

BRANCHING OUT

Maryland's Woodland Stewardship Educator



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Changes at the Woodland Stewardship Education Program

Andrew A. Kling, WSE Faculty Associate & *Branching Out* editor

With the change of seasons this year comes a pair of changes to the University of Maryland Extension's Woodland Stewardship Education program. Jonathan Kays, the program's Forestry Specialist and leader, is now retired, and the program's Forest Stewardship Educator, Agnes Kedmenecz, is moving on to a new job in her native Canada (see her farewell below).

These departures mean that the program has a pair of vacancies, and metaphorically speaking, large shoes to fill. The university is currently advertising for a successor in Jonathan's position, but there is no timetable for an individual to come on board.

In the meantime, I will do my best to keep everyone informed about what's happening in Maryland's woodlands.

-Andrew Kling, akling1@umd.edu

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Hello All,

Happy Spring! As you some of you may know, I have some news...

I'm leaving my post as the Woodland Stewardship educator. Yup, I'll be starting my new job this month in British Columbia, Canada. I will be a Training and Education coordinator for British Columbia's Ministry of Forests, Lands, Natural Resources Operations and Rural Development.



The Woods In Your Backyard Partnership team, March 2022. Front row: Julianne Schieffer, Penn State Extension; Agnes Kedmenecz, University of Maryland Extension. Back row: Dave Jackson, Penn State Extension; Andrew A. Kling & Jonathan Kays, University of Maryland Extension; Adam Downing, Virginia Tech Cooperative Extension; Craig Highfield, Alliance for the Chesapeake Bay. Not pictured: Joe Lehnen, Virginia Department of Forestry

So, it is with a heavy heart that I say "Good Bye!" It's a sad and exciting time. I love my job here. Serving landowners and forestry professionals has been a privilege and a joy.

It is your care, love of knowledge and your spirit of good stewardship I will miss the most!

It has been a joy to work directly with many of you. From Earth day celebrations, to measuring trees, to the many webinars, walks in the woods, to visiting your woodland to talk great stewardship and inviting others to into your woods to teach them, we have done a lot in the past 4 years.

Without your support, and collaboration, my time here would not have been the same! Thank you all for being so great!

"And into the forest I go to lose my mind and find my soul."
- John Muir

Take care,
Agnes

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Scientists Flood Forest Patches to Study Impacts of Storms: Researchers look for tipping point in creation of “ghost forests”

Timothy B. Wheeler, The Bay Journal

In low-lying spots bordering the Chesapeake Bay, it's easy to spot the dead trees, leafless and shorn of limbs. These “ghost forests,” their gray trunks pointing skyward from marsh or open water, bear mute witness to the creeping inundation of coastal land as sea level rises.

The switch from lush green forest to a stubble of trunks and snags is so gradual that it's often not noticed until it's obvious. But now, a team of scientists is undertaking what they expect to be a decade-long study of the transition by repeatedly flooding a pair of forest patches at the Smithsonian Environmental Research Center in Edgewater, MD.

Starting in June, each 2,000-square meter plot is to be doused periodically with 80,000 gallons of water. One will get freshwater, the equivalent of a 6-inch downpour in 10 hours. That's many times the normal rainfall for the region, but it simulates the kind of extreme deluge that is predicted to become more common with the changing climate.

The other will get brackish water pumped from the nearby Rhode River, mimicking the episodic flooding from storm surges that are reaching progressively farther inland.

They'll be watching for changes in the trees in both plots, which are mostly tulip poplar, red maple and American beech. But they'll also be monitoring for less visible chemical signs of stress and decline.

“We're interested in how the first storm surge that gets pushed up into a forest that has never had any exposure to seawater starts to impact the biology and the ecology of these upland forests,” said Pat Megonigal, an ecosystem ecologist and SERC's associate director for research. “We know that just one



Scientist Anya Hopple looks at a probe inserted into a tree in a forested tract at the Smithsonian Environmental Research Center in Edgewater, MD. Hopple, a researcher at the Pacific Northwest National Laboratory, is leading a study about the impacts of sea level rise on forests. Photo by Dave Harp, *Bay Journal*

isn't going to kill the forest, so we'll be running these 10-hour events ... with increasing frequency, basically simulating what we hope is a 10-year period of rising sea level and storms washing farther and farther into the forest.”

More than 150 square miles of forest in the Chesapeake region have turned into marsh since the mid-1800s, one study estimates, and the rate of forest loss has been accelerating dramatically.

Climate change combined with a gradual sinking of the land around the Bay are causing sea level to rise faster than in some other places, killing off trees and other vegetation that can't tolerate the salty water.

See *Flood*, p. 7.

Are you a private forest landowner who owns at least 10 acres of forestland?

Researchers at Pennsylvania State University are conducting a private landowner survey to help guide state policies and inform future extension programming about prescribed burning across the eastern US. Your input in this study is very important to understand the value of prescribed burning on private forestlands in Maryland.

