Species Highlight: Rusty-Patched Bumble Bee (*Bombus affinis*)

Rusty-patched bumblebee
(*Bombus affinis*)
Photo credit: Wisconsin Pollinators

The Rusty-patched bumble bee is one of 24 bumble bee species found in Minnesota. These bees, like other pollinators, are extremely important for the pollination of flowering plants and crops. Rusty-patched bumble bees can be difficult to identify, as there are some species that look similar. Rusty-patched bumble bee workers and males are the ones with the characteristic rust colored patch on the second segment of their abdomen. The patch can vary in color from brown to orange. The hairs on the first abdominal segment are yellow, with the second segment being all yellow aside from the rusty patch. The third segment and on are entirely black. The hairs on the thorax are yellow with a distinctive T shaped area of black hairs that extend down the middle to the back, which resemble a thumb tack. Other bumble bee species may have a similar coloration, so be sure to look for the rust colored patch located in the correct area.

Life Cycle

Rusty-patched bumble bees live on an annual cycle and in colonies that include the offspring of one male and one female bee. There are often more than 1,000 worker bees, which are non-reproductive females. They protect the colony from threats, find nectar and pollen, and care for the young. Colonies with many worker bees can produce hundreds of new queens who will, in the spring, leave their overwintering sites to form new colonies. Rusty-patched bumble bees rely on access to blooming plants in the spring, summer, and early fall when most active. Over winter, the founding queen, all workers, and male bees die. Only the new queens overwinter to start new colonies the next year. Once she has found a suitable nesting site, she will lay eggs that hatch in as little as four days. The larvae feed on pollen and nectar and continue to grow until they are full-sized adults. Full development can take up to five weeks, depending on the availability of food and the suitability of the weather.

Range and Habitat

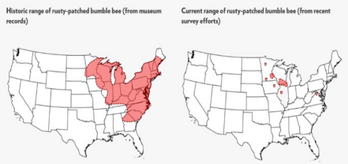
In the past, this bumble bee has been found in the eastern United States, Upper Midwest, and southern Canada. Historically, Pine County would have been home to these bees. Since the early 2000's, the population has been in steady, sharp decline. There are many factors that led to the decline in population numbers including pesticide use, habitat loss and degradation, competition and pathogens from non-native or commercially raised bees, stressors due to a changing climate, and many others.

Food

Rusty-patched bumble bees, like other bumble bee species, are generalist foragers, feeding on a wide variety of plants. Some plants of interest to these bees are purple prairie clover, wild bergamot, and common milkweed.

Management

The Rusty-patched bumble bee was listed as federally endangered in 2017 due to many factors previously listed. One of the best ways to assist in the protection and conservation of the beneficial Rusty-patched bumble bee (and many other species), is to install and promote native plantings that contain many of the food sources these bees rely on. In addition to that, limiting the use of pesticides and insecticides when possible will help protect this vital pollinator species.



Current vs. Historic Range
Photo Credit: University of Wisconsin– Entomology Dept.

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Pineswcd.com

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The Pine SWCD Newsletter

Pine County Soil & Water Conservation District

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Through the Eyes of a Farmer— Grace Guyette

The Minnesota Ag Water Quality Certification Program (MAWQCP) is a voluntary opportunity for farmers to take the lead by implementing ag practices that show they are managing their operation in a way that protects water quality and soil health. Certified producers are deemed in compliance with any changing water quality rules or laws for a period of 10 years, they also receive priority financial assistance of up to $5,000 a year to implement ag best management practices on their operations and receive recognition for their hard work by getting a sign that can be used to promote their farm as one protective of water and soil quality. One of Pine Soil and Water Conservation District's Board Supervisors, Jack Frechette, recently went through the process of certification for his beef and pork operation. Jack owns and operates Frechette Farms and the nonprofit "Meating the Need" which aims to make Pine County meat affordable for the people of Pine County. We sat down with him to go over the process and gain some insight into the program from a producer's perspective. **When and how did you first hear about the program?** Jack first heard about the program in spring 2022 through being an active member of the Pine SWCD board. He thought it would be an excellent way to implement some conservation ag practices and to insulate his farm from any changing water quality rules. Jack said it appealed to him as a "double edged sword" where he could do some good conservation work and also know he was protected from the frequently changing rules surrounding Minnesota's water quality. A great first step is to reach out to your local Soil and Water Conservation District about the program, and they will happily direct you as needed.

Continued on pg 6

Jack and his wife xxx with a few of their pigs.

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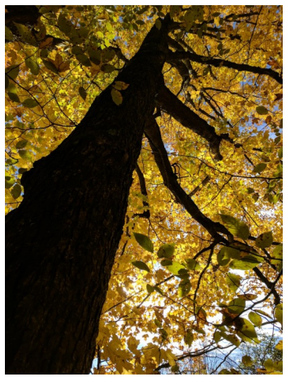
Snake 1W1P Update; The Final Stretch! - Zach Van Orsdel

The Snake River One Watershed One Plan (1W1P) process has been working towards its conclusion in 2022. In early July the first draft of the plan was submitted to the state for review by a variety of agencies. It was also sent out for review by residents of the watershed who had a chance to share their comments with the planning team at a public hearing in mid-September. Once agency and resident comments are reviewed, the second draft of the plan will be submitted to the Board of Water and Soil Resources for approval. Once approved, local partners will adopt the plan. Meanwhile, the planning team will be developing an annual work plan. This plan will detail how the planning team envisions the 1W1P funds being spent the first year of the 10 year plan. Once the annual work plan is approved by BWSR, the funds will be released to the local partners in the spring of 2023.

Tapping into Your Maple Trees—Jake Dale



Sugar Maple (*Acer saccharum*)

Maple syrup and maple sugar are among the oldest agricultural products in the United States. Popularity of these naturally homegrown products have increased in recent years. In Minnesota, tapping maple trees can be done at a commercial level, or a hobby. In Pine County, landowners have been increasingly interested in how to harvest maple syrup and how to manage their woods for maples.

Pine County is home to four maple species that can produce maple syrup. They are sugar maple, red maple, silver maple, and boxelder. Each species requires a different amount of sap to be boiled down into a sugary concentrated syrup. Sugar maple provides the highest concentration of sugar. Tappers would need to harvest about 40 gallons of sap to produce 1 gallon of syrup. The other maples require more sap to produce 1 gallon of syrup. The syrups from different species can also taste different. Trees should be at least 10 inches in diameter at about chest height to be tapped. High quality maples will also appear to have sound wood.

Look to start tapping maple trees in early March. Sap doesn't flow from maple trees every day of the tapping season. It will flow during warm days, following nights where temperatures fall below freezing. This means the amount of sap produced varies from day to day. A single tap can produce between 1 quart and 1 gallon of sap per flow period, accumulating 10 to 12 gallons in a season. The flow period may range from a few hours to a day or more. This varies year-to-year depending on temperatures.

Collect and boil down sap as soon as possible for high-quality syrup. During prolonged flow periods when this is not an option, try to at least collect sap every two to three days. If you have low temperatures and favorable storage conditions, you can keep sap one to two days while maintaining its quality. If the sap gets warm before boiling, it may become darker or poorer quality.

Tapping maple trees for syrup can be a fun way to experience your woodland. If you have any questions on how to promote maple trees on your property, feel free to give me a call at 320-216-4245.

Should I Keep This Tree? It's Full of Holes! - Valentin Elsaessar

If you own a piece of forest, an orchard, or even have a few trees in your yard, you might notice a couple of them riddled with holes. Many of these trees at some point in their life got infested with bugs, or a fungus, and a woodpecker got hungry enough to dig up some grubs. There are a lot of ways this can happen, but regardless of how it happens you might be thinking 'what good is this tree now?'.

Is it going to provide you with lumber one day? Probably not. Is it going to live a long life? Probably not. Will it make a good home for wildlife? Absolutely! Many different songbirds rely on tree cavities for a place to nest and raise their young. When those cavities get large enough, it can be home to a variety of mammals depending on how big the tree is, including bats, raccoon, marten, fisher, and even black bear. Many of these are fun to look at when you get the chance, but you might find an added benefit from having them around. Many songbirds play a big role in keeping the bugs from going out of control in forests. Bats feed on a lot of mosquitoes. So while trees covered in holes might not last long, they're important for keeping wildlife around.

Would there ever be a point cutting your tree down for being hollowed out or filled with cavities? Maybe not in a forest setting, but if it is too much of a hazard to the roof of your house or garage, you may want to find someone to safely take it down before it falls down on its own. This doesn't mean what's just been cut down has to go to waste! You can still use sections of the tree trunk as wildlife habitat after it's been cut down. It may not last as long, but the forest critters will still appreciate it.

Cost-Share Opportunities Through NRCS— Jason Rehn

Landowners and agricultural producers looking to solve natural resource problems, such as soil erosion, forest health, and wildlife habitat on their land should consider contacting the USDA – Natural Resources Conservation Service (NRCS) office to schedule a field visit. Depending on the resource concerns on the land, a variety of Farm Bill programs may be available to help correct these problems. Environmental Quality Incentives Program (EQIP) is a voluntary program that provides financial and technical assistance to implement conservation practices. These practices include structural erosion control practices to planting native grasses & wildflowers and many more. The Conservation Stewardship Program (CSP) is a voluntary conservation program that encourages producers/landowners to address resource concerns in a comprehensive manner by undertaking additional conservation activities; and improving, maintaining, and managing existing conservation activities. This program is usually for those that have already implemented conservation practices and/or systems within EQIP or on their own. Conservation Reserve Program (CRP) is a voluntary program that is meant to convert agricultural land into long term or permanent vegetation such as native grass & wildflowers. CRP provides technical and financial assistance to implement the practice(s) and a soil rental rate; per acre, per year based on the soil type. Applications for these programs are accepted throughout the year with specific deadlines set for ranking and funding opportunities.

If you would like to apply for one of these programs or have questions and would like to schedule a site visit, contact the NRCS Hinckley Field Office at 320-384-6176 or email Jason Rehn at jason.rehn@usda.gov

Through the Eyes of a Farmer—*Continued from front page*

What were your initial thoughts or concerns?
Jack's main initial concern was a fear of losing control of his farm. He wanted to be sure that his rights to run his business were not in jeopardy at any point before, during, or after the process. He wanted to be sure he was still able to do things his way on his property. Jack stated that he was very pleasantly surprised to find that many of the practices he was implementing were already best management practices for his farm, so he only needed to continue to do many of the things he was already doing. Jack stated "there will be some minor tweaks I will be undertaking in my own practice, but none of them have given up any agency I have in or on my farm."

"WHAT HAS BEEN MADE CLEAR TO ME IS THAT THIS IS A PARTNERSHIP, "

How did the process actually go?
"Really, really easily!" was how Jack described the process of becoming certified. Jack was worried initially that he would be dealing with a lot of paperwork and/or inspections of his farm, but found that, as with many farmers, he was already doing many of the right things, and just had a few small changes to make to become fully certified. The process was simple for Jack because he didn't have to develop any new strategies, simply tweaking what he was doing was all it took. Jack found it refreshing that this program "wasn't the state coming in and telling you how to do your job, but rather saying you are doing a great job in so many different ways, you might be able to boost productivity or efficiency by doing these things." He highlighted that it becomes even more important to implement these practices "especially as we see our soil and water resources go under some stress." **What are you most looking forward to through the program?**
Jack is most looking forward learning about opportunities he hasn't come across before. He is a very active community participant, but even just through enrolling in the MAWQCP, he has gotten the opportunity to learn about practices or ideas that he can put into place that are "really tied to increasing productivity and profit" on his farm.
Any additional comments?
Jack pointed out that he completely understands the hesitancy of farmers/landowners to let any government agency onto their property to look at the way they run their business. However, he stated, "what has been made very clear to me is that this is a partnership, not any sort of leverage that you're giving any other organization and that both we as farmers, and these experts in soil and water health, can tell that our livelihood is at risk due to things occurring in our environment, but working together we can figure out efficient and effective ways of making sure these farms last."
Overall, Jack is pleased with the process and the outcome, and is looking forward to implementing more conservation ag practices on his farm in the future. He is happy to answer any additional questions farmers/landowners may have about the process and looks forward to being an advocate for the program.

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Introducing Our New Ag. Technician: Grace Guyette

Hello everyone! My name is Grace Guyette and I am the new Ag Technician at Pine SWCD. Originally from central Minnesota, I am no stranger to agriculture. I grew up on a hay, crop, and livestock farm in Osakis, and have spent most of my life assisting with the operation of my family's farm.

I have an Associate's degree in Natural Resource Technology from Central Lakes College in Brainerd, Minnesota and a Bachelor's degree in Natural Resource Management from the University of Minnesota Crookston. Through both programs, I had the opportunity to work with wildlife, learn about agriculture, soils, wetlands, forests, and many other important topics that have prepared me to best assist the people of Pine County. In my free time I enjoy hiking, horseback riding, and spending every moment I can outdoors. I have been specifically enjoying Banning State Park near Sandstone, as it offers beauty unique to this county. This area has so much to offer and I can't wait to immerse myself in it!

"I SPECIFICALLY HAVE BEEN ENJOYING BANNING STATE PARK,"

I am working in large part with the Minnesota Ag Water Quality Certification Program, but will be assisting with many other ag and natural resource related projects as well. I have gained much experience in various aspects of agriculture and natural resources prior to Pine SWCD, but I look forward to continuing to learn and grow professionally. I am excited to familiarize myself with both the unique and traditional farming operations found here and can't wait to learn from and assist the ag producers and landowners of Pine County!

Wetland Classifications—Zach Van Orsdel

Pine County has a lot of wetlands, 17% of the county's surface is covered by them! There are a variety of wetlands, 8 different types to be exact. An area doesn't have to have standing water year round to be considered a wetland, in fact only 3 of the 8 types typically have standing water. There are three factors that Minnesota uses to define a wetland which are soils, hydrology, and vegetation. Essentially, if an area has soils that are waterlogged or develop in wet conditions, standing water, and/or vegetation adapted to wet conditions, then it's a wetland. Type 1 wetlands are seasonally flooded areas that are usually well-drained during most of the growing season. Type 2 wetlands are wet meadows where the soil is usually without standing water for most of the growing season but is wet below the surface. Type 3 wetlands are shallow marshes which usually have waterlogged soils early during the growing season and are often covered in six or more inches of water. Type 4 wetlands are deep marshes, meaning the soil is usually covered with six inches to three feet of water and there are cattails, reeds, bulrushes, and sometimes wild rice. Type 5 wetlands are shallow open water areas, with the water less than six feet deep with a border of vegetation emerging from the water. Type 6 wetlands are shrub swamps where the soil is waterlogged during most of the growing season, is often covered with up to six inches of water, and vegetation includes alders, willows, and dogwoods. Type 7 wetlands are wooded swamps which have range from waterlogged soils to water a foot deep and vegetation of tamarack, white cedar, black spruce, red maple, and black ash. And finally, type 8 wetlands are bogs which usually have waterlogged soils and a spongy covering of mosses. Protecting our wetlands from being drained or filled is an important conservation effort as they provide numerous benefits from water quality to habitat. They are especially important to the 43% of threatened or endangered species in the U.S. that depend on them.

Equipment Rental

The no-till drill
Working Width 12 feet
Travel Width 16 feet
Rental Rate is $14 per acre
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.

Wildlife plot equipment
Can be used behind an ATV or small utility tractor.

Includes:
small field disc
broadcast seeder
drag harrow
Rental Rate is
$80 per weekday
$225 for the weekend

Buckthorn Management—Jake Dale

Fall is here and winter is coming. The fall can have people out in the woods for a wide variety of reasons. It also provides a great opportunity to manage for buckthorn, an extremely aggressive, invasive shrub that has an increasingly negative presence within Pine County. While most other shrubs and small trees have leaves that are turning colors, buckthorn holds its leaves after most other species have dropped theirs. This can help in identifying the pest and eradicating it from your property.
Buckthorn is native to parts of Europe and Asia. It was introduced to the United States as an ornamental plant in the 1800s. Female buckthorn plants produce a significant amount of small black berries every year. These fruits are consumed by birds and the seeds have spread rapidly throughout the eastern United States. Within Pine County, most of the buckthorn is found in the southern part of the county, but it is present throughout its entirety.
Invasive species are a problem for many reasons. They outcompete native species, no natural competition, and they alter habitat for wildlife. Buckthorn has been the poster child for invasive species in Minnesota because its aggressive nature and ability to completely overtake forest understory. This is concerning because Pine County relies on its woodlands for many different uses. When buckthorn invades a property, it starts by outcompeting the native shrubs. Over time, it can also outcompete young trees trying to regenerate. This means that a large buckthorn infestation on your property can discourage growth of new oaks, pines, maples, and other trees.
The best thing you can do if you see any buckthorn on your property is to eradicate it immediately. The best way I have found to control buckthorn is to cut it at the stump and then treat it was herbicide. You can use loppers, a brush saw, or a chain saw to cut the buckthorn and then can either paint or spray the stump with the herbicide. Be sure to read the label of the herbicide you use before purchasing and/or using because they can have site-specific requirements. If possible, try to pile up any buckthorn you have on your property to minimize transportation of seed.

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The 2023 Annual Tree Sale

Keep an eye out for our 2023 Tree Sale Order Form! We expect the form to be on our website late December 2022, or early January 2023. If you have been a customer the last two years, a form will be mailed to you.

We do our best to get enough , but as always stock will be limited. Get your orders in early!

Golden-Winged Warbler Highlight—Kris Oja

The Golden-winged Warbler (*Vermivora chrysoptera*) is a neotropical migratory songbird that thrives with a diverse mix of habitat components ranging from early successional to mature hardwood forests. Unfortunately, the population of this unique species of Warbler is declining rapidly due to the loss of habitat within both it's breeding and wintering ranges, human disturbance, and hybridization.

Range and Distribution:
The range of the Golden-winged Warbler once expanded across the entire Midwest, to the East coast. Now, due to the loss of early successional habitat within their breeding grounds and the loss of coffee tree plantations withing their wintering grounds, their populations are now isolated to only the Appalachian Mountains and the Great Lakes region.

Habitat:
Golden-winged Warblers require similar habitat characteristics for both their breeding and wintering grounds. During the breeding season, these warblers depend on a diversity of early successional habitats consisting of brushy forest openings and brushlands, which are intermixed grasslands and patches of scattered shrubs. Mature open woodland edges are also a key component to their habitat needs for brood rearing. In the winter, this Warbler migrates to the tropics within Central and northern South America where it will utilize true shade coffee trees grown in a forest setting. The distance to early successional habitat is important. After the chick's hatch and fledge, the male and female will split the brood and rely heavily on early successional habitat and distance to a mature forest edge.

Diet:
Mostly insects. Their diet is not known in detail, but it will feed on many caterpillars and adult moths, especially Tortricid moths, and other insects

Nesting:
Out of the many challenges that this warbler faces, nesting is on the top of their list. Male Warblers will arrive to the breeding grounds in early to mid-May, just prior to the female's arrival. Males will defend their territory by singing. Male Warblers often get into aggressive encounters, where he may chase off other males in flight. The male Warbler has two prominent song types; one for making his presence known within his territory, and the other is strictly for attracting a mate. Courtship consists of the male chasing down the females, raising his crown feathers, slow wing beats as male flies away, and gliding flight as the male flies toward female. Nesting is built by the female, on the ground usually by the base of a shrub, or within grasses and sedges. Camouflage of the nest is very important, in which they are usually well hidden by foliage. Open cup nest constructed of leaves, grapevine bark, and long strips of grass; lined with fine plant material.

Management:
Early successional habitat management is very important for populations to improve across the US. There are many different practices that can be implemented to help create this desired habitat structure, such as brush mowing, shearing, rotational grazing, and prescribed burning. These practices help set back the natural succession of plant communities to reach the desired outcome. Managing for early successional habitat not only benefits the Golden-winged Warbler, but it will also improve habitat for many other game and non-game species such as White-tailed Deer, American Woodcock, Ruffed Grouse, Sharp-tailed Grouse, and many others.

"THE RANGE OF THE GOLDEN-WINGED WARBLER ONCE EXPANDED ACROSS THE ENTIRE MIDWEST,"

Goldon-Winged Warbler (*Vermivora chrysoptera*) Photo Credit: allaboutbirds.org