Japanese Beetle found in North Dakota

For the first time since 2001, Japanese beetles (JB) were captured in North Dakota this year. In late summer, a specimen from Grand Forks was submitted to the NDSU Plant Diagnostic Lab and was confirmed to be JB. That same day, 10 beetles were found in two traps (Image 1) in West Fargo. Within a short time, a local nursery reported that JB were found on plants pulled off of a shipment from a nursery stock supplier.

The North Dakota Department of Agriculture (NDDA) placed an additional 51 traps at nurseries that received nursery stock from the suspected source. The supplier was fully cooperative, increasing the rate of insecticide used in trucks for future shipments, as well as limiting shipments of host material.

When the traps were collected, 139 beetles were recovered from 31 of 131 traps. Beetles were found in Cass, Grand Forks, Dickey, Stark, Ward, Burleigh, and Foster counties. All are believed to have been transported with nursery stock.

Native to Japan, the beetle (Image 2) was first found in the U.S. in 1916. It is now established in nearly every state east of the Mississippi River with localized populations in Minnesota, South Dakota and Montana. Although JB is not a regulated pest, it is a serious pest of ornamental plants. The insects defoliate a broad range of plants, including corn, soybeans, ornamentals, trees, and shrubs especially roses and lindens.

North Dakota will greatly increase its trapping efforts in 2013 with assistance from willing nurseries around the state. More details will be presented at the NDNGA annual conference in January.

When receiving new nursery stock, nurseries should pay close attention to possible hitchhikers, especially on roses and lindens. Nurseries can contact NDDA or NDSU-Extension for suspect JB or for more information.

Spruce Spider Mites

Spruce spider mites (SSM) have been seen around the state for several years, but the dry summer seems to have significantly increased, populations this year.

Adults are small (0.5mm long), dark green-black with salmon colored legs (4 pairs) and spines. SSM are considered one of the most destructive spider mites on conifers in the U.S. and Canada. SSM attack more than 40 species of conifers, including blue spruce, Norway spruce, Black Hills spruce and juniper. Early SSM damage appears as white-yellow stippling or flecking on the needles. Infested trees turn a dusty tan. More extensive
New Pest Alert: Linden Borer

Linden borers (LB) were detected and positively identified in North Dakota for the first time this summer in Grand Forks County. This long-horned beetle attacks linden trees. While the linden borer will attack healthy trees they seem to prefer stressed trees.

LB adults (Image 3) are about 3/4 inch long and appear olive green/yellow-brown due to a dense covering of colored hairs. They also have three black/brown spots on each wing cover. LB are native to northeastern North America.

Symptoms of LB attack include thinning of the tree canopy, small leaves and branch die back. A large tree typically won’t show symptoms until 2-5 years after infestation and will eventually die. Smaller trees (less than 4 in. diameter) can show symptoms the first year and high winds might cause the tree to break off at ground level.

Females lay their eggs in a hole they chew into the bark. When the larvae (Image 4) hatch, they chew their way into the cambium of the tree where they feed and build galleries (Image 5). The life cycle of this beetle is not completely understood, but many researchers believe that they may live up to three years. In the spring, the larvae (up to 1.5” long and creamy white) pupate. Adults begin emerging in late May and can be found through September. The exit hole the adult beetle forms when emerging from the tree is about 1/4 inch in diameter.

If you suspect linden borer in a young linden tree, give it a gentle push on the trunk. Linden borer will usually attack at the base of a tree and the tree will easily crack off. When the NDDA inspector discovered the trees infested with linden borer larva, every tree had a plastic tree guard on its trunk. This appeared to have offered additional protection for the insects. The trees were also suffering from other stressors, making them more vulnerable to the insects.

Top Pests/Problems in 2012:
- Aphids, aphids, and more aphids
- Spruce spider mites
- Bronze birch borer
- Stigmina needle cast
- Cedar-apple rust
- Planting depth issues
- Iron chlorosis

Image 3: Linden Borer Adult; Photo by Pennsylvania Department of Conservation and Natural Resources—Forestry Archive, Bugwood.org

Image 4: Linden Borer Larva. Photo by Charles Elhard, NDDA.

Image 5: Snapped off linden tree with lots of frass and a single larva. Photo by Charles Elhard—NDDA.
damage leads to bronzing of the
needles, needle drop and eventu-
ally to twig dieback, branch die-
back and in extreme situations
tree death.

Since SSM are cool season mites
they are most active in the
spring and fall. To sample for
SSM hold a white piece of paper
below a branch and tap the
branch. Treatment is not neces-
sary unless you find more than
10 mites per tap and no natural
enemies (lady beetles, minute
pirate bugs, lacewings and pre-
dacious mites). Be sure to check
for mites before treating in the
summer as damage may be visi-
ble but the mites may not be ac-
tive.

If mite populations are high,
miticides, insecticidal soaps and
horticultural oils are the best
chemical treatment options. Pro-
moting the presence of preda-
cious insects can be a highly ef-
fective way to control mite pop-
ulations.

