UNIVERSITY OF MARYLAND EXTENSION

TPM/IPM Weekly Report
for Arborists, Landscape Managers & Nursery Managers

Commercial Horticulture **April 6, 2018**

In This Issue...

Pest Predictive Calendar

IPMnet
Integrated Pest Management for Commercial Horticulture

extension.umd.edu/ipm

If you work for a commercial horticultural business in the area, you can report insect, disease, weed or cultural plant problems found in the landscape or nursery to sklick@umd.edu

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Pest and Beneficial Insect Information: Stanton Gill and Paula Shrewsbury (Extension Specialists) and Nancy Harding, Faculty Research Assistant
Disease Information: Karen Rane (Plant Pathologist) and David Clement (Extension Specialist)
Weed of the Week: Chuck Schuster (Extension Educator, Montgomery County)
Cultural Information: Ginny Rosenkranz (Extension Educator, Wicomico/Worcester/Somerset Counties)
Fertility Management: Andrew Ristvey (Extension Specialist, Wye Research & Education Center)
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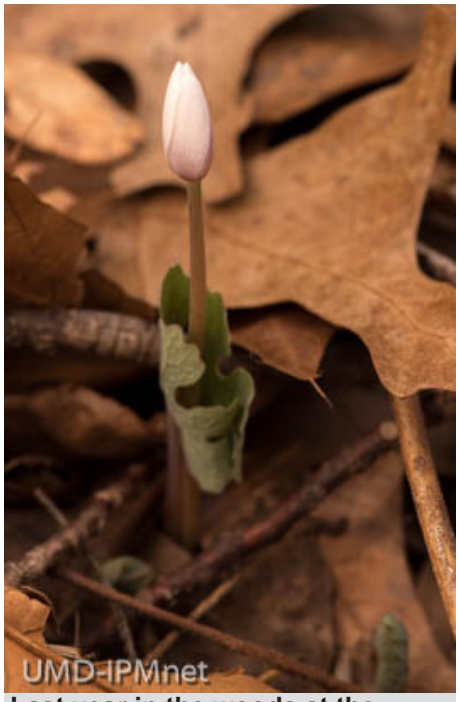
Cold Start to Spring

By: Stanton Gill

The spring of 2017 was cool and wet. We didn't think it could be topped for dreary spring weather, but so far we seeing very, very cold weather, punctuated with a couple of very short bursts of warmth in 2018. The spring appears to be in slow motion this spring with flowers opening about 10 - 14 days later than normal. The early pest we usually see active is the tent caterpillar, but all of the reports indicate across the state that they have not hatched yet. The dreaded *Xylosandrus* species of ambrosia beetles are still inactive. We had a couple of ambrosia beetle samples submitted to our CMREC lab 3 weeks ago when we had a mini-burst of warm weather, but they were two native species of ambrosia beetles.



Last year in the woods at the research center, bloodroot flowers were blooming as of March 27. This year, on April 6, we are just now seeing buds

Richard Uva in Federalsburg reports that his plum blooms did open this week and mason bees are active pollinating the flowers. We received reports that callery pear flower buds were starting to show

white buds on the Eastern Shore. Callery pears are already blooming in Prince George's County. The cherry blooms are half way open in Washington and are predicted to be in full bloom between April 9 - 11.

Nursery growers who ship out plant material report it is working well this spring since most plant material is remaining dormant, allowing later than normal shipping. So, at least part of the horticulture industry is happy with this cold spring. Greenhouse wholesale growers tell me that pansy sales are strong this spring so landscapers are installing flowering plants during the cold, wet weather.
This weekend, it is predicted to stay cold with snow showers and rain early next week. When "the real spring" arrives it should be a burst of flowers, disease and insect activity.

If you see any insect activity this week in your area of the state send me an email at Sgill@umd.edu.

How Did This Winter Stack up?

By Stanton Gill

It has been an interesting fall of 2017 and winter of 2018 – to say the least. It was not as warm as 2016 when it stayed warm up to Christmas. In 2017, it was warm through November, and then suddenly got cold in early December. On November 19, it was warm, in the 60 °F range, then overnight it dropped to freezing. Also, an interesting thing happened. Japanese maple and crape myrtle foliage browned up, but did not abscise and drop. The brown foliage was present on both species of plants up through the 60 mph winds we had in mid- March of 2018 when the dried up leaves finally blew off most trees.

