



# Japanese Hops Control Efforts in the Driftless

Matt Wallrath – Invasive Species Project Coordinator

Upper Sugar River Watershed Association

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**Session 7:** Lake and River Science  
Friday 1:30-2:30 pm on 4/2/2020



**Thanks to:**  
**Pam Saunders**  
**Tom Lukens**

May 4, 2015  
Capstone Project  
Wisconsin Master Naturalist Program

[tom@valleystewardshipnetwork.org](mailto:tom@valleystewardshipnetwork.org)



**And:**  
**Abbie Lehman**  
**Nick Flinner**

Summer 2011  
Research Project  
UW-Platteville geography students

<http://platteriverfriends.blogspot.com/>



**For the permission on using their research!**





Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

**Kingdom:** Plantae

**Phylum:** Magnoliophyta

**Class:** Magnoliopsida

**Subclass:** Hamamelidae

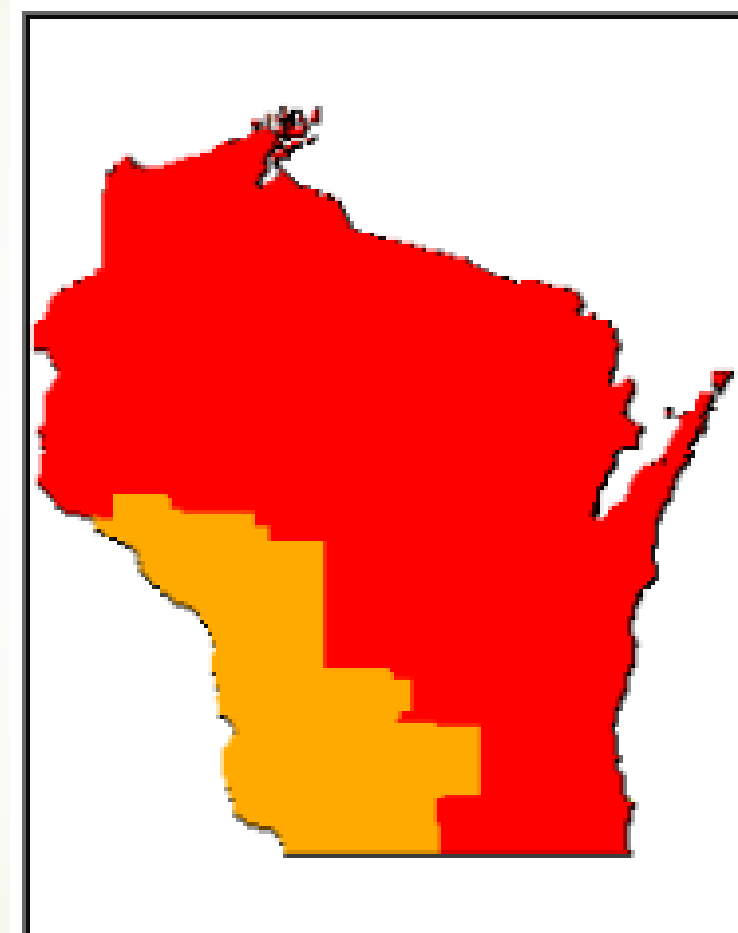
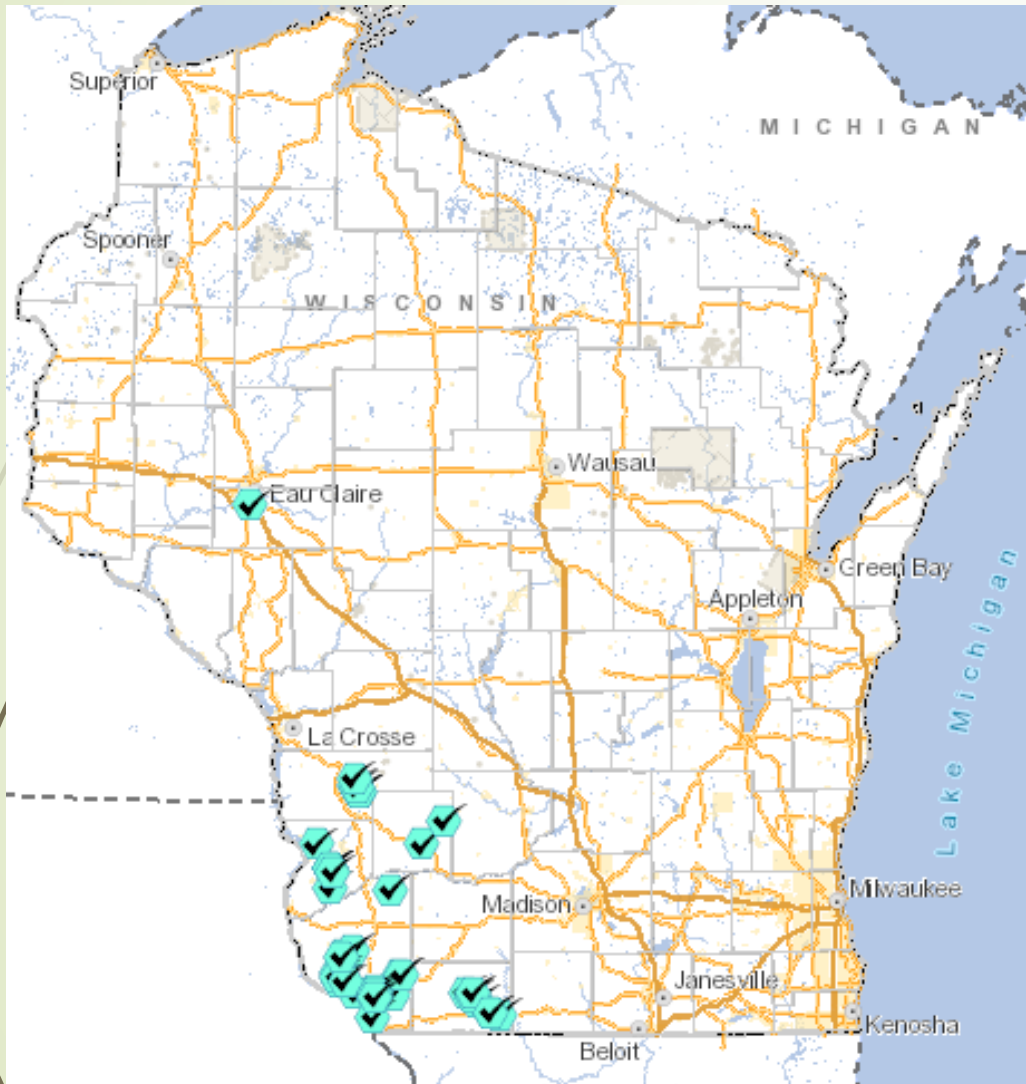
**Order:** Urticales

