The 2020 McMurtrie Preserve Medallion Hunt begins on May 1st!

Tired of being cooped up? Want to get outdoors and enjoy the spring weather? Are you good at puzzles? Then try your hand at this year's McMurtrie Medallion Hunt! You could even win some money!

The McMurtrie Preserve is a 63-acre tract of land along Cedar Lake that is usually only open to Star Prairie Land Preservation Trust members. However, each spring a Medallion is hidden on the property. For the entire month of May, the property is open for public hiking to search for the Medallion!

This year the theme is a little different. Due to current circumstances, the SPLPT is offering a series of educational challenges for students, parents, teachers or community members to learn about nature, maintain safe social distancing and practice #ResponsibleRecreation.

To take part in the 2020 Medallion Hunt, play along with the challenges published online:

www.starprairielandtrust.org

Some challenges are harder than others… Once you've answered the challenge, just let us know! We'll respond with a private message to confirm the answer and send you a secret hint to help you find the Medallion!

- Tweet us @HuntMcmurtrie
- Message us on Facebook @starprairielandtrust (Star Prairie Land Preservation Trust)
- Email us at McMurtrieMedallionHunt@gmail.com

Here's how to play:

1. Download the FREE iNaturalist app and create an account (if you don't have one).
2. Search for the iNaturalist Project "McMurtrie Preserve – Star Prairie Land Preservation Trust". https://www.inaturalist.org/projects/mcmurtrie-preserve-star-prairie-land-preservation-trust
3. Upload your iNaturalist observation(s) from the property so that it is added to our collection.
4. Some challenges require extra work, but they can be solved in any order! (If you need to, message us with your questions. We'll try to help!)
5. Send us a message on Facebook, Twitter or email that you've finished a challenge. Tell us which observation(s) you catalogued and your answer to the challenge. If you'd like, you can share your iNaturalist username with us.
6. We'll confirm with a private message, and our team will give you a secret hint to finding the Medallion! (We will do our best to get back to you within 24 hours. If it has been longer, message us again including email to be safe.)

Once you've found the Medallion, hang onto it! Let us know that you've found it, and we'll contact you to claim the prize. If nobody has found the Medallion by May 30, all hints will be posted publicly!

Members: $300
Non-Members: $200*
**You are eligible for the Member prize by becoming a member before May 18.*
https://www.starprairielandtrust.org/participate.html#/

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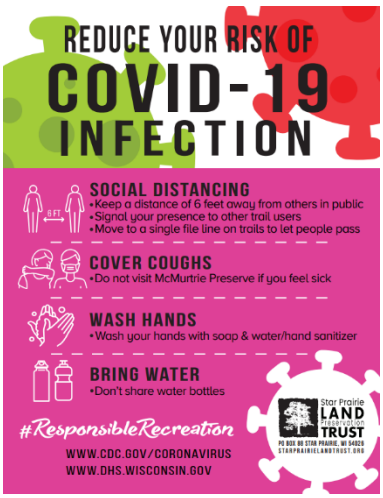
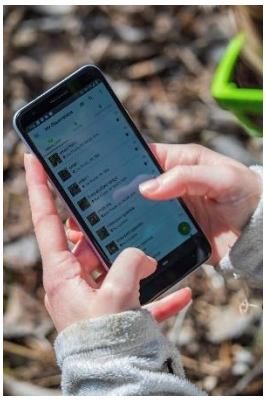


REMEMBER: DUE TO COVID-19, WHILE ON THE PROPERTY PLEASE MAINTAIN SAFE SOCIAL DISTANCING OF 6' OR MORE. FOLLOW ALL GUIDELINES FROM THE WISCONSIN DEPARTMENT OF HEALTH SERVICES, CDC AND WORLD HEALTH ORGANIZATION.

Challenge 1: Sights and Sounds



The first challenge is designed to get you familiar with iNaturalist. There are two options for "observing" on iNat. It is easiest to download the app on a smartphone and take a photo/record a sound directly in the app. Otherwise, take photos of nature separately and upload the observation later via app or www.inaturalist.org (just make sure you mark the location the photo was taken).

Don't worry if you can't identify the "species". Identifying the "genus" is an acceptable alternative. The iNat community is a big help in narrowing it down. Hint: www.iNaturalist.org from a laptop is a faster way to see the past observations from all other users following the project.