The reason we are recounting this weather pattern is because we will see damage this spring and early summer that is related to this last winter and most of your customers will have long forgotten the strange winter we had and the damage it inflicted.

On December 28, the temperatures dropped rapidly and it reached single digits in most of Maryland. On December 29, the temperatures remained in the single digit range of 8 - 9 °F for most of the day. The New Year was much better with temperatures dipping to 7 °F and staying in the 5 – 9 °F range for the next 7 days. Many pipes froze in peoples' houses. The wind chill factor on several of the days took the temperatures down into the minus 8 -12 °F range.

On January 3, *The Washington Post* headline was "Monster Storm Will Blast Cold Throughout the East Coast". The forecasters called the weather front a "bomb cyclone" because the pressure fell so fast. It was the most intense storm over the waters of the East Coast in several decades. Snow and ice from Lake City, Florida to Virginia Beach were seen that week. There were 3 - 4 inches of snow in Charleston, South Carolina. On the Eastern Shore of Maryland and Ocean City they received 4 – 6" of snow which is very unusual. In the wake of the storm the mother lode of numbing cold crashed on the East Coast.

On the good side, Longwood Gardens sent this photo of fruit trees coming into bloom this week – even though they are inside their conservatory. Photo: Becca Manning, Longwood Gardens

Kevin Nickle, ProLawn Plus, Inc., sent in pictures of forthysia in bloom in several locations around the Baltimore Beltway with blooms showing up late in February 2018 during a brief period of warm weather.

March came in like a lion with roaring winds and cold and hung around with the cold through most of March. Now, in early April it remains cool, rainy mixed with snow. We know it is officially spring, but the warm weather is slow in coming in 2018, so far.

Look for winter damage on evergreen shrubs throughout the spring
Photo: Kevin Nickle, ProLawn Plus, Inc.

We received multiple reports of Japanese maples holding onto their leaves through February
Photo: Brian Scheck, Maxalea, Inc.

Invasive Species Conference for April 19, 2018

By: Stanton Gill

The spotted lanternfly has been grabbing all of the Press over the last month. We will cover what is going on with this pest and what we need from you to help us deal with it. Progress on biological control of the emerald ash borer will be covered in this seminar. There will be an update on oak problems in the landscape and an update from USDA APHIS on what new invsavie species are big concerns for the US. It is busy in April, but if you can spare the time, try to attend the Invasive Species Conference we have set up for April 19th.

This session counts for re-certifications credits for:
MD pesticide Catagories 1A, 2, 3A, 3C, 6 and 10 and private applicators. This program has been approved for 5 Tree expert license CEUs.
For D.C., it has been approved for 3A and 3C.
In PA, it has been approved for the following Categories (Credits): PC - Private Category (6), 02 - Fruit and Nuts (2), 05 - Forest Pest Control (8), 06 - Ornamental and Shade Trees (10), 10 - Right of Way & Weeds (4), 18 - Demonstration and Research (10), and 23 - Park / School Pest Control (10)

It has been submited for ISA credits and VA pesticide recertification.

Hope to see you at this upcoming seminar.

Brown Marmorated Stink Bug

By: Stanton Gill

We are getting reports of a few random brown marmorated stink bugs active in peoples' homes this winter, but they have really crashed in numbers in Maryland over the last 5 years to "all- time lows" in population levels compared to 2012 when they were everywhere. Now brown marmorated stink bugs are becoming a pest in parts of Russia. Jambulat Khatuov, the Russian Deputy Minister of Agriculture, announced that brown marmorated stink bug was found in Russia at a meeting in Sukhumi. During the meeting, participants focused on coordinating Russian and Abkhazian specialists' efforts in combating the bug. The brown marmorated stink bug first appeared in Abkhazia four years ago. It caused severe damage to the local agriculture sector. This pest has fallen into the background as a pest problem here in Maryland, but is now moving onto new frontiers. Don't worry, there will be more invasive species showing up at our doorsteps as worldwide trade continues.

