## Species Highlight: Eastern Hemlock (*Tsuga canadensis*)

**Eddie Johnson**

*Photo credit: MinnesotaWildflowers.info*

Eastern Hemlock is one of the rarest native trees in Minnesota and is present within Pine County in very limited locations. It is so rare it is listed as a state endangered species. Eastern Hemlock is a conifer species, meaning it has needles year-round. The needles are green in color and are one of the softest needles of all conifers. They are typically no longer than ¾ inch. The needle itself is flat and usually has a white underside. The seeds, or cone, on Eastern Hemlock are also quite small, ranging from ½ to 1 inch in length. The bark is usually gray to brown when the tree is older, and it can have many ridges and flat areas between the ridges. The trunk of an Eastern Hemlock can reach up to 5 feet in diameter. Eastern Hemlock can grow to the impressive height of 100 feet tall or more.

Eastern Hemlock's habitat can range from full shade all the way to a full sun environment. The soil it prefers is usually well-drained, but it can also be moist for short periods. It grows in mixed forests, on rock outcrops, and on any type of slope.

The Eastern Hemlock does not tolerate heat, drought, or urban conditions very well. They do best mixed with other trees that provide protection for them, keeping the soil cooler, the surrounding air cooler, and the trees sheltered from winter winds to avoid winter burn.

There are a few diseases that Eastern Hemlock can get which includes hemlock scale, bagworm, and woolly adelgid. Hemlock scale is an insect that is armored and feeds on hemlock. Bagworm is a caterpillar that damages conifers and deciduous trees. Woolly adelgid is a non-native insect that also feeds on hemlock trees. If your hemlock has this disease, the undersides of the needles will have little white ball-shaped pods everywhere. As of right now, these diseases are not known to be present in Pine County. They are found more in the eastern U.S.

Due to this species being native, it is possible to grow Eastern Hemlock on your property if you choose. They provide great habitat for many wildlife species like cover from snow and sunlight and offer hiding opportunities. The best way to plant an Eastern Hemlock is to make sure the soil is moist, well-drained and fertile. Eastern Hemlock likes acidic soil the best. The trees should be able to get partial to full sunlight. The best time to plant is in the spring to allow the tree to root out. It is best to water frequently without creating soggy soil.

Eastern Hemlock is a slow growing species and requires minimal pruning.

Check Us Out Online

Pineswcd.com

And Follow Us on Facebook!


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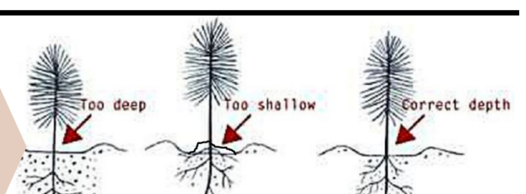
## Seedling Care Guide

- Keep roots moist until time of planting
- Pre-determine placement and spacing
- Remove any leaf litter, grasses or plants that may inhibit the tree's growth




- The depth of the hole should be equivalent to the length of the roots.
  - If the roots are longer than the above-ground portion of the tree, they can be trimmed. Do not plant long roots in a shallow hole
- **The first root should be within the top 1" of soil**

WATER
daily for 1-2 weeks
every 2-3 days for 12 weeks
weekly until tree is established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# The Pine SWCD Newsletter

Pine County Soil & Water Conservation District


Volume 33 Issue 1 Spring 2024


## Pine County Farmers, Randy and Pam Hinze, Named Minnesota State Outstanding Conservationist of the Year

**- Heather Donoho**

The Minnesota Association of Soil and Water Conservation Districts(MASWCD) partners with The Farmer magazine to honor an Outstanding Conservationist annually since 2001. Pine SWCD is pleased to announce that the 2023 Minnesota State Outstanding Conservationists of the Year are Randy and Pam Hinze, of Hinze Farms, in Pine City.

