nebraska. Significant populations occur in neighboring states including Iowa and Missouri. Other infestations are in North Dakota, Montana, Utah, North Carolina and Virginia.

## EMERALD ASH BORER



*Photo: Steven Katovich,  
USDA Forest Service*



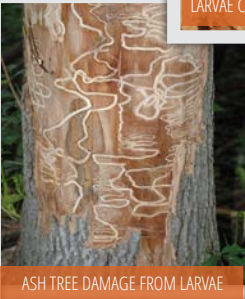
SIZE RELATIVE TO A PAPER CLIP

*Photo: Kenneth R. Law, USDA  
APHIS PPQ*



LARVAE CAUSING TREE DAMAGE

*Photo: Pennsylvania  
Dept. of Conservation  
and Natural  
Resources*



ASH TREE DAMAGE FROM LARVAE

*Photo: Leah Bauer, USDA  
Forest Service*



TINY D SHAPED HOLE MADE BY THE BORER

*Photo: David R. McKay,  
USDA APHIS PPQ*

# EMERALD ASH BORER

## Federal Quarantine

*Agilus planipennis* Ledeb Order: Coleoptera, Family: Buprestidae

**DESCRIPTION** – Also referred to as EAB. Wood boring insect with a one year lifecycle. Metallic green with bronze on the head and under the elytra. About 13 mm long, indented along the elytra. Larvae are milky white with triangular segments.

**HOST PLANTS** – All Ash tree species (*Fraxinus* spp.). The North American white fringetree, *Chionanthus virginicus* L., was recently found to be infested by EAB in Dayton, OH.

## PATHWAY OF INTRODUCTION AND SPREAD

Originally introduced from Asia. First found in Michigan in 2002. Spreads through the movement of ash wood products and on vehicles from infested areas. Female EAB lay eggs on nearby trees (within 100 yards of the tree they emerge from). Females can travel up to 3 miles but the majority travel less than 1 mile. Due to this is not recommended to remove ash trees or treat them until an EAB infestation has been confirmed within 10 miles of your ash tree(s).

**SYMPTOMS** – Top dieback and increased woodpecker damage. 1/8 inch D-shaped borer holes along the trunk. Suckering occurring at the base of the tree. Larval galleries under the bark. It takes between 1-3 years to kill the tree once it is infested.

**LOCATION IN NEBRASKA** – Currently found in 24 states primarily in the northeastern and midwest. EAB is not known to occur in Nebraska, but infestations do occur in the surrounding states of Colorado, Iowa, Kansas and Missouri.



More information can be found at [emeraldashborer.info](http://emeraldashborer.info)

## GYPSY MOTH

FEMALE (WHITE)



MALE (BROWN)

Photo: USDA APHIS  
PPQ Archive



EGG MASSES

Photo: Daniela Lupastean,  
University of Suceava



TREE DAMAGE FROM MOTH LARVAE

Photo: Tim Tigner,  
Virginia Department of  
Forestry



Photo: Jon Yuschock

# GYPHY MOTH

## Federal Quarantine

*Lymantria dispar* Order: Lepidoptera, Family: Lymantriidae

**DESCRIPTION** – Males are dark brown with black “chevron” markings. Females are white with black “chevron” markings. Males have large feathery antennae. Larvae are dark colored and fuzzy with five pairs of blue dots and six pairs of red dots on their back. One year lifecycle.

**HOST PLANTS** – Prefers oak, aspen, willow, apple and crabapple, tamarack, white birch, witch hazel, and mountain ash but are found on over 300 species of trees.

## PATHWAY OF INTRODUCTION AND SPREAD

First introduced from Europe for silk production, and first found in Massachusetts in the late 1800’s. Spreads through the movement of nursery infested stock, movement of firewood, and on vehicles from infested areas.

**SYMPTOMS** – Shot holes in leaves and foliage stripped from trees. Declining trees from many years of damage.

**LOCATION IN NEBRASKA** – Not known to occur in Nebraska. There are infestations in much of the northeast. Infestations also occur in much of the midwest west from Wisconsin and south to North Carolina.