**Family:** Cannabaceae

**Genus:** Humulus

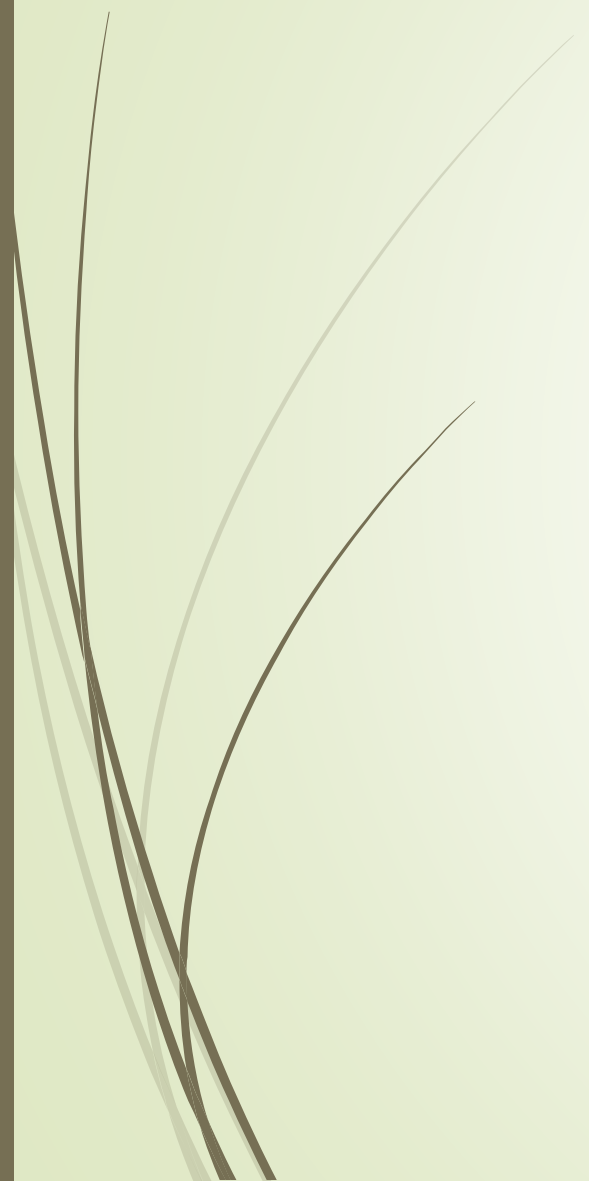
**Species:** japonicus

# Distribution in Wisconsin and NR 40 legal status



Japanese hops is Prohibited (Red counties) and Restricted (Orange counties)





Matthew Wallrath – Upper Sugar River Watershed Association - 2019

## *Humulus japonicus* (Japanese Hops)

- Exotic invasive plant introduced from Asia in 1800's
- Introduced for ornamental / medicinal purposes
- 5-9 lobed alternate palmate leaves, about 2 to 5 inches long
- Climbing or trailing vine growth habit
- Lacks tendrils, vine is covered with downward hooked spinulose hairs (very irritating to skin)





# *Humulus japonicus* climbing on infrastructure



Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

**UGA5272030**

## *Humulus japonicus* (Japanese Hops)



- Very lush and green in appearance
- Flowers in mid-summer and continues to flower and fruit into early autumn
- Plant dies upon first frost (annual OR weak perennial? Tom thinks he sees surviving roots...)
- Highly invasive due to its lack of natural enemies and aggressive growth habits
- SORRY! Not suitable for brewing - female cones lack lupulin





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**UGA5272027**

## *Humulus japonicus* (Japanese Hops)



- Seed remains viable for at least 3 years in soil
- Seeds small (~4mm)
- Seed can float!
- Vines can reach lengths of 10-30 feet
- Thrives in full sunlight riparian areas
- Difficult to control with mechanical methods
- Very aggressive and can grow 1 foot or more a day







May, 2014 at Nature's Nook showing Japanese Hops has outcompeted other vegetation



# Advice from Pam and Tom:



## **Cultural Control:**

- Plant tall, fast growing trees with early crown closure
- Use tree shelters to help protect the planted tree and exclude hops
- Early identification of hops and good site preparation are key for riparian plantings



Shade is the answer,  
when possible.





# Advice from Pam and Tom:



## **Mechanical Control:**

- Time consuming and difficult, tough on the hands
- Plants re-sprout vigorously if not fully removed
- Hand pulling is a good method for homeowners with small populations of the plant, and parks with many volunteers
- Tarping areas effective, but 3 years of seed to deal with!
- Even goats don't like it, but browsing can open up access for spray





Goats on June 24, 2014 – Reduced other vegetation, allowing targeted spraying. Resulted in less herbicide use.