Every Soil and Water Conservation District in the state can nominate a landowner for this award; each district's nominee is then eligible to win their area. Pine County is in MASWCD's North East Area 3, which consists of 9 districts Pine, Kanabec, Mille Lacs, Aitkin, Carlton, South St. Louis, North St. Louis, Lake, and Cook. As the Area 3 winner, Randy competed at the state level against all 8 area finalists. At MASWCD's 2023 Annual Convention on December 13th, it was announced that Randy and Pam Hinze had won the 2023 State Outstanding Conservationist award.

This award highlights conservationists who are not only practicing conservation but are also leaders in their community and reliable partners to the SWCD. Randy was a prime candidate to win state because he practices a multi-level approach to conservation, mentors other farmers, and has worked extensively with the SWCD to practice and promote conservation. According to Randy, "as long as you keep it clean here and it ends up in the lake fairly clean. That's what it's all about."


Randy and Pam Hinze with Pine SWCD Supervisors Doug Odegard and Mike Cummins

Inside this issue:




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## The 2024 Annual Tree Sale

Our 2024 Tree Sale is well under way! We have had many orders come in, but we still have trees available to purchase! Please contact one of our foresters, contact information to the left, or check out our website to see an updated availability list.

## Locally Spawned Walleye for the First Time in 30 Years - Hinckley Area Fisheries Office

"BY TRANSITIONING TO LOCAL EGG TAKES … WE MAY BE ABLE TO PROVIDE WALLEYE FRY OR FINGERLINGS THAT WILL BE BETTER ADAPTED TO LOCAL WATERSHED CONDITIONS"

In late April, Hinckley area fisheries staff collected spawning walleye from the Knife River north of Mora. These fish, caught by trap nets and electrofishing, were then stripped of eggs and milt to create fertilized eggs for rearing in the hatchery at St. Paul. The hatched walleye fry were stocked in several lakes in the Hinckley area.

Walleye spawning is not a new activity for the Hinckley area. In the late 1980s and early 1990s eggs were taken from the Knife River and the Ann River; these fish helped to repopulate Knife Lake with walleye after reclamation in 1989 and created a self-sustaining walleye population. These spawning operations ended due to the ability of other areas across the state to provide walleye egg needs more efficiently.

DNR Area Fisheries staff harvesting walleye eggs

Recent genetic research suggests that stocked walleye do better in lakes when the egg source is from a similar watershed or genetic strain. DNR stocking guidelines now specify the strains that may be stocked in certain areas of the state. Most of the Hinckley management area is currently classified as "any strain", meaning that walleye fry or fingerlings can come from any watershed source. In many lakes that have limited or no natural reproduction of walleye, this is not a big issue. But for lakes that had historical spawning runs, the genetic mix may have been detrimental to the vitality of walleye populations.

In the past few years research has identified a strain of walleye unique to the Lower Mississippi watershed, which includes the St. Croix watershed. The walleye in Ann Lake and Knife Lake are closely associated with this strain. Even in lakes like Cross and Pokegama, which are stocked with walleye fingerlings from various sources, about half of the walleye genetic samples taken recently were associated with the Lower Mississippi strain. That means a lot of the fish that thrive aren't a result of fingerling stocking but are from natural reproduction of the native genetic strain of walleye in these waterbodies.

What does that mean for walleye management in the Hinckley area? By transitioning to local egg takes for part of our stocking needs, we may be able to provide walleye fry or fingerlings that will be better adapted to local watershed conditions, at a lower cost. Of course, we will still rely on other sources for some of our stocking, but we hope this experimental run will provide some insight for the future.

Acting area fisheries supervisor Jim Levitt tends to walleye eggs in the DNR's St. Paul fish hatchery.





## Avoiding poisonous plants this summer - Eddie Johnson

Minnesota has a handful of poisonous plants that can alter your day quickly.

Water Hemlock is one of the deadliest poisonous plants in the U.S. It contains a natural toxin which rapidly acts within the central nervous system. The roots are especially toxic, being lethal for humans and cattle. This plant is typically found along the edges of wet fields, ditches, and swamps. It can grow upwards of 6 feet tall, and it has white flowers that grow in a cluster form that can be up to 6 inches across.

