Community approach to containing a pioneer stand of Amur Cork Tree *Phellodendron amurense*

*Upper Midwest Invasive Species Conference, 10/17/18 – Rochester, MN  Christopher Gaetzke – LCIP Chair*
+ We are a civic non-profit organization that is controlling invasive plants through education and outreach with the use of Civic Governance model

+ LCIP has developed a partnership of governmental, NGO, non-profits, private sector and state CISMAs to increase invasive species awareness and action

+ LCIP covers Chippewa, Dunn, Eau Claire, Pepin and Pierce Counties in West Central Wisconsin
Case study of Amur Cork Tree by local citizens

*Amur Cork Tree* phellodendron amurense (fell-oh-DEN-drawn am-moor-EN-see) from Greek: phellos means cork, dendron means tree, family: Rutaceae Citrus family

- Invasive tree that is expanding by human traffic and birds
- Newly listed in NR40 in 2015 as a prohibited tree
- Found in Adams, Dane, Milwaukee, Dunn and Waukesha counties WI
- Found in 15 states including Midwest states of MN, MI, ILL, MS
- Native Habitat: Northern China, Siberia, Korea (Amur River)
- First discovered in USA in 1856, become a nuisance in the 1933 in NY botanical gardens and now the dominant tree in New York City parks
- Introduced to Dunn County in 1984 by resident that distributed to neighbors
- The oil from the tree has insecticidal properties like pyrethrum
Amur Cork Tree

- Grows up to 8’ a year up to 50 feet
- Invades woodlands, open woods and yards
- Leaves: Pinnately compound 5-13 leaflets
- Grows up to 1.5” in diameter each year
- Female trees can produce seeds at 6-8 years old
- Branches usually low on trunk, droop and grow horizontally forming an open, rounded, spreading canopy if not in dense woodland
- Root system: Shallow and spread out widely
Amur Cork Tree

- Found multiple trees that were 24-32” diameter at the base that were 30-32 years old.
- Densities have been found to range from 250-550 trees/acre.
- Grow faster in pine plantations and prefer moist soils, which all the sites in Dunn Cty have.
Extreme Growth!
6 rings = 8” diameter growth
Amur Cork Tree (Phellodendron amurense) in Dunn County

Amur Cork Tree is a newly listed prohibited invasive species that is quickly being discovered to have already spread into public and private land. Because the species is prohibited, it is required to be removed from all lands affected. There have been several sites already identified both near the south end of Menomonie and south of Downsville. This map shows the areas at immediate risk of the spread of this highly invasive tree so that LGP can help fund the removal.
Amur Cork Tree Trials 2016

Treatments sprayed on April 1, 2016

All treatments were basal bark applied with an 18 inch ban below the first row of branches

Property located 1 mile south of Menomonie, WI

Observations taken on June 24, 2016

<table>
<thead>
<tr>
<th>#</th>
<th>Herbicide</th>
<th>Surfactant used</th>
<th>Flag Color</th>
<th>Effectiveness after 85 days</th>
<th>Herbicide Cost Oz.</th>
<th>Bark Oil Cost Gal.</th>
<th>Total Cost Gal. mixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20% Garlon 4 Ultra</td>
<td>80% Bark Oil EC</td>
<td>Orange</td>
<td>100%</td>
<td>$0.79</td>
<td>$15.60</td>
<td>$32.70</td>
</tr>
<tr>
<td>2</td>
<td>15% Garlon 4 Ultra &amp; 1% Vanquish</td>
<td>84% Bark Oil EC</td>
<td>Orange/Green</td>
<td>50-60%</td>
<td>0.79 &amp; 0.70</td>
<td>$15.60</td>
<td>$29.16</td>
</tr>
<tr>
<td>3</td>
<td>2% Vanquish</td>
<td>98% Bark Oil LT</td>
<td>Green/Pink</td>
<td>Could not find</td>
<td>$0.70</td>
<td>$15.60</td>
<td>$17.09</td>
</tr>
<tr>
<td>4</td>
<td>20% Progeny &amp; 1% Milestone &amp; 1% Arsenal</td>
<td>78% Bark Oil LT</td>
<td>Pink</td>
<td>Could not find</td>
<td>$0.58 &amp; $3.19 &amp; $0.68</td>
<td>$15.60</td>
<td>$31.98</td>
</tr>
<tr>
<td>5</td>
<td>20% Progeny</td>
<td>80% Bark Oil EC</td>
<td>Green</td>
<td>90%</td>
<td>$0.58</td>
<td>$15.60</td>
<td>$27.34</td>
</tr>
<tr>
<td>6</td>
<td>5% Milestone</td>
<td>95% Bark Oil EC</td>
<td>Yellow</td>
<td>100%</td>
<td>$3.19</td>
<td>$15.60</td>
<td>$35.24</td>
</tr>
<tr>
<td>7</td>
<td>2% Arsenal</td>
<td>98% Bark Oil EC</td>
<td>Yellow/Green</td>
<td>100%</td>
<td>$0.68</td>
<td>$15.60</td>
<td>$17.04</td>
</tr>
<tr>
<td>8</td>
<td>20% Progeny &amp; 1% Milestone</td>
<td>79% Bark Oil EC</td>
<td>Pink/Yellow</td>
<td>70%</td>
<td>$0.58 &amp; $3.19</td>
<td>$15.60</td>
<td>$31.27</td>
</tr>
<tr>
<td>9</td>
<td>20% Progeny &amp; 1% Arsenal</td>
<td>79% Bark Oil EC</td>
<td>Orange/Yellow</td>
<td>100%</td>
<td>$0.58 &amp; $0.68</td>
<td>$15.60</td>
<td>$28.06</td>
</tr>
<tr>
<td>Plot</td>
<td>Volunteer Count</td>
<td>Type of control</td>
<td>Equipment Used</td>
<td>Size of Plot (sq feet)</td>
<td>Photo Taken</td>
<td>Start Time</td>
<td>End Time</td>
</tr>
<tr>
<td>------</td>
<td>----------------</td>
<td>----------------</td>
<td>----------------</td>
<td>-----------------------</td>
<td>-------------</td>
<td>------------</td>
<td>----------</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>Cut Stump or Hand Pull</td>
<td>Loppers &amp; Gloves</td>
<td>52' x 52', 6.25% of an Acre</td>
<td>9:40</td>
<td>10:30</td>
<td>20% Garnet A Ultra &amp; 80% Bark Oil LT</td>
</tr>
</tbody>
</table>