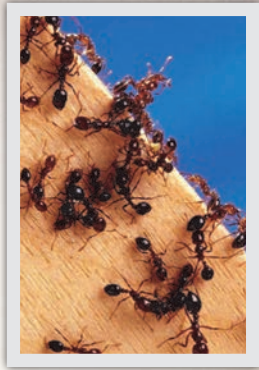
More information can be found at

[www.nda.nebraska.gov/plant/japbeet.html](http://www.nda.nebraska.gov/plant/japbeet.html)

## IMPORTED FIRE ANTS



*Photo: U.S. Geological Survey*



*Photo: Scott Bauer,  
USDA Agricultural  
Research Service*



*Photo: U.S. Geological  
Survey*



*Photo: North Carolina Cooperative Extension*

# IMPORTED FIRE ANTS

## Federal Quarantine

*Solenopsis invicta*, *Solenopsis richteri*

Order: Hymenoptera, Family: Formicidae

UNKNOWN

**DESCRIPTION** – Includes 2 species introduced separately in the U.S. Approximately 1/8 to 1/4 in. long and reddish brown to black in color. Fire ants are probably best distinguished by their aggressive behavior and characteristic large, mound-shaped nests.

**HOSTS** – Fire ants attack newborn domestic animals as well as pets and wildlife. Can also destroy seedling corn, soybeans, and other crops. They feed on buds or fruits of many plants and may remove bands of bark from young citrus trees, often killing them.

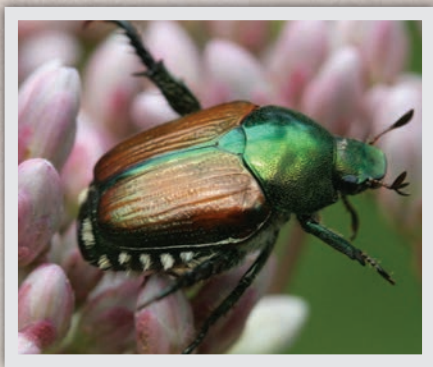
## PATHWAY OF INTRODUCTION AND SPREAD

Both from South America, the black imported fire ant arrived sometime around 1918 and the red imported fire ant, in the late 1930's at the port of Mobile, Alabama—likely in soil used as ballast in cargo ships. Ants travel by hitchhiking in vehicles and in soil, nursery stock, sand, gravel, grass, sod, hay, wood, or soil-moving equipment.

**SYMPTOMS** – Both species are a major public nuisance because of their ferocious sting and aggressive behavior, and also damage several agricultural commodities.

**LOCATION IN NEBRASKA** – No known infestations in Nebraska; found across much of the southern U.S.

## JAPANESE BEETLE



*Photo: David Cappaert, Michigan State University*



*Photo: USDA Agricultural Research Service*



*Photo: David Cappaert, Michigan State University*



# JAPANESE BEETLE

*Popillia japonica*

Order: Coleoptera, Family: Scarabaeidae

**DESCRIPTION** – Scarab beetle, similar to a June beetle/June bug. One year lifecycle. Metallic green head and abdomen with brown elytra. Five white tufts similar to hair along the edges of elytra. About 12 mm long. White grub larvae have gray abdomens and brown heads.

**HOST PLANTS** – Larvae are found feeding on turf roots. Among the plants most commonly damaged are rose, grape, crabapple, and beans, but will feed on over 300 plant species.

## PATHWAY OF INTRODUCTION AND SPREAD

First found in New Jersey in 1916; originally from Japan. Spreads through the movement of infested nursery stock, as hitchhikers on vehicles or in cargo.

**SYMPTOMS** – Skeletonized leaves and defoliation of host plants. Root damage to lawns caused by the larvae.

**LOCATION IN NEBRASKA** – Nebraska is partially infested with confirmed populations in several counties, primarily in eastern Nebraska. Nebraska is on the leading edge of the Japanese beetle front, with most states east of the Missouri river generally infested with the pest.



