



Digging It!



All the Dirt from the Allen County Master Gardeners

JANUARY 2020

Tidbits from Teresa

Once the holiday decorations are all packaged up and in the attic you might be searching for something plant related to tide you over until you can hit the greenhouses. An option for you might be going online and becoming part of the world of phenology. Why Phenology? Phenology is nature's calendar—when cherry trees bloom, when a robin builds its nest and when leaves turn color in the fall.

Phenology is a key component of life on earth. Many birds time their nesting so that eggs hatch when insects are available to feed nestlings. Likewise, insect emergence is often synchronized with leaf out in host plants. For people, earlier flowering means earlier allergies. Farmers and gardeners need to know the schedule of plant and insect development to decide when to apply fertilizers and pesticides and when to plant to avoid frosts. Phenology influences the abundance and distribution of organisms, ecosystem services, food webs, and global cycles of water and carbon. In turn, phenology may be altered by changes in temperature and precipitation.

Changes in phenological events like flowering and animal migration are among the most sensitive biological responses to climate change. Across the world, many spring events are occurring earlier—and fall events are happening later—than they did in the past. However, not all species are changing at the same rate or direction, leading to mismatches. How plants and animals respond can help us predict whether their populations will grow or shrink – making phenology a leading indicator of climate change impacts.

Critical applications of phenology include:

- Management of invasive species and forest pests
- Predictions of human health-related events, such as allergies and mosquito season
- Optimization of when to plant, fertilize, and harvest crops
- Understanding the timing of ecosystem processes, such as carbon cycling
- Assessment of the vulnerability of species, populations, and ecological communities to ongoing climate change

The USA-NPN was established in part to assemble long-term phenology datasets for a broad array of species across the United States. Scientists use [observational data](#) in the National Phenology Database and models, such as the [Spring Indices](#), to understand how responsive species and phenological phases are to changes in climate across time and space. This information can be used to determine the extent to which species,

populations, and communities are vulnerable to ongoing and projected future changes in climate. Explore [highlighted peer-reviewed publications](https://www.usanpn.org/) to learn more about phenological research. <https://www.usanpn.org/>

The USA National Phenology Network monitors the influence of climate on the phenology of plants, animals, and landscapes. The group provides tools for citizen scientists to collect, store, and share information on plant and animal life cycle events such as leaf out, flowering, and migration. USA-NPN tools can be used to engage audiences in project planning, data collection, and analysis to understand the impact of climate change on phenology for a range of species and systems.

Nature's Notebook, a program of USA-NPN, is designed for both professional and citizen scientists, with standardized phenology monitoring protocols, training and education materials, and active communities of observers and researchers. Participants use mobile apps or a browser interface to submit data on over 1,000 species of plants and animals in the United States.

All phenology data collected by Nature's Notebook participants, as well as some integrated legacy datasets, are available for visualization and analysis. The USA-NPN Phenology Visualization tool supports the creation of phenology calendars and comparisons between years, species, and regions, as well as exploring relationships between phenological events and climate drivers (e.g., flowering predicted by accumulated precipitation).

The USA-NPN researcher and manager communities are developing tools and techniques to use these observations to support a wide range of decisions made routinely by citizens, managers, scientists, and others, including decisions related to ecosystems, food resources, allergies, wildfires, water, and conservation. As a Master Gardener you can be a valuable source of data and keep from getting stir crazy as winter drags on!

Teresa Diehl January 2020



From Sandy Bindel's desk: (Sandy will be back in our Spring edition)



FINISHING UP 2019 AND STARTING 2020 ON THE VMS

OSU will be pulling the data from the VMS next week for reporting to the University and the legislature. If you need to make any final additions or corrections to your volunteer hours please do so right now.

In the following week or two you will receive the email to RECERTIFY as a MG. For your recollection that is 3 quick questions in the VMS when you first log-in. Clint is just getting trained and used to the VMS process so let's help him out as much as possible in replying quickly to the recertification process. This process is important because it is tied to the amount that we are billed for membership for 2020. We try to get these numbers right so that we are not paying dues for Inactive members.

Thanks for your cooperation!