Western Poison Ivy is a common plant in Pine County and can be very painful if touched. It can be found along roads, fields, and open woods. Poison Ivy has three leaves, often droopy, and are egg-shaped with a pointed tip. Sometimes the leaves can appear oily. Along the stem, it can be coated with yellow-tipped flowers which turn into green berries that turn white to yellowish.

If in doubt, reach out. Take pictures and contact your local experts. Don't let these plants ruin your summer.

Water Hemlock

## Climate Change Impacts on Wildlife and Habitat Events - Local University of Minnesota Extension Office

The University of Minnesota Extension in partnership with Minnesota Department of Natural Resources (DNR) are pleased to announce a three-part webinar series sharing DNR research on the impacts of climate change on Minnesota wildlife, as well as the impacts on wildlife habitats. Sessions will be held on the first three Wednesdays in April (3, 10, and 17) starting at 12 p.m.

**April 3-Cervid Species:** Session one will highlight the four Minnesota biomes, the current wildlife species found within them, and the natural progression of the ecosystems. It will call attention to the change of wildlife species, specifically moose populations with some deer and elk (cervid species) considerations based on forest succession, disease, predation, and recent change of land use. It will provide participants with a historical context to how wildlife populations and their habitat have changed in tandem with physical and biological systems due to climate change and weather trends.

**April 10-Cavity Nesting Creatures:** Session two will dive into old growth forest ecosystems and complexes related to wildlife habitat, especially cover and space for cavity dwelling wildlife, such as the wood duck, fisher, and martin. The potential effects of forest system change on these wildlife species and their habitat will be discussed along with how people can assist and manage their forests for these creatures. In addition, we will provide resources that examine the effects of climate change and forest habitat for small migratory birds. Participants will learn about what they can do through phenology to be climate resilient, while tracking data for continued wildlife research.

**April 17-Black Bears:** The third and final session will focus on black bear habitat and adaptability, along with human and bear interactions and coexistence. Research biologists will predict the potential bear population trends in Minnesota and explain how they have already made accommodations in relation to a changing climate. Participants will learn about planting and habitat considerations for adapting ecosystems to future climate conditions, as well as the significance of being a steward of the land to benefit bears.

"SESSIONS WILL BE HELD ON THE FIRST THREE WEDNESDAYS IN APRIL (3, 10, 17) STARTING AT 12 P.M.

**Above:** Tunnels the larva create while eating away at the cambium layer just underneath the bark. Notice the characteristic "S" shaped tunnels on the Ash - this is a great way to identify if EAB is present on your trees.

**Below:** One of the easiest ways to identify if your tree is infected with EAB is by "flecking" where woodpeckers peel away bark to get to EAB larva.

## Emerald Ash Borer Confirmed in Pine County - Josh Tank

For many landowners in the Twin Cities, and perhaps now many in Pine County, EAB is an acronym that is tossed around a lot. For those unfamiliar with the acronym, EAB stands for Emerald Ash Borer. It is the name of a non-native beetle that attacks and kills species of Ash trees (*Fraxinus sp.*). Simplified, EAB kills trees by eating away at the vascular tissue of the tree, limiting the tree's ability to transport water and nutrient resources throughout the tree, killing it over time.

EAB's first appearance in Minnesota was when it was found in St. Paul in 2009. Since then, EAB has spread all throughout SE MN, the Twin Cities Metro, and has been moving north to where it was recently discovered nearby in Rock Creek. The invasion and prevalence of EAB is quite a problem for Minnesota because of the large amount of ash trees we have in the state, and particularly in Pine County.

Even though EAB has only been confirmed in Rock Creek so far, it doesn't mean that it isn't in other places under the radar. Lakeshore owners might have planted ash on their property and woodland owners might have natural ash throughout their woods. It will be important as property owners to keep an eye out for EAB presence on your property in the coming years, lest an invasion of EAB attacks your trees before you can stop it.