Visit [www.nda.nebraska.gov/plant/japbeet.html](http://www.nda.nebraska.gov/plant/japbeet.html)

## MOUNTAIN PINE BEETLE



Photos: Whitney Cranshaw, Colorado State University



Pitch Tubes



Blue Stained Tree Stump



Larvae Tree Damage

Photo: Laird Robinson, USDA Forest Service, Bugwood.org

Photo: William M. Ciesla, Forest Health Management International

# MOUNTAIN PINE BEETLE

*Dendroctonus ponderosae*

Order: Coleoptera, Family: Scolytidae

**DESCRIPTION** – Originally called Black Hills or Rocky Mountain Pine beetle. Beetle that feeds on bark; one generation per year. Cylindrical, black adults; the head is obvious from above. About 4-7.5 mm long, indented along the elytra. Larvae are white with a sclerotized head.

**HOST PLANTS** – Mainly lodgepole and ponderosa pine, but attacks many other pine species.

## PATHWAY OF INTRODUCTION AND SPREAD

Native to the forests of North America. Spreads through the movement of firewood or other wood products with bark still on the wood. Rising temperatures and drought have stressed trees, leaving them unable to fight an infestation. Warmer weather also has boosted the beetles' population and greatly expanded their range. Since the 1990s more than 60 million acres of forest from northern New Mexico through British Columbia have suffered die-offs. Female beetles dig galleries under the bark and deposit eggs and blue fungi to feed them. The galleries damage the tree keeping it from being able to uptake nutrients ([www.nmg.National Geographic.com](http://www.nmg.National Geographic.com)).

**SYMPTOMS** – Foliage turns yellow to red through the crown. Sawdust on and around trees at sites of bored holes. Resin, “pitch tubes”, on the trunk from tunneling. Blue stained wood due to the fungus the beetle vectors.

**LOCATION IN NEBRASKA** – Found in northwest counties of Nebraska, especially in the Wildcat Hills and the Pine Ridge areas.

## PINE SHOOT BEETLE



*Photo: Clemson Univ.  
-USDA Coop Slide Series*



*Photo: Lorraine Graney,  
Bartlett Tree Experts*



*Photos: E. Richard Hoebeke, Cornell University*



# PINE SHOOT BEETLE

## Federal Quarantine

*Tomicus piniperda* Order: Coleoptera, Family: Scolytidae

**DESCRIPTION** – Also referred to as PSB, bark or engraver beetle. Adults vary in color between reddish brown and black. About 3-5mm long, cylindrical bodies. Larvae are white with brown heads, up to 5 mm long. One year life cycle.

**HOST PLANTS** – Pines (*Pinus* spp.)

### PATHWAY OF INTRODUCTION AND SPREAD –

First found at a Christmas tree farm in Ohio in 1992; originally from Europe. Spreads through the movement of nursery stock and pine wood products.

**SYMPTOMS** – Wilting on new branch shoots from burrowing adults stunting tree growth. Adults attack stressed trees by breeding under the bark at the base of the tree. Larval feeding galleries occur throughout the trees causing tree stress and death.

**LOCATION IN NEBRASKA** – No known infestations in Nebraska. Currently found in 20 states in northeast and midwest states in the U.S., including nearby states of Iowa, Missouri and Minnesota. Quarantines are in place restricting movement of regulated articles in many of the affected states.



More info online at: [www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/psb/index.shtml](http://www.aphis.usda.gov/plant_health/plant_pest_info/psb/index.shtml)



WASP LARVA INSIDE PINE TREE

*Photo: William M. Ciesla, Forest Health Management International*



*Photo: Vicky Klasmer, Instituto Nacional de  
Tecnología Agropecuaria*

# SIREX WOODWASP

*Sirex noctilio* F.

Order: Hymenoptera, Family: Siricidae

**DESCRIPTION** – Wood boring wasp with a one year life cycle. Dark blue or black abdomen with yellow legs. Males middle segments are orange. About 1-1.5 inches long, large ovipositor on females. Larvae are white and have a spine at the end of their abdomen.