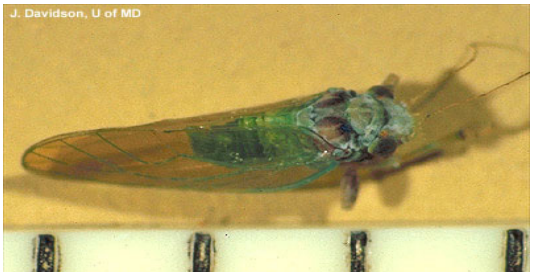
Boxwood Psyllid

By: Stanton Gill

Buxus sempervirens has an extremely common pest – the boxwood psyllid, that causes curling and cupping of new foliage. They overwinter as eggs in the foliage with nymphs feeding on new growth in April and May. They excrete wax that is white and can be very noticeable. With the cool spring so far, I have not seen activity in most locations. Heather Zindash sent a picture of an adult boxwood psyllid on March 28th. This psyllid had to be from a city landscape micro-environment where it is a little warmer. Watch for these as the weather warms up in April and if you are in the city area where micro-climate exist then check soon.
Systemic insecticides are generally very effective on this pest.

If you have boxwoods with boxwood leafminers, cut open a couple of leaves and see if the large yellow leafminer is progressing. If you can send along picture to me at Sgill@umd.edu, I would appreciate it.

Cupping damage on boxwood foliage due to psyllid feeding
Photo: HGIC, U of MD



Nymphs and an adult of boxwood psyllids
Photos: John Davidson, U of MD

Leaf Spots on Yucca

Marty Adams, Bartlett Tree Experts, found terrible leaf spotting on yucca in Ellicott City. It was confimed by Bartlett Labs as a disease caused by *Mycosphaerella* spp. There are several species of fungi that cause leaf spotting on yucca foliage. The spots persist through the season. It's usually best to prune out the diseased leaves and let the plant regrow. These early leaf spots are difficult to control with fungicides.

Problems on Leyland Cypress

By: Dave Clement, UME-HGIC

Leyland cypress (x *Cupressocyparis leylandii*) has a lot going for it. Fast growing, with evergreen, feathery foliage, and a pleasing, slender profile, it makes an excellent specimen tree or screening plant. A cross between two Pacific coast species, the Leyland cypress thrives best in moist, cool climates with moderate temperatures. These trees are hardy to zone 6, however they don't tolerate sudden temperature fluctuations. We indeed experienced some of these very cold sudden temperature fluctuations this past December and January. The first winter damage symptoms will begin showing up as browning and dieback this spring as temperature begin to warm and stimulate new growth.

Look for winter damage on Leyland cypress trees as we move into spring
Photo: Dave Clement, UME-HGIC

Since Leyland's are often used for screening and wind breaks they are frequently exposed to temperature extremes and windy conditions that lead to drying out and cold damage. One of the weakness of Leyland's are their shallow root systems which makes them susceptible to stress through desiccation. Another weakness is the dieback and death of the water conducting tissue and cambium layer just under the bark during extreme winter temperature fluctuations.

Winter cold injury can lead to greater infections from fungal diseases, such as Seiridium canker
Photo: Dave Clement, UME-HGIC

There is no actual treatment for winter damage on Leyland cypress. Before pruning, allow the damaged tree to begin new spring growth. Often, if the damage did not injure the branch, new growth will emerge, and the browned needles will drop off naturally. If new growth does not emerge, the branch was severely damaged and should be pruned above where green color is still visible. Leyland cypress trees are tolerant of heavy pruning, but if more than one-third of the tree is damaged, the tree may need to be replaced.

Winter cold injury can often lead to greater infections from a few common fungal diseases that affect foliage, stems, and branches such as *Seiridium* and *Botryosphaeria* cankers, as well as Cercospora needle blight. Symptoms of canker diseases include branches that start to turn yellow to reddish-brown. Closer examination

will reveal slightly sunken cankers, with resin exuding profusely several feet down on the infected branch, usually closer to the main trunk.

The fungal cankers spread primarily by releasing spores during rainy spring weather. The rain water will carry the fungal spores to other branches. Infection on multiple branches throughout the tree or on the main trunk can kill the entire tree. The only known cure for Seiridium, or Botryosphaeria cankers is pruning the infected branch below the infected area.

In the future, it would be best to diversify evergreen borders with a variety of evergreens and deciduous plant selections rather than just one species.

Preserving Seeds for the Future

Maintaining a source for seeds is critical to the future. Scandinavia announced on February 26, 2018 that it is going to spend about $12.7 million to upgrade its "doomsday" seed vault that is the world's largest repository built to safeguard against wars or natural disasters wiping out global food crops. This should be reassuring to the rest of the world.

