



A frog meets its fate with a hooded merganser Sunday at Bass Ponds. Photo by Ronald Cordes. Used with permission. Submit your photos and video taken at the Minnesota Valley National Wildlife Refuge for possible publication to [hello@mvalleyrefugefriends.org](mailto:hello@mvalleyrefugefriends.org).



## Minnesota Valley Refuge Friends Currents

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**Dear Friends,**

Thank you.

In November, we set out to accomplish our biggest Give to the Max Day effort with \$2,000 in matches from our board of directors and My Credit Union. We figured because we raised roughly \$2,000 in 2019, doubling our goal this year would be quite an achievement.

Thanks to you, we not only met our \$4,000 goal, but we also went on to raise \$8,074! Members with us since 2007 and 2008 donated. First-time and renewing members donated. And some members donated a second time this year to help us meet our matches.

Although 2021 may be filled with uncertainty, thanks to you, we are in a better position financially to support the habitat restoration, environmental education, urban outreach, mentoring, arts, and other activities at the Minnesota Valley National Wildlife Refuge. We'll begin a new chapter in developing exciting programming for our members. And I most look forward to the day when the Refuge staff and volunteers can welcome you back inside the education and visitor centers.

Thank you for your continued trust and commitment to Minnesota Valley Refuge Friends. We hope to see you on a trail sometime soon at the Refuge!

Season's greetings,  
Sara N. Blood  
Executive Director

## Consider giving the nature lover on your list a gift membership to Minnesota Valley Refuge Friends

Do you have a nature lover on your gift list? Consider giving them a gift membership to Minnesota Valley Refuge Friends and support the Minnesota Valley National Wildlife Refuge. Memberships begin at just \$25 and include a subscription to this newsletter, a 10% discount at the Blufftop Nature Store located at the Refuge's Bloomington Education & Visitor Center, personal invitations to events and training opportunities, and assurance that their membership is helping the Refuge thrive and succeed. For more information about Minnesota Valley Refuge Friends memberships, please visit [here](#).



### SEAK student photo contest winner

Last month, high school students participating in the Minnesota Valley National Wildlife Refuge's SEAK program (Students Eagerly Acquiring Knowledge) had the opportunity to share their best shots for a fall photo contest.

Congratulations to Esmeralda Xiong, the winner of the SEAK photo contest!

Her photo entries received the most votes for the Water and Humans in Nature themed categories. Her photos will also be featured on [Wolf Ridge Environmental Learning Center](#) and the U.S. Forest Service social media feeds.

Photos: water splash and a fall hike by Esmeralda Xiong

## Refuge happenings

by Hannah McBrearty  
Park Ranger

There is light ahead. Winter officially greets us on Dec. 22, the winter solstice, with the longest night and the shortest day. Though daylight will grow longer each passing day, we are in for some colder temperatures ahead. [Take a lesson from wildlife and check out USFWS's hygge tips for finding warmth and contentment in the months ahead.](#)

Happy New Year! Why not start the year off with a First Day Hike this year? [Find a trail near you.](#) Need a New Year's Resolution? Vow to stay connected to the rhythms of nature: Hike all 46 miles of Minnesota Valley's trails, [Start a bird list](#), or Unplug from technology and go outside for 30 minutes every day!

## Nature in your neighborhood

The Geminid meteor shower, considered one of the best showers of the year, is expected to peak on the night of Dec. 13-14. According to AccuWeather, the Geminids are a great shower for young stargazers, beginning in the night sky as early as 9 or 10 p.m., and peaking at up to 120 Geminid meteors per hour. The Old Farmer's Almanac offers a great primer on meteors and the Geminids [here](#).