**HOST PLANTS** – Prefers Scotch, Austrian, maritime pines, and many more.

## PATHWAY OF INTRODUCTION AND SPREAD

Originally introduced from Europe, Asia, and N. Africa. First found in Indiana in 2002, established in New York in 2005. Spreads through movement of solid wood packing material.

**SYMPTOMS** – Foliage wilts and changes color to eventually red. Resin beads from egg laying sites. Exit holes that are 1/8-3/8 inch diameter. Females inject a fungus, a toxic mucous, and eggs into trees to provide a good environment for the larvae.

**LOCATION IN NEBRASKA** – Not know to occur in Nebraska. Infestations limited to several northeastern states, west states of Michigan.



Visit [www.dontmovefirewood.org/gallery-of-pests/woodwasp.html](http://www.dontmovefirewood.org/gallery-of-pests/woodwasp.html)

## THOUSAND CANKERS DISEASE



*Photo: Jim LaBonte, Oregon Department of Agriculture.*



SEVERAL BEETLES ON A PENNY

*Photo: Whitney Cranshaw, Colorado State University*



*Photo: Virginia Department of Agriculture and Consumer Services*



*Photo: Whitney Cranshaw, Colorado State University*



# THOUSAND CANKERS DISEASE

**Nebraska State Quarantine**

*Fungus: Juglans nigra*

**DESCRIPTION** – Originally in Colorado as early as 2003, this is a newly recognized disease (2008) of primarily Black walnut (*Juglans nigra*) and caused by a fungus, *Geosmithia morbida*, that is vectored into the tree by the walnut twig beetle (*Pityophthorus juglandis*).

**HOST PLANTS** – Primarily black walnut, but Arizona walnut, English walnut, and California walnut have all shown varying degrees of susceptibility to this fungus.

## PATHWAY OF INTRODUCTION AND SPREAD

Fungus is spread by a native insect. Most likely pathway for movement is raw wood—logs, burls, stumps, firewood, wood packaging material, nursery stock, scion wood for grafting, and natural spread.

**SYMPTOMS** – Fungus kills a localized area in the phloem just under the bark in >2cm wood after introduction. These dead areas often overlap or coalesce from numerous strikes (35 insects per square inch of wood) causing nutrient disruption to foliage and thus leading to branch dieback. Early symptoms are yellowing of leaves and foliage thinning of the upper crown of the tree.

**LOCATION IN NEBRASKA** – Not known to occur in Nebraska. Found in all states west of Nebraska, also in Indiana, Maryland, North Carolina, Ohio, Pennsylvania, Tennessee and Virginia.

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*Published in 2016.*

## PROGRAM PARTNERS

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*The information in this guide was obtained  
from a number of sources, including:*

USDA APHIS

*www.aphis.usda.gov/wps/portal/aphis/ourfocus/planthealth*

CENTER FOR INVASIVE SPECIES AND ECOSYSTEM HEALTH

*invasive.org*

BEETLE BUSTERS

*beetlebusters.info*

NATIONAL INVASIVE SPECIES INFORMATION CENTER

*invasivespeciesinfo.gov*

NATIONAL INVASIVE SPECIES COUNCIL

*invasivespecies.gov*

NEBRASKA DEPARTMENT OF AGRICULTURE

*nda.nebraska.gov/plant/pest\_survey.html*

DON'T MOVE FIREWOOD

*dontmovefirewood.org*

*thousandcankerdisease.com*

STOP THE BEETLE

*stopthebeetle.info*

*For a complete list of Nebraska invasive species, visit*

**NEINVASIVES.COM**

[don'tmovefirewood.org](http://don'tmovefirewood.org)

**BUY IT WHERE  
YOU BURN IT**



**REPORT A  
SIGHTING!**

[neinvasives.com](http://neinvasives.com)

*Contact the Nebraska  
Invasive Species  
Program at:*

402.472.3133  
[invasives@unl.edu](mailto:invasives@unl.edu)