Feedback: Was not sure on exact times

List Trees: White Oak, Sugar Maple, Black Cherry (Mixed Hardwoods)

List Shrubs: Elderberry and Pudgy Ash

List Groundcover: Wood Nettle

<table>
<thead>
<tr>
<th>#</th>
<th>0-1&quot;</th>
<th>1-2&quot;</th>
<th>2-4&quot;</th>
<th>4-8&quot;</th>
<th>8-12&quot;</th>
<th>12&quot;+</th>
<th>Growth Rings at Base</th>
<th>Control Method</th>
<th>Used (Cut, Pull)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL: 22
12
0
0
0
0

Grand Total: 34 Trees/Acre
544
Received 2 Wisconsin DNR grants for Rapid Response

- LCIP applied for an initial rapid response grant and received it for a sum of $8,427 in early 2016
- When funds were about to be used up LCIP applied again and received $11,140 in late 2016 will be used by December 2018
- The grants have been used to pay 70-90% of the landowner cost for removal and treatment of ACT, mainly large female and small trees 5” DBH or less before becoming reproductive
- Three local arborists have been hired to take down the large females that threatened infrastructure
- Hired local high school and university students to cut and treat small ACT
Letters sent to 2,700 landowners over two mailings

December 2017

Dear Landowner,

You may have read or heard about the invasion of WDNR prohibited Amur Cork Tree (ACT) invasive species in our county. It probably seems hard to consider a tree a problematic "invader" but unfortunately this one is. It can grow seven feet a year outcompeting other trees and shrubs for sun, moisture and other nutrients. And competitive it is; the seeds from the female ACT can produce at such a prolific level that they will even out-compete buckthorn. For those of you who have battled buckthorn, you’ll recognize this as a meaningful threat to your woodland, yard or neighborhood.

We have reason to believe you either have ACT on your property or near your land. We’d like to help you identify this problematic vegetation. If you do have ACT, we can help you control it and recommend alternative native trees or shrubs that will be friendlier to your landscape and increase the biodiversity of our county.

The good news is we (LCIP) have a received two grants to help control the female ACT and the ACT saplings that cannot be identified by gender. Our WDNR second grant for ACT control runs out the end of this coming June so we need to take advantage of this within the next few months. Given the proximity of many of the ACT to native oak trees we need to do any necessary cutting before the oak will thrive begins in April.

It is to your benefit to take advantage of this opportunity. As ACT is a prohibited tree in our part of Wisconsin according to Wisconsin rule NR40. That means the landowner is responsible for eradicating the female ACT. We want to help you with that eradication. Please give us a call at 715-231-6540 or email us at lcipvastreo@gmail.com. We’ll be glad to discuss your situation and help control this plant before it becomes impossible to stop in our area. You can join the community fight against this invasive tree that already engaged twenty-two landowners. For more information, please check out our website at http://lcipvastreo.org.