There are three things the Minnesota Department of Agriculture encourages landowners to think about when it comes to EAB.

**Identifying and reporting EAB:** The city of Burnsville has a website that shows examples of EAB presence on ash trees. If you suspect your tree is infected, consult a tree care specialist and report the findings to reportapest@state.mn.us.

**Moving of Firewood:** Transporting firewood that is infected with EAB is the fastest way EAB is spread. Limiting the movement of firewood will help limit future spread. Refer to the Minnesota Department of Agriculture's website for more information. When in doubt, only burn firewood that was harvested from the same area.

**Managing for EAB:** If EAB is confirmed in your ash trees, there are a couple of management strategies. One is to remove the tree and properly dispose of the wood so that EAB does not spread to neighboring trees. Landowners have also found success at using insecticides injections that deter EAB from entering/attacking the tree. Consult tree care specialists before carrying out these actions.

"EAB'S FIRST APPEARANCE IN MINNESOTA WAS WHEN IT WAS FOUND IN ST. PAUL IN 2009… IT WAS RECENTLY DISCOVERED NEARBY IN ROCK CREEK. "

## Hinckley Area Fisheries New Supervisor - Hinckley Area Fisheries Office

Matt Ward is the new Hinckley Area Fisheries Supervisor. Ward has extensive education and experience in fisheries management. He received a bachelor's degree from UW-Stevens Point and a master's degree from South Dakota State University in Fisheries. Over the past 20 years, Matt has worked for area fisheries offices in Duluth, Lake Superior, Walker, and Grand Rapids in various roles, most recently as the assistant area fisheries supervisor in Grand Rapids. Matt's first day at the office was August 2.

Matt, his wife Angela (who works for DNR Wildlife), and daughters Emma (12) and Lily (7), enjoy camping at state parks, visiting National Parks, hiking, riding bikes, and fishing.





## Giving YOU the Tools to do Conservation - Josh Tank

On many weekends throughout this last fall and winter, I have spent the majority of my time clearing out buckthorn on my parents' property. They own a 5-acre woodland in Dakota County that is suffering from a buckthorn invasion. It can be long, tedious work, but seeing the restored woodland afterward is well worth the effort. I, like many of you, find a lot of joy and pride in taking care of the land, nurturing its wildness, and restoring its beauty.

Are you planning on doing some projects on your property this spring? Perhaps you've already done some this warm winter. Let us help you! From projects such as buckthorn control to shoreland buffer planting, and many things in between, we can provide assistance and expertise on how to accomplish your plans and what tools/plants you might need. Financial assistance is also possible for a lot of these projects! If you are a woodland landowner and have a Woodland Stewardship Plan, we can help you implement some of the management recommendations in your plan, such as tree planting, timber stand improvements, brush clearing, etc.

We also have some equipment available to rent out. We have tree bars that are useful for planting trees and native plants , backpack sprayers for weed and brush control, and wildlife food plot equipment, which includes small field disc, drag harrow, and broadcast seeder (great for prairie/native planting/food plot projects).

We at Pine SWCD are excited and committed to helping you as landowners implement conservation on your property and to reach your project goals. There are many types of projects out there, so if I didn't list your "project" above, feel free to reach out and ask if we can help!