# Advice from Pam and Tom:



## Chemical Control:

- Aqua Sweep: broad leaf specific and does not kill grasses
- Rates: 4 oz. per gallon OR 12 oz. per 3 gallon with a backpack sprayer works well
- Lowest label rates do not work
- Add 1 oz of MSO per backpack to increase cover
- Include an herbicide dye to avoid retreating areas and help make sure coverage is complete



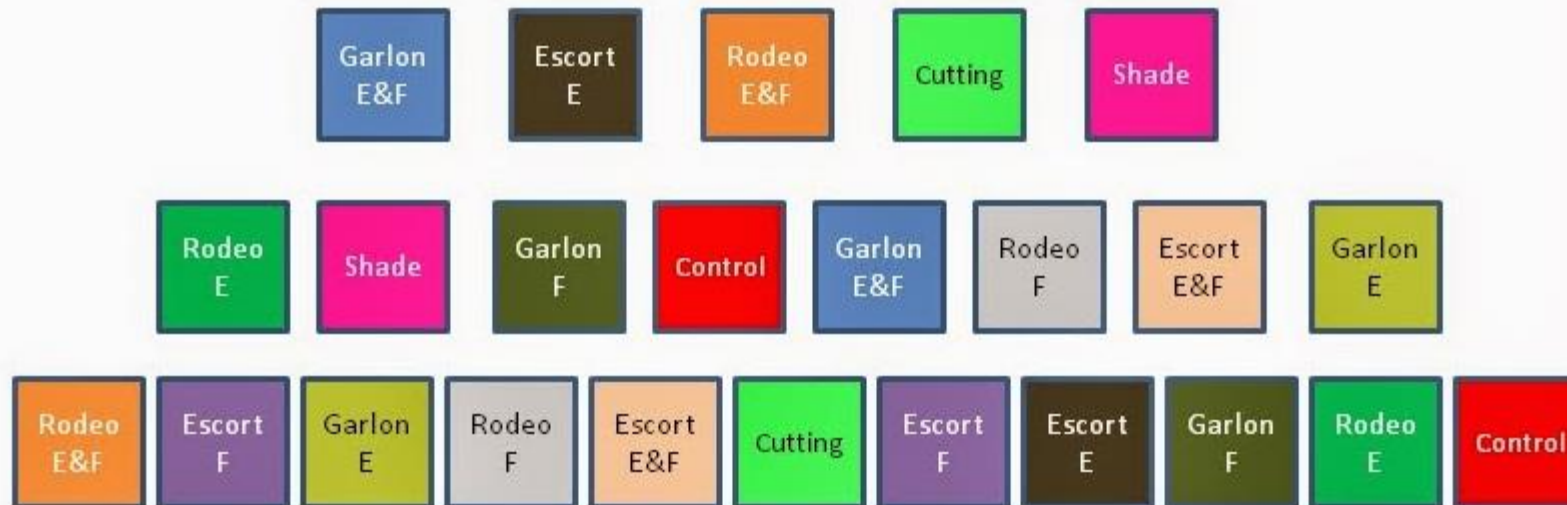
# 2011 Japanese Hops Test Plots

## Friends of the Platte River

Clay Hollow Rd

### Abbie Lehman and Nick Flinner

Summer 2011 Research Project  
UW-Platteville geography students



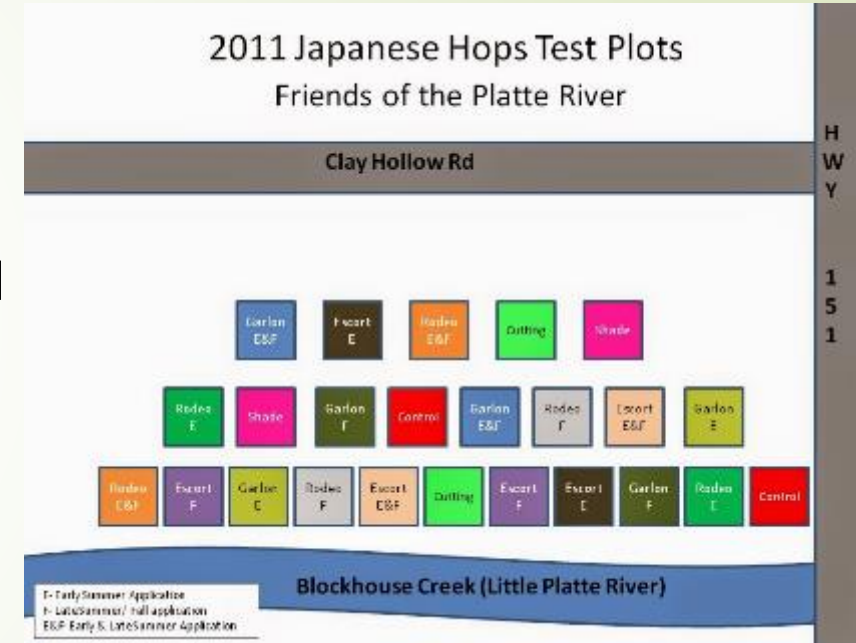
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Blockhouse Creek (Little Platte River)