Folklore uses the banded stripes on a woolly bear caterpillar to predict a winter's severity: the wider the black band is, the worse the winter will be. But what happens to these caterpillars once the snow flies? Photo credit: NY1.com

## Wildlife watch: Where have all the insects gone?

by Mel Schneider  
Refuge Environmental Educator

When winter settles in, and temperatures reach below freezing, most people know what animals do: chipmunks hibernate, ducks migrate, and deer stick around. However, there is a notable absence outdoors that often goes unnoticed. No crickets are singing us to sleep, no mosquitoes biting, and no pollinators buzzing around. So, where have all the insects gone? The answer is a complex one: winter adaptations of insects are as varied as insects themselves.

A few well-known insects head for warmer climes, including the monarch butterfly, which migrates to Mexico. The common green darner dragonfly and painted lady butterfly also take wing and head south for the winter.

Where do the rest of the butterflies go? A few of them, such as mourning cloaks, red admirals, and angle-wings overwinter as adults, tucking themselves underneath the bark of trees or into cracks in logs. Many other butterflies and moths, including large species like swallowtails and luna moths, overwinter in their cocoons or chrysalises, and some, like the endangered Karner blue butterfly, overwinter as eggs.

Other insects hibernate together in groups called aggregates. Ladybugs huddle together inside rotting logs or under rocks, and honeybees aggregate together in their hive.

Minnesota's native bees employ other strategies, including solitary bees that overwinter underground in diapause, a hibernation-like state of dormancy that takes place during an insect's development. And bumblebees that leave only one survivor for the winter, the queen. While the rest of the hive completes its life cycle, the queen finds a place underground or in leaf litter to lie dormant until spring.

Like solitary bees, many insects complete their life cycle before winter and leave only their offspring to survive the winter. June bug larvae and pupae live underground before emerging as adults in spring, and dragonfly nymphs can live in the bottom of ponds for four years before emerging as adult dragonflies.

Perhaps the most intriguing insects are the ones that don't hibernate, per se, but freeze solid and thaw in the spring. One example of this is the banded woolly bear caterpillar (Isabella tiger moth) that burrows beneath leaf litter and produces a chemical called glycerol, a sort of insect antifreeze that prevents its cells from rupturing in freezing temperatures.

So, when someone asks you, "Where have all the insects gone?" Now you can tell them. Everywhere.



Confluence Gallery is the new name of the Gallery Space at the Minnesota Valley National Wildlife Refuge. The Refuge is holding an online call of artists through Jan. 15. Photo of an art exhibition at Minnesota Valley National Wildlife Refuge by Joel Vos/USFWS.

## **Introducing Confluence Gallery at Minnesota Valley National Wildlife Refuge & call for entries**

Working in close partnership with [Artistry](#), a Bloomington-based nonprofit arts organization, Minnesota Valley National Wildlife Refuge is excited to announce the new name of the gallery space located in the Bloomington Education and Visitor Center – “Confluence Gallery.” This naming is the first of many steps in a rebranding journey for this space aimed to inspire, educate, and connect Refuge visitors to the natural world.

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A new Call for Artists for the Confluence Gallery is currently open and accepting exhibit proposals for their 2021 and 2022 exhibition program years. Emerging and established artists residing in Minnesota who are 18 years or older, and whose artwork has a focus on nature, natural elements, ecology, conservation, and/or the beauty of the Minnesota River Valley are invited to submit a proposal. All visual art mediums are eligible. Proposals are being accepted via CaFÉ, an online application service, through Jan. 15, 2021, and all applicants will be notified by Feb. 15, 2021, of the curatorial review panel's decision.

For a complete list of proposal requirements or to apply, [please visit our Call for Artists on CaFÉ](#).

This partnership between the Refuge and Artistry is made possible through a grant secured by Minnesota Valley Refuge Friends in which the funder wishes to remain anonymous. If you are interested in learning more or giving a restricted gift toward the gallery, [please contact us](#).

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Minnesota Valley Refuge Friends is a 501(c)(3) nonprofit organization committed to the Minnesota Valley National Wildlife Refuge. All contributions are tax-deductible.

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