Beneficial of the Week

By: Paula Shrewsbury, University of Maryland

Be sure to provide food resources for pollinators and natural enemies as you plant your landscapes!

Crabapple flowers provide nectar and pollen for bees and wasps early in the season

Plants provide resources in the form of nectar and pollen for beneficial insects such as pollinators and omnivorous natural enemies. Diverse plantings also provide alternate prey (insects) that will attract and retain natural enemies in the habitat. Many beneficial insects are in decline and their overall diversity and abundance are at risk. One of the simpler ways to mitigate ongoing declines in beneficial insects is to provide floral resources (nectar and pollen) from plants that are attractive and nutritional to these insects. Green industry professionals and the public in general should know which plants provide resources that help to conserve beneficial insects. Green industry professionals can gain from his knowledge in multiple ways. First, trees, shrubs, and flowering plants can be marketed for their added benefit of supporting beneficial insects. Secondly, you can be stewards of the environment by recommending and installing plants and / or designing landscapes that favor pollinators and/ or natural enemies. Conservation practices also help to retain ecosystem services provided by insects such as pollination and biological control. "Natural" biological control helps reduce pest outbreaks and reduces costs (less pesticides are needed) associated with the management of landscapes and nurseries.

One thing to remember is that not all plants are created equal in the nutritional value of their nectar and pollen. Over the past dozen or so years numerous research studies have been conducted evaluating the attractiveness and nutritional value of woody and herbaceous ornamental plants, both native and non-native, to pollinators and natural enemies. There a several good research-based resources as to which plants are best at conserving pollinators and/ or natural enemies. At the end of this article I provide a list of these resources and their web links. I am sure this is not an inclusive list but to date these are the sources I have found to be useful.

In addition to choosing the appropriate plants for conserving pollinators and natural enemies, there are several other factors to consider. For example, plants should be selected so at least a few species of plants are in bloom at any time throughout the entire season. Most challenging are plants that bloom very early in the season (some trees fulfill this niche) or very late. For example, the solitary "tube nesting" mason bees became active last week (reported from Columbia and Bowie MD). The bees were seen foraging on witch hazel (Hamamelis x intermedia 'Arnold Promise') and Oregon grape (Mahonia aquifolium) this past week. Also a clump or cluster of the same flower species are more attractive than isolated plants. Flowers should vary in their floral architecture since big flowers (Composites) will attract different insects than small flowers (ex. Umbelliferae). Diversity is good!

Eastern redbud, *Cercis canadensis*, is an early flowering tree with flowers regularly visited by bees

Since lack of optimal floral resources are one of several factors that influence pollinator and natural enemy health, also keep in mind other measures to reduce detrimental impacts on beneficials. Practicing IPM and implementing management tactics other than pesticides, or selecting pesticides that have been shown through research to have less detrimental impact on beneficials is all part of the "strategy" to protect pollinators, natural enemies, and biodiversity overall to create sustainable landscapes and nurseries.

Below are web-based resources on flowering trees, shrubs, and herbaceous plants that have been shown through research to provide optimal floral resources for pollinators and/or natural enemies (note this is not an inclusive list):

- The Xerces Society: Conservation of diverse arthropods (ex. pollinators, monarch butterflies, natural enemies) http://www.xerces.org/
  - Xerces Society – List of Pollinator-Friendly Plants – Mid-Atlantic Region at: http://www.xerces.org/pollinator-conservation/plant-lists/
- Multistate bulletin on Protecting and enhancing pollinators in urban landscapes for the U.S. North Central Region
  - http://msue.anr.msu.edu/resources/how_to_protect_and_increase_pollinators_in_your_landscape
- Native plants attractive to natural enemies and pollinators (Michigan State University)
  - http://nativeplants.msu.edu/ and http://nativeplants.msu.edu/resources/publications
- A research-based list of flowering woody landscape plants that are attractive to bees:
  - To access the list, click on: http://growwise.org/wp-content/uploads/2017/02/HRI-Pollinator-BeePlantLists-February2017.pdf