E- Early Summer Application  
F- LateSummer/ Fall application  
E&F- Early & LateSummer Application

# Mechanical control:

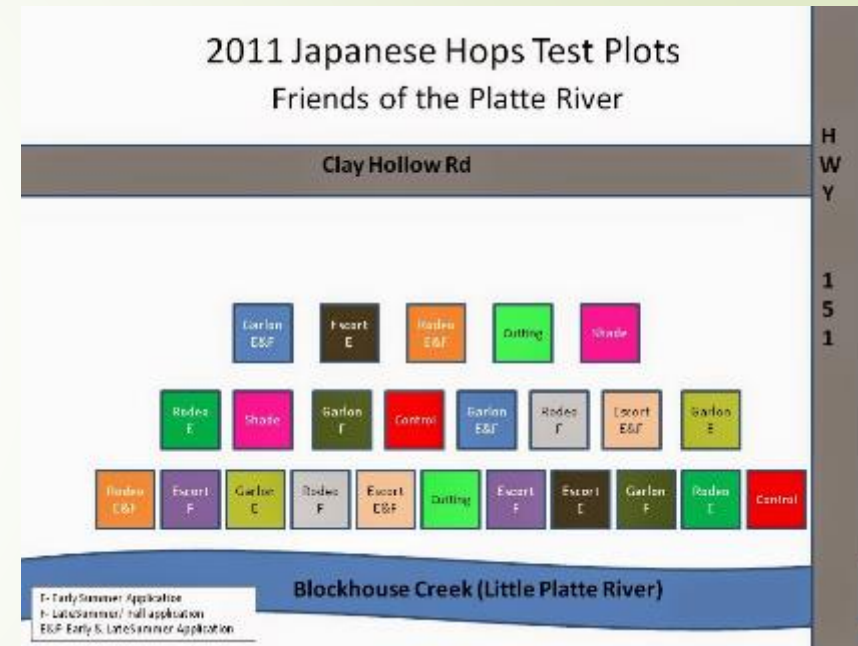
- Cutting- Using a weed eater, this method was shown to be ineffective because it only took a few days for the hops to grow back to a size that was comparable to the control.
- Hand Pulling- Ineffective, labor-intensive, and time consuming as proven by the River Spirit Exchange where ~40 people were pulling hops for 2 hours and a month later it had grown back. Suggested for land owners who have a small infestation and have the ambition to hand-pull when the plant is identified.
- Tarp- Effectively killed the hops. Seed bank is not affected. This method would have to be repeated annually until the seed bank is used up (3+ years).