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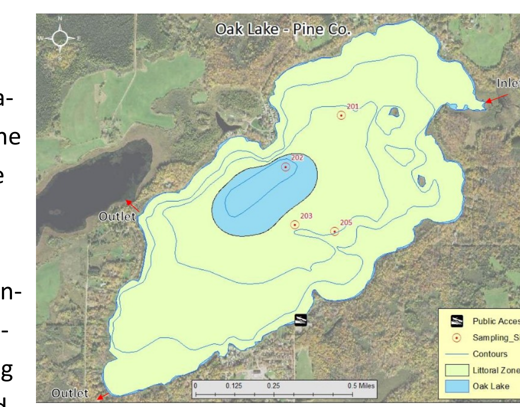
## Oak Lake, Water Body Highlight - Mara Jade

Oak Lake is a 459 acre lake near Duquette in the north eastern part of Pine County. Oak lake has 4.75 miles of shoreline, a mean depth of 8 feet, and a maximum depth of 20 feet, which classifies Oak Lake as a shallow lake, and empties into the Willow River via a stream in its southwestern bay. As for fishing, it has been stocked with Walleye by the DNR in 2014, 2015, 2016, 2017, 2019, and 2021. Ice in typically occurs in mid-November with ice out happening in mid-April. The DNR uses Water Quality, Biology, and Hydrology to asses lake health and give lakes a Lake Health Grade (scale of F to A) to give an overall idea of the status of the lake. Oak Lake gets a grade of C, a grade which is strongly influenced by its higher phosphorus concentrations.

Like many lakes in the Kettle and Upper St. Croix watersheds, Oak Lake is elongated in the NE/SW direction. The orientation of these lakes comes from the process which created them. The last glacial period, which ended approximately 11,000 years ago, saw glaciers retreating across Minnesota back towards Lake Superior. As the glaciers were retreating to the northeast, they left behind land formations oriented in that direction, land formations which eventually filled up with water to become our lakes.

For those interested on or around Oak Lake, it has a concrete slab boat ramp, an asphalt parking lot with room for 12 vehicles/trailers, one dock, and a portable restroom, all located at the end of Oak Lake Rd. There is also camping right on the lake! Oak Lake Campground is located right next to the public landing which has approximately 207 sites.




Map of Oak Lake with depth contour lines, The light green areas illustrate where sunlight can usually reach the lake bottom

"THE ORIENTATION OF THESE LAKES COMES FROM THE GLACIALLY DRIVEN PROCESS WHICH CREATED THEM."

## Minnesota Ag Water Quality Certification Program Update 2023 - Heather Donoho

"FARMS LIKE NADIA AND DIANE'S MAKE A MEASURABLE DIFFERENCE FOR SOIL HEALTH AND WATER QUALITY EACH YEAR IN MINNESOTA."

The Minnesota Ag Water Quality Certification Program (MAWQCP) is a Minnesota Department of Agriculture program that aims to recognize and assist farmers who are protecting water quality. The first farm was certified in June 2014; since then 1,432 producers and over a million acres have been certified with 140 producers certified in 2023. Pine County has 15 certified producers.

New to be certified this year are Nadia and Diane Honary-Santrio of Pine City. Nadia and Diane established The Gothic Farmstead in June of 2022. They rotationally graze chicken, ducks, and geese and raise produce from an organic vegetable garden. In the winter, they operate a green house, so they can continue to produce vegetables year-round. Their operation is a closed system with no chemical inputs and they manage their land for soil health.

Farms like Nadia and Diane's make a measurable difference for soil health and water quality each year in Minnesota. It is estimated that every year MAWQCP improves water quality by saving 142,129 tons of soil, reducing sediment pollution by 47,469 tons, and reducing nutrient runoff by 49% of nitrogen and 59,354 lbs of phosphorous. Greenhouse gas emissions are reduced by 50,586 CO2-equivalent tons per year. These farms are improving the quality of our natural resources without sacrificing profitability. A study of 94 MAWQCP farms from 2019 to 2022 shows that on average certified farms earn $25,000/year more than non-certified farms based on the FINBIN database.

These benefits likely come from the conservation practices implemented on MAWQCP farms. Nearly 75% of certified producers implement new conservation practices after achieving certification with 2,789 total new practices adopted as of this year. The 6 most adopted practices are cover crops, nutrient management, grassed waterways, WASCOBS, prescribed grazing, and irrigation water management.