Emerald Ash Borer Update

Once again, no Emerald ash borer has been found in North Dakota. The
North Dakota Department of Agriculture, North Dakota Forest Service,
USDA-APHIS-PPQ, and city and park foresters placed 393 purple prism
traps throughout the state through a cooperative agreement and funded by
USDA-APHIS-PPQ. Sites were chosen based on a national sampling proto-
col as well as high risk sites determined by cooperators. Traps were placed
in nearly every county in North Dakota (Figure 1). Plans for the 2013 trap-
ing season will be finalized when USDA-APHIS-PPQ’s budget is ap-
proved. It is likely that trapping will continue. NDDA, NDFS, and NDSU-
Extension responded to several calls from concerned citizens this year, but
none of the site visits turned out to be EAB.

In 2012, there were many new county positives across the country. Sixty-six
counties had their first positive record of EAB, thirty-nine of which were
outside the federal EAB quarantine. In 2012, three states – Kansas, Con-
necticut, and Massachusetts – had positives for the first time. In July, USDA
-APHIS instituted changes to the federal EAB quarantine. Regulated arti-
cles, including nursery stock, firewood, and other host material are now al-
lowed to be moved freely within contiguous quarantine boundaries without
a federal permit.

As part of the 2013 North Dakota Nursery and Greenhouse Association an-
nual convention, NDDA, NDFS and NDSU-Extension will provide a free
training exercise on Sunday, Jan. 27 from 3:00-5:30 pm. This training will
consist of a short teaching portion and a hands-on bark peeling exercise.
Every attendee will receive a EAB detector manual as part of the training.
Space is limited, and pre-registration is recommended to ensure a spot and a
manual is available to you and your staff. Pre-register by contacting Charles
at celhard@nd.gov or 701-239-7295.

Figure 1: NDDA EAB National Survey Map. No EAB were detected.

Figure 2: This map shows the 2012 EAB new county discoveries in red and
all former positive counties in yellow. This map is provided by USDA-
APHIS.
Non-hardy Update:
North Dakota Department of Agriculture nursery inspection staff recorded 1,907 non-hardy violations during early inspections of the 2012 nursery season, the majority of which were at large multistate chain stores. The table below shows the most common nonhardy nursery stock species cited in 2012. The 2013 list has been edited to specify certain nonhardy cultivars of some Prunus spp. (plums and flowering cherry cultivars). The non-hardy list can be found at [www.nd.gov/ndda/program/nursery-program](http://www.nd.gov/ndda/program/nursery-program). Minnesota has released their version of a nonhardy list this year. You can find the Minnesota list at [www.mda.state.mn.us/en/licensing/licensetypes/nurseryprogram.aspx](http://www.mda.state.mn.us/en/licensing/licensetypes/nurseryprogram.aspx). Any input regarding the nonhardy list is greatly appreciated.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Botanical Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese Maple</td>
<td>Acer palmatum</td>
</tr>
<tr>
<td>Redbud</td>
<td>Cercis canadensis</td>
</tr>
<tr>
<td>Flowering Dogwood</td>
<td>Cornus canadensis</td>
</tr>
<tr>
<td>Beech</td>
<td>Fagus species</td>
</tr>
<tr>
<td>Holly</td>
<td>Ilex species</td>
</tr>
<tr>
<td>Dreamcatcher Beautybush</td>
<td>Kolkwitzia amabilis</td>
</tr>
<tr>
<td>Privet</td>
<td>Ligustrum species</td>
</tr>
<tr>
<td>Mutsu, Winesap, &amp; Delicious Apple</td>
<td>Malus domestica cultivars</td>
</tr>
<tr>
<td>Dwarf Alberta Spruce</td>
<td>Picea glauca 'Conica'</td>
</tr>
<tr>
<td>Sweet Cherry</td>
<td>Prunus avium</td>
</tr>
<tr>
<td>Peaches</td>
<td>Prunus persica</td>
</tr>
<tr>
<td>Japanese Flowering Cherry</td>
<td>Prunus x 'Kwanzan' &amp; 'Yoshino'</td>
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<tr>
<td>Callery Pear</td>
<td>Pyrus calleryana</td>
</tr>
<tr>
<td>Ayers, D'Anjou, Kieffer, &amp; Moonglow Pear</td>
<td>Pyrus communis cultivars</td>
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<tr>
<td>Blackberry</td>
<td>Rubus ursinus</td>
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<tr>
<td>Emerald Arborvitae</td>
<td>Thuja occidentalis 'Smaragd'</td>
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<tr>
<td>Green Giant Arborvitae</td>
<td>Thuja plicata 'Green Giant'</td>
</tr>
<tr>
<td>Burkwood Viburnum</td>
<td>Viburnum burkwoodii</td>
</tr>
<tr>
<td>Koreanspice Viburnum</td>
<td>Viburnum carlesii</td>
</tr>
<tr>
<td>Doublefile Viburnum</td>
<td>Viburnum plicatum var. tomentosum</td>
</tr>
</tbody>
</table>

2012 Nursery by the numbers:
- 214 Nurseries licensed
- 131 Japanese beetle traps in ND
- 393 Emerald Ash Borer traps in ND