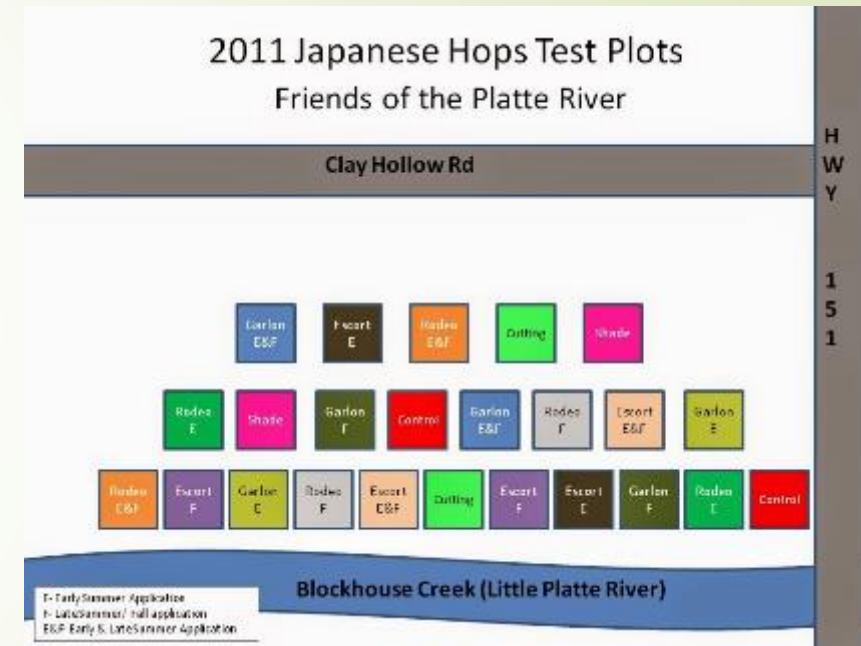
# Chemical control: Garlon 3A

- Early Summer- Killed 100% of the hops, but by the end of the summer reed canary grass started to grow.
- Early & Late Summer- The early application caused 100% kill. No need to re-apply. By the end of the summer, reed canary grass started to grow.
- Late Summer- Killed 100% of the hops, by the end of the summer nothing had started to grow.



# Chemical control: Escort

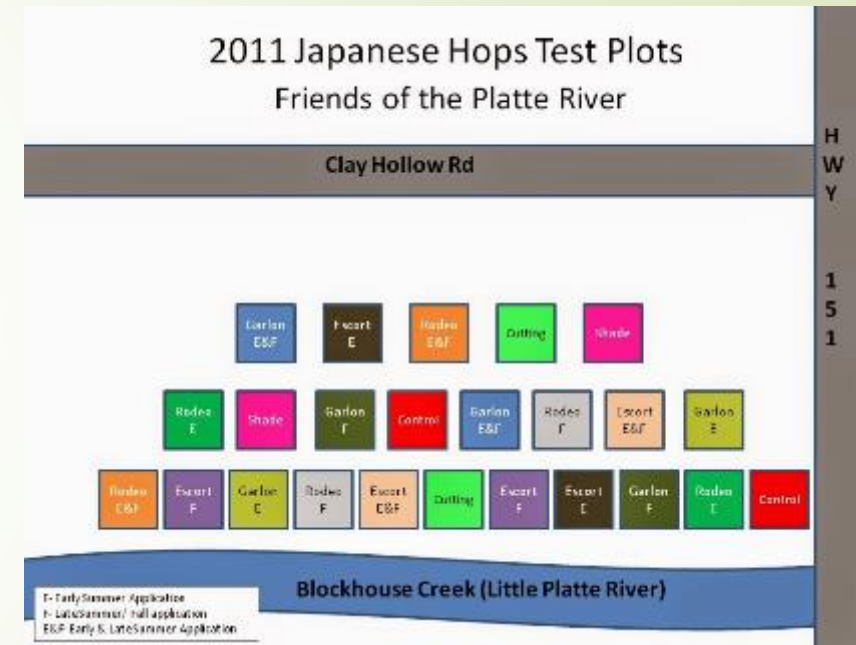
- Early Summer- Caused 100% kill, by the end of the summer there was still no vegetation trying to reestablish a population.
- Early & Late Summer- Spot treated a few Japanese hop plants that were starting to emerge. 100% kill with no regrowth by the end of the summer.
- Late Summer- Did not kill all of the Japanese hops. ~70% kill. Most of the plants were wilted, yellow and on the ground. These plants were too ill to produce seeds, thus, still an effective time and method.