Sincerely,

Chris Gaetano, LCIP Chair

Mary Gale, LCIP Vice Chair

---

AMUR CORK TREE (Phellodendron amurense)

**Ecological Threat**

- Suppressor and displacer native plant populations
- Adaptable to many soil types, but preferring moist, well-drained soil
- Grows in both full sun and medium shade
- Reproduces by both seed and by resprouting from stumps
- Attack soil erosion problems and surrounding vegetation
- Planted throughout the United States, tolerant of urban areas

**Identification**

- Height and form: 30-45’ tall, short trunk and broad branches
- Leaves & stems: Older trunks have distinct thin corky or sponge-like bark, and the bark becomes thicker and more bark-like as the tree ages. New leaves are red to dark green, turning yellow in fall. Can resprout from stumps.
- Flowers: Both male and female flowers are greenish-yellow, inconspicuous in size and found in clusters, inconspicuous.
- Fruit & seeds: Fruits are all-season, producing fruit only on female plants. Fruits are dry (red-black), oval-shaped, brown, in color from brown to late summer, turning black in fall. Fruits remain on tree into winter and may be dispersed by birds.

**Control**

- Chemical: Herbicide is applied directly to the trunk of the tree. Contact LCIP for the best product.
- Mechanical: Trees can be removed manually or with mechanical equipment such as a motorized stump grinder, chainsaw, or backhoe. It is important to avoid damage to surrounding vegetation. Use caution when using mechanical equipment near other vegetation.

**Contact**

- USDA-NRCS LCIP and WDNR Forest Invasive Species Program: 715-962-4910
- Wisconsin Department of Natural Resources: 715-231-6540
- LCIP: 715-231-6540

---

Wisconsin
What approach did we take to get the community involved?

- LCIP used the Civic Governance approach to reaching out to citizens that we thought could be effected by this invasive tree.
- We gathered the resources we had and studies we learned from to be able to talk to landowners one on one about the nature and how to control the tree.
- We attended neighborhood gatherings and talked to key, connected landowners that could engage many other landowners through their relationships with citizens that we couldn’t reach on our own.
- Some LCIP members went door to door discussing the need for control of the tree.
- The project has been ever expanding through Menomonie and into the rural areas of about 2 miles from the known epicenter of the tree and actively control it before it completely alters the forests forever.
- LCIP now has had people engage through using the grant to hire contractors, students, controlling on their own, telling their neighbors and getting the word out that as a community we can work together to slow this tree from escaping into more forested property and city lots.
Removal
Alternative Uses for ACT
Getting the News to Citizens

Volunteers root out invasive species

Tree threatening ecosystem in areas of Dunn County
posted: August 19, 2016 12:00a CST
by Pamela Powers  big | email

MENOMONEE — The battle against an invasive species in Dunn County started Thursday as volunteers eradicated some Amur cork tree on property near Menomonie.

The invasive tree, listed as such in 2015, so far is located largely in two areas in Dunn County.

Volunteers with the nonprofit Lower Chippewa Invasive Partnership based in Menomonie were cataloging and removing Amur cork trees found on Mary Salke’s property on 550th Street south of Menomonie. The other property is south of Menomonie near Highway Y.

The fast-growing Amur cork tree takes over the wooded canopy, crowding out other tree species, said Chris Gaetze, chairman of the Lower Chippewa Invasive Partnership.

Amur cork trees were introduced to the area about 32 years ago as a fast growing ornamental tree from Asia.

The tree is fairly easy to spot because of its thick, cork-like, spongy bark when mature. It also has a bright yellow inner bark, Gaetze said.

“We are trying to stop the plant before we have our next buckthorn,” Gaetze said. “The Amur cork tree tends to grow up to 6 feet in height a year.”

Amur cork trees grow in both shaded and sunny lots.

Birds eat the berries from female trees and then help spread the seed.

Volunteer Jim Anderson of Menomonie came out to help Thursday.

“We want to get the battle early,” he said. “It’s important for us to identify and control this species.”

Letters have been sent to 1,200 landowners, encouraging them to be on the lookout and eradicate the invasive species, Anderson said.

WQOW TV News interviews
Dunn County News, EC Leader Telegram articles
Facebook and Website postings

Amur Cork Tree

Ecological Threat

Amur cork trees thrive in areas with high 
infestations of trees with high ground cover. Barks are extremely sensitive to damage and will result in new growth at the site of damage. Barks are also highly invasive and may cause damage to other plants. Barks are also able to spread through root理发 and new growth at the site of damage.

Potential Solutions

Weeds and trees are controlled with herbicides.

Eco-friendly methods include using mycorrhizal fungi to help control the growth of Amur cork trees.

Types of Invasive Plants

- Amur cork tree
- European buckthorn
- Japanese barberry

The proposed solution is to use a combination of weed and tree control methods, including herbicides and other eco-friendly methods.
What’s Next?

- Perform aerial survey with WDNR staff to see additional populations
- Look into additional grants from USFS or WDNR
- Engage key landowners to expand their networks
- Find more alternative uses for the wood
- Support local businesses through project
- Engage local governments to control
For more information contact us at:

Chris Gaetzke    Mame Gale
Chair           Vice Chair
715-231-6540    715-235-8168

cgaetzke@co.dunn.wi.us    galemame@gmail.com

OR

lcinvasives@gmail.com
lcinvasives.org
facebook.com/LCIP2011/