Producers who are certified receive a sign and regulatory certainty for new laws pertaining to Ag Water Quality for ten years. Other benefits include marketing opportunities, a financial assistance grant up to $5,000, priority funding with some financial assistance programs, and a scholarship to the Minnesota Farm Business Management program. The public receives assurance that food is being produced sustainably in Minnesota and the opportunity to learn about local sustainable agriculture. To become certified in Pine county, contact the Pine Soil and Water Conservation District.

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## Equipment Rental

**Great Plains 1206 No-till Drill**
Working Width 12 feet
Travel Width 16 feet
Rental Rate is $14/acre
1 Main box capable of seeding up to soybeans
1 Small seed box for grasses

3/4 ton truck for transportation, and at least a 75 horsepower tractor for use.
A 50% deposit of estimated acres is needed to hold your place.
Contact Heather to schedule your rental.

**Wildlife plot equipment**
Can be used behind an ATV or small utility tractor, includes:
Trailer to move equipment
Small field disc
Broadcast seeder
Drag harrow
Rental Rate is
$80 per weekday
$225 for the weekend
Contact Shayna to for rental





## Frogsicles - Shayna Vendela

You may, or may not, think that *you* were freezing cold this winter but for some species in Pine County they literally freeze solid to survive Minnesota's winter weather. Take wood frogs for example, one of the most wide-ranging amphibians, it can be found even north of the arctic circle. In the fall as the temperatures begin to plummet outside, frogs start to accumulate glucose, glycogen, and urea molecules in their bodily fluids. They can break down their own skeletal muscle to create urea.

These adaptations allow wood frogs to freeze solid for most of the year! As winter starts, a wood frog's abdominal cavity and internal organs begin to be encased in ice between the layers of skin and muscle, their eye lenses even freeze. The glucose, glycogen and urea prevent the frog's individual cells from freezing and bind to the water molecules inside the cells to prevent dehydration.

This allows ice to form *around* the outsides of cells and organs, not inside, avoiding damage. This process completely stops the frog's heartbeat and in the spring the frog will thaw from the inside out. First the heart restarts, the brain reactivates, and then the legs begin to move again. Freezing on land allows these frogs to get ahead of those in lakes that must wait for the ice to go out, by then many of the frogs that were on land are already in small ponds calling for a mate.

"THESE ADAPTATIONS ALLOW WOOD FROGS TO FREEZE SOLID FOR MOST OF THE YEAR!"

Wood Frog—image © B. Oldfield

## Walk In Access Program - Shayna Vendela

The WIA, walk in access, program is voluntary for landowners and provides not only hunting opportunities for those interested but also rewards landowners for high quality wildlife habitat. New this year the legislature has passed language to the WIA statute to now include additional outdoor recreational opportunities such as bird watching, wildlife photography, etc.

Most landowners choose to enroll their property in WIA for two or three years. Enrolled lands are covered under the Minnesota recreational use laws that limit landowners' liability and come with an incentive of $18/acre for enrollment. DNR conservation officers handle trespass and hunting violations.

**What land is eligible**? WIA is targeted toward lands with high quality natural cover. This may include, but is not limited to, parcels already in a conservation program such as the Conservation Reserve Program (CRP), Reinvest in Minnesota (RIM) and the Wetlands Reserve Program (WRP). Only small inclusions of cropland or hay land may be present in WIA parcels. Lands not enrolled in a conservation program may be eligible if high quality natural cover exists and is maintained by the landowner. The land must be at least 40 acres in size, *or* it must be contiguous with another WIA or publicly accessible parcel (Wildlife Management Area, Waterfowl Production Area, etc.).

To utilize lands in this program a WIA validation must be purchased for $3 and allows entry to WIA lands from September 1st through May 31st with no landowner contact necessary. This program does not allow for target practice, trapping, camping, or fires. Always be sure to check the WIA website for any recent closures or habitat cover updates. Landowners may opt out of the program at any time.


There was 1 WIA property enrolled in Pine County as of 2/2024, WIA #972 .