Weed of the Week

By: Chuck Schuster, University of Maryland Extension

April has not started as many might have anticipated. Cooler than expected temperatures have many wondering what to expect. While soil temperatures have remained cool in many locations, this week barely getting out of the upper 40 °F range, and dipping down to the upper thirties in many of the fringe areas. Areas closer to our metropolitan areas are seeing warmer temperatures than those in the less urban locations. This temperature difference presents a challenge as each turf and landscape manager attempts to determine when to get started with pre-emergent products. Landscape pre-emergent products have been in use this spring as mulch was put down, which was very timely as it sets the stage for success preventing the early to geminate weeds from getting a start. In turfgrass, the optimum window for Japanese stiltgrass and crabgrass has not hit in many areas. It is important to have the pre-emergent products down early enough, and to have them watered in to activate the material to make for a successful season. Depending on where you are monitoring, most soils are still a little cool and waiting has not caused any problems. What crabgrass that has emerged is still at risk of being terminated by a hard freeze.

Photo 1. Lesser celandine in bloom makes it easy to see its dense, competitive growth habit
By: C. Schuster, UME

One weed that has moved through the cold and has been showing itself is lesser celandine. Lesser celandine, *Ficaria verna* (formerly *Ranunculus ficaria* L.), also known as fig buttercup and pilewort, is a herbaceous perennial flowering plant that is flowering now. This spring ephemeral starts early in the season, often being found near forest transition areas with turfgrass and creates a dense carpet, thus preventing many native ephemerals that include bloodroot, wind ginger and others from surviving. This plant has a dense growth habit making it an invasive weed that competes and eliminates native understory plant species (photo 1). It is listed as a Tier 1 Invasive Species plant by MDA. This plant may be misidentified as marsh marigold, *Caltha palustris*, but it does not produce the tubers found on lesser celandine. It will also compete quite well with desired species of turf and will often requires appropriate management to be controlled.

Photo 2. Lesser celandine produces bright yellow flowers briefly in spring
S. Dubik UME\Montgomery College

This plant forms a basal rosette of dark green and shiny stalked leaves that are heart- to kidney-shaped. The flowers arise above the leaves on a delicate stalk, are yellow in color, and have eight petals (rarely more) (photo 2). The center of the flower will be slightly darker in color. Most flowering occurs in this region from March through May. The plant produces pale cream colored bulblets that occur along the stem axils that will become noticeable with close observation after the flowering period is complete. These bulblets make mechanical removal very difficult. Lesser celandine spreads primarily by vegetative means through abundant tubers and bulblets.

Control of lesser celandine is difficult. Manual methods can achieve success with small patches, but will take careful removal of all bulblets and removal from the site to either a landfill or other means of destruction. Chemical control can be achieved using glyphosate (Rodeo is labeled for wetland areas) products early in the season, mid February to early April, as long as the temperature is 50 °F and no rain is anticipated within 12 hours. Waiting beyond this period of time may cause damage to many native wildflowers that share some sites. In this area, it is recommended to wait until half the plants are in bloom to start control. In turf/lawn settings,

products containing at least two of these herbicides have been found effective. The herbicides to look for are MCPA, triclopyr, dicamba, that will remove many broadleaf weeds. Use caution with these products near ornamentals as the potential for volatilization does exist. Glyphosate products are non-selective and will destroy desired species. This process will take seven to fourteen days under ideal growing conditions.

Plant of the Week

By: Ginny Rosenkranz, University of Maryland Extension

There are a number of plants that say spring is coming, but the one that gives four seasons of color and interest is *Helleborus*, which has thick dark green, evergreen foliage and begins to bloom in January or February depending on the warmth of the winter, and continues to bloom through May. Hellebores have so many new and different cultivars with such lovely colors and flowers, it is often difficult to pick just one. There is the Gold Collection®, part of the Heuger Hybrids of *Helleborus* x *ballardiae* which has quite a lot of new cultivars including 'Merlin', 'Pink Frost', 'Cinnamon Snow', 'Silvermoon' and many others.

***Helleborus* x *ballardiae* 'Merlin' is one of the many new hybrids available**
Photo: Ginny Rosenkranz, UME

'Merlin' grows as a compact mound, about 10 -12 inches tall and 15 -28 inches wide with dark green evergreen leaves that are veined with silver, slightly serrated and palmate with 7-9 leaflets. They can handle cold temperatures from USDA zones 5-9 and the plant prefers partial shade and moist but well drained soils. Flower stems arise from the roots of the plants and grow about a foot tall in among the foliage and branches to produce even more flowers. The maroon stems arch over gracefully so that the flowers face outward. The flowers of 'Merlin' are tiny, almost insignificant nectaries, green in color, and are surrounded by soft pink stamens. The 5 often overlapping sepals provide the beautiful colors. The buds on 'Merlin' start out as pale pink then transition to a soft rose and later mature to darker colors. The back of the sepals are more cranberry in color and as the flowers age, they continue to deepen in color. These bright gems of the shade garden can be used as a ground cover, as an edging or border planting, and in containers. They are deer resistant and make good cut flowers.

Phenology

PLANT	PLANT STAGE (Bud with color, First bloom, Full bloom, First leaf)	LOCATION
Lindera benzoin (spicebush)	Bud	Ellicott City (April 6)
Pyrus calleryana (callery pears)	Full bloom	College Park (April 6)
Sanguinaria canadensis (bloodroot)	Bud	Ellicott City (April 6)

Degree Days (As of April 4)

	2018	(4/5/17)		2018	(4/5/17)
Aberdeen, MD (KAPG)	66	125	Annapolis Naval Academy (KNAK)	86	158
Baltimore, MD (KBWI)	89	163	College Park (KCGS)	98	156
Dulles Airport (KIAD)	98	188	Frederick (KFDK)	68	139
Ft. Belvoir, VA (KDAA)	122	204	Greater Cumberland Reg (KCBE)	50	149
Gaithersburg (KGAI)	90	148	Martinsburg, WV (KMRB)	61	124
Natl Arboretum.Reagan Natl (KDCA)	122	244	Salisbury/Ocean City (KSBY)	143	180
St. Mary's City (St. Inigoes, MD-KNUI)	129	206			
Westminster (KDMW)	74	163			

Important Note: We are now using the Weather Underground site for degree days. It changes some of the locations available.

1. Enter your zip code (not all locations are included, check nearest weather station to your site) and hit enter
2. Click the "custom" tab/button below the date
3. Enter the start date below the word "from" (ex. Jan. 1) and the end date below the word "to" (current date)
4. Hit the get "history" button
5. Read your growing degree days (base 50) in the 'Sum' column (=Cummulatlive DD to date for the year)

Upcoming Conferences

Urban Trees: Creating a More Beautiful Community
April 11, 2018: 7 - 9 p.m.
Location: Kentland Community Center, 2411 Pinebrook Avenue, Landover, MD
Free seminar by Dr. Richard Olsen, Director of the National Arboretum
1.75 ISA CEUs
2 Maryland Tree Expert License CEUs
For more information: Prince George's County Forestry Board, 240-601-2802

Invasive Species Conference
April 19, 2018
Location: Montgomery County Extension Office, Derwood, MD
5 MD Tree Expert License CEUs
Contact: Suzanne Klick, sklick@umd.edu

2018 Maryland Urban & Community Forestry Summit
Organized by the Maryland Forestry Foundation
May 11, 2018
4.5 Maryland Licensed Tree Expert CEUs
(Submitted to ISA for CEU approval)
Location: Patuxent Wildlife Vistor Center, Laurel, MD

Eastern Shore Pesticide Recertification Confernce
June 1, 2018
Location: Wye Research and Education Center, Queenston, MD
Contact: Ginny Rosenkranz, rosnkrnz@umd.edu

2018 Procrastinators' Pest Management Conference
June 8, 2018
Location: Montgomery County Extension Office, Derwood, MD
Contact: Chuck Schuster, cfs@umd.edu

Registration links for conferences are posted at:

http://extension.umd.edu/ipm/conferences

The Pest Predictive Calendar is a monitoring tool to assist in predicting when susceptible life stage(s) (stage you want to target for control measures) of pest insects are active by using plant phenological indicators (PPI) and growing degree days (GDD). This tool will lead to improved timing of management tactics and more effective pest management.

We will be making updates to this calendar soon.

Check it out at [Pest Predictive Calendar]

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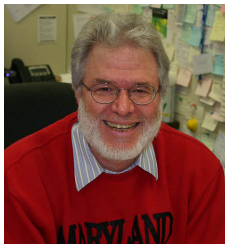

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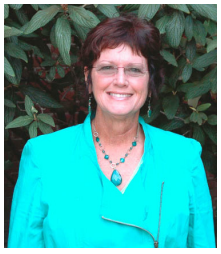

Nancy Harding
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