If you would like to participate in the survey, please visit the website www.sites.psu.edu/firesurvey/ (or scan the QR code) and sign up for the survey.

We'd appreciate if you take a few minutes of your time to take the survey. Thank you very much for your support.



PennState

Woodland Wildlife Spotlight: American Kestrel

Maryland is home to many types of birds of prey. While hawks and owls are relatively well-known, the state is also home to at least three types of falcons: the Peregrine, the Merlin, and the American Kestrel. The American Kestrel is actually Maryland's most common falcon as well as the most common in North America, with resident populations throughout most of the United States.

Like other falcons, the kestrel has long, pointed wings and an elongated tail. Both are designed for speed and maneuverability, and enable the bird to virtually hover. They will fly into the wind and will occasionally or vigorously flap its wings to stay in position over one piece of ground, in order to look for small rodents, insects, invertebrates, and other birds. Although they prefer to capture and kill their prey on the ground, they can dive on their prey from greater heights and take smaller birds on the wing; this has given rise to the kestrel also being called the "sparrow hawk." Their [rapid calls](#) have also led to the nickname "killy hawk."

Compared with other raptors, falcons are smaller than most hawks and many owls. The kestrel is in fact the smallest falcon found in North America, about the size of a mourning dove. They are most often seen along roadsides, as they perch on telephone wires to look for prey in the open areas and edge habitats below. (One way to distinguish the kestrel from other birds seen on wires is that the kestrel has a distinctive habit of pumping its tail while perched.) This has also enabled the species to adapt to a variety of human habitats, such as parks and suburbs.

Kestrels are cavity-nesters, meaning they do not build nests, but prefer enclosed areas for their nesting. Unlike other cavity-nesters, such as woodpeckers, they do not create their own cavities, preferring snags with openings either previously- or naturally-created. They will take over cavities once occupied by woodpeckers, other birds, or animals such as squirrels. They may also take advantage of nooks in buildings, and will also use manmade nesting boxes. In some environments, farmers have encouraged kestrels to raise their families on their property to take advantage of the birds' rodent control activities.

In Maryland, kestrel nesting begins in late March and continues through late August. The birds are solitary during most of the year, but will seek out their mate come spring. Kestrels appear to be monogamous, mating with the same partner each year. The female will lay a clutch of three to five white eggs with small brown spots and will incubate them for about thirty days. During this time, the male hunts and brings her food. The young leave the nest about a

American Kestrel Basics

Appearance: Rusty brown with black spots; pale breast with black spots. Black band near the tip of the tail. Male has slate-blue wings; females' are reddish brown. Both have pairs of black vertical slashes on the sides of their pale faces.

Size: 9-12 inches in length; wingspan 20-24 inches. Weight less than 6 ounces. Females generally larger than males.

Lifespan: Up to 10-12 years in the wild.

American Kestrel in Prince George's County, MD. Photo by Dan Haas, Maryland Biodiversity Project



Adult female American kestrel.
Photo by Jason Ganz/Audubon
Photography Awards

month after hatching, but will remain in the area while they learn to fly under the instruction of their parents.

Because of their small size, kestrels are hunted by other birds, including hawks and owls. They can also fall victim to snakes while on the ground, after killing and while consuming their prey. Consequently, generally fewer than half of young kestrels make it through their first year.

Predator pressure is not the only factor affecting kestrel numbers in the state. The rapid urbanization of the corridor from Washington, DC to Baltimore has greatly reduced habitat for wide varieties of animal species, as well as reduced the number of dead or dying trees with cavities. These are two factors that led to its designation as a Species of Greatest Conservation Need in the 2015 Maryland State Wildlife Action Plan. The Maryland DNR, The Maryland Bird Conservation Partnership, and the Calvert County Natural Resources Division have created the "[Maryland Farmland Raptor Program](#)," a citizen science program to help the kestrel and the barn owl (which has the same conservation designation).

Invasives in Your Woodland: Musk Thistle



Musk Thistle. Photo by James H. Miller, USDA Forest Service, Bugwood.org

We continue our look at invasive thistles in Maryland by turning the spotlight on Musk Thistle (*Carduus nutans*) for this issue. The plant is also known as “nodding thistle,” due to the size of the flowers that tend to droop over on the stalk. Like Canada thistle, musk thistle is a species that was introduced from its native range in Europe and Asia to a wide variety of environments around the world, although apparently it was brought to the United States accidentally in the early 1900s. It can now be found as far afield

from its natural range as Tasmania in Australia and Alberta, Canada in North America. It is widely reported in the western United States and is considered a noxious weed in states such as Minnesota and Wisconsin. In the mid-Atlantic area, it is found along the I-95 corridor from South Carolina to New York, with additional reports along the western shore of the Chesapeake Bay in Virginia and in southern Pennsylvania. The