# Chemical control: Rodeo

- Early Summer- Killed 100% of the Japanese hops but new hops started to grow. A few blades of reed canary grass were also evident.
- Early & Late Summer – Killed 100% of the Japanese hops, by the end of the summer reed canary grass was starting to grow.
- Late Summer- 100% kill. No regrowth.



# Conclusions:

## ➤ Cultural Control:

- Early detection is key
- Shade it out if possible

## ➤ Mechanical control:

- Hand pull small populations
- Tarping does work with repeat cover
- Goats don't like it but can aid access in overgrown sites

## ➤ Chemical Control:

- Aqua Sweep, Garlon 3A, Escort, Rodeo, all work with spring spray and follow up summer spot application.
- Late summer only works if you get it before it seeds out





Thank you  
and  
stay vigilant...



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## Lab- and Field-based Determination of 2,4-D Degradation Rates

Presenter: Amber White, Graduate Researcher, Environmental Chemistry & Technology, University of Wisconsin-Madison

## Effects of Subchronic Exposure of 2,4-D on Developmental States of Freshwater Game Fish

Presenter: Gavin Dehnert, Graduate Researcher, Integrative Biology, University of Wisconsin-Madison

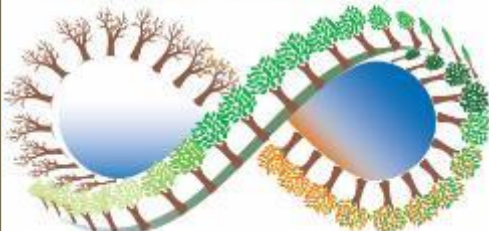
## Japanese Hops Control Efforts in the Driftless Area

Presenter: Matthew Wallrath, Invasive Species Project Coordinator, Upper Sugar River Watershed Association

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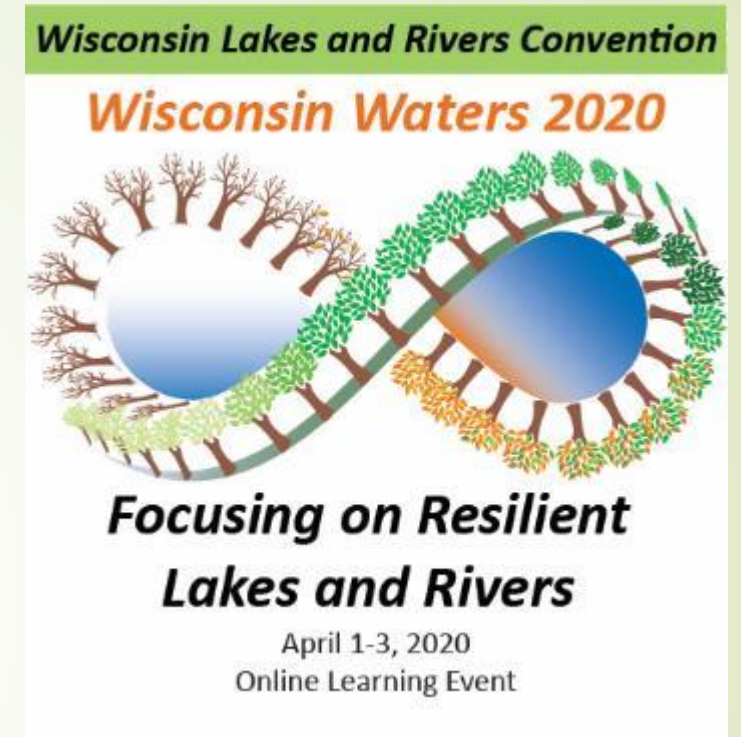




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Wisconsin Lakes and Rivers Convention  
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virtual Lakes and Rivers Convention!



*From your family at the Wisconsin Lakes Partnership...*



Stay safe and thank you for all that you do to protect and  
restore Wisconsin's lakes and rivers.