PLANNING FOR THE ART OF GARDENING SEMINAR

I am dotting some I's and crossing some T's with the speakers for the conference (they all want the same time slot :D) and then we will be getting the registration out. Since we are going back to the single room and will sell out at 160 guests, PLEASE get signed up immediately. I will be sending ACMGV's ONLY the registration form 3 days ahead of everyone else so that you get a jump start on your registration.

Please also watch your emails for the help needed on the various teams. We produce one of the top conferences in the state – Clint has heard from other Educators around the State about how great our conference is – and it takes ALL of us to make it happen.

Mark your calendar and watch your emails this month! It's going to be a GREAT day!

MISSION ACCOMPLISHED

Eleven years ago we were told that there would no longer be an Allen County Master Gardener Volunteer program because the Extension office was closing and funding had been cut. We were told that all projects in Allen County would cease, including the Children's Garden. We could see that too many people had invested too much of their time, talent and treasure in the Children's Garden and in the ACMGV program for that to happen.

When the dust began to settle Tim and I had a few conversations about the future of the ACMGV's and agreed that I had the time and organizational background to help keep the program and the garden and our other projects afloat until the ship was righted and funding was restored to bring an Ag and Natural Resources Educator back to Allen County. That time has come.

I had a wonderful meeting with Clint Schroeder and he gets it. He understands the value of the program, the great group of dedicated volunteers we have and the value of the Children's Garden to the community. I then met with our board and let them know that now is a great time for me to hand the reins over to Clint and a new coordinator. It is the perfect time to look toward the future and our goals as ACMGV's.

Then, the board and I met with Clint on December 18 and had a great discussion about the future. Clint is going to work with his teammates in Allen County Extension and look at the best way to implement a replacement for my position. The position will look different in many ways when the plan is put together but rest assured that the goals of maintaining the program and the garden are primary objectives! The board will continue working with Clint to make a plan in the coming weeks and months and will be keeping you informed as the plan develops.

As for me, rest assured, I am not going anywhere! I am committed to working with Clint and the future volunteer coordinator to see a smooth transition. I am first and foremost an Allen County Master Gardener Volunteer just like you and I plan to continue to dedicate my time, talents and treasure to the organization just as you all do! And in my spare time, I will be serving Columbus Grove in my role as City Councilor and Tim and I will be looking ahead toward his retirement and our future; assisting our aging parents; and taking our first trip "across the pond" to Ireland this summer.

I am very proud of you all and very humbled by the efforts we have made to sustain the unsustainable against all odds during very trying times. We did it! We are a great team! Mission Accomplished!

See you at the seminar!

~ Gretchen

This is one of the articles Teresa had mentioned in her section of her edition above from the website:

<https://www.usanpn.org/node/35022>

Nature's Notebook data show shift to earlier milkweed flowering



In a nutshell

Common milkweed, *Asclepias syriaca*, an important host plant for monarchs and other pollinators, has declined by 50 to 90% in parts of the U.S. To understand how changes in climate impact milkweed and potentially contribute to this decline, the author of a study published in *Nature Scientific Reports* compared flowering phenology data collected through *Nature's Notebook* and temperature data from NOAA and DAYMET. With each degree of growing season maximum temperature increase, the mean flowering date for milkweed shifted nearly four days earlier. The shift occurred across first, last, and mean flowering dates but did not extend to initial growth or fruit ripening, suggesting that the entire flowering period may be responding to climate change. The shift became more significant over the period of 2011 to 2016.

What is special about this study?

The data used in this study collected by *Nature's Notebook* observers spanned 23 states and 6 years, a much larger dataset than a small research team could have collected. This study highlights the value of the data collection methods employed in *Nature's Notebook*: the author was able to restrict the analysis to records of flowering that were preceded by a “no” observation, showing that the observer was collecting data on the plant prior to flowering.

What does this mean for YOU?

Shifts in flowering time pose a risk to pollination, as activity of pollinators does not always keep pace with shifts in flowering. Common milkweed has a diversity of pollinators, which may buffer it somewhat from potential mismatches. Knowledge gained from this study of how common milkweed flowering is likely to shift with future climate change will help managers develop conservation plans for this species and its pollinators.

Citation: Howard, A.F. 2018. *Asclepias syriaca* (common milkweed) flowering date shift in response to climate change. *Scientific Reports*. 2018: 1-6. doi.org/10.1038/s41598-018-36152-2