Challenge Objectives:

1. Using the iNaturalist "observe" function, find and observe a new species of plant or animal that doesn't exist in the project.
2. Observe a replicate of a plant or animal that has been previously identified in the project.
3. Review the species in our project marked "Needs ID" (easier on www.inaturalist.org). When looking at other users' observations, you can confirm a species or suggest a different one. "Suggest ID" for another user's observation in our McMurtrie Preserve Project.
4. BONUS: Post a picture to our Twitter or Facebook of a piece of litter you picked up for an extra secret hint!

Challenge 2: Tracks, Scat and Houses

Many animals are difficult to identify face-to-face. But their presence is noted by tracks, scat or houses they have built. “Houses” can be nests, burrows, or beds.
Hint: Not sure?

- https://dnr.wi.gov/files/PDF/pubs/wm/WM0359.pdf
- https://wsobirds.org/

CAUTION! Never disturb a “house” you find! Always take photos from a safe distance. Nature likes their privacy – remember safe social distancing for the animals too!

Challenge Objectives:

1. Add an animal observation, but you must identify it by track, scat or house! Include a photo of the track, scat or house in the observation.

(The iNat app will likely not be able to suggest a species ID for this one. You’ll have to use your other investigative skills to determine the species!)

Challenge 3: The Food Web

All of the species you find on McMurtrie are connected via the food web. There are methods of determining the "diversity" of all the species that call McMurtrie their home.

Challenge Objectives:

1. Add observations for three species of plants and/or animals that exemplify three layers of the food web. For example: bird of prey, gray squirrel, and oak tree (acorn).
2. Calculate the Simpson Diversity Index (D) of the McMurtrie Preserve using all the observations on our iNaturalist Project. You can either do this manually, or try exporting the data from iNaturalist:

   https://www.inaturalist.org/pages/help
   "Anyone with an account can export data from iNaturalist as a spreadsheet in csv format. You can start from the Explore page and click download in the lower right of the filters box. Or you can go directly to the export page (https://www.inaturalist.org/observations/export)."

   https://www.inaturalist.org/observations/export?projects=mcmurtrie-preserve-star-prairie-land-preservation-trust

   Tell us: does this seem like the accurate diversity? How do you think it will change over time?

$$D = \frac{\sum_i^N n(n-1)}{N(N-1)}$$

$where\ n = \ number\ of\ observations\ of\ a\ single\ species$
$where\ N = total\ number\ of\ observations\ of\ all\ species$
(Hint: Simpson's Species Diversity in Excel, https://www.youtube.com/watch?v=ys0nQk2_Z6s)

Challenge 4: The Other "Food Web"

The other type of "food web" found on the property is the one built by a spider! Finding and identifying spiders can be really tricky. We need your help to get better!

Challenge Objectives:

1. Take a photo of a spiderweb on the property and post it to our Twitter or Facebook page (or email us)! Tell Us: what kind of spider do you think it is from?
2. Post a spider observation to iNaturalist. Tell us: would you expect that spider's web to be along the ground or suspended in the air? Does it spin a web at all?
   (Hint: https://spiderid.com/locations/united-states/wisconsin/)
3. BONUS: Get an observation of a spider inside its web.

Challenge 5: Photosynthesis

Plants convert energy from the sun into chemical energy. In the process, they use carbon dioxide and water to form sugar and oxygen. Find the space on the property we have marked out with ribbon.

$$6CO_2 + 6H_2O + sunlight \rightarrow C_6H_{12}O_6 + 6O_2$$

<u>Challenge Objectives:</u>

1. Post an iNat observation of a tree species in that section.
2. Count the total number of *living* trees in the section.
   Assume that each tree is 0.5 m^3 of volume.
   Assume that 25% of a living tree's mass is $C_6H_{12}O_6$.
   Assume the density of a living tree is 500 kg/m^3.
   Calculate and Tell Us: How many kg of CO_2 were sequestered into the trees of that section?

Challenge 6: Water

Plants also need water. Luckily, there's plenty of water around McMurtrie!

Challenge Objectives:

1. Post an iNat observation of a plant or animal on/in the water.
2. McMurtrie is 63-acres. Wisconsin averages 12" of rain during the summer. Calculate and Tell Us: What's the total volume of rainwater (in gallons) that falls onto McMurtrie?
3. BONUS: look back at "Photosynthesis". If 50% of a living tree's mass is water, do you think there's enough water for all the trees on the property?
   (Hint: Try using "quadrats" to determine the total number of trees on the property. The marked-off space is 30 square feet. https://www.khanacademy.org/science/high-school-biology/hs-ecology/hs-population-ecology/a/population-size-density-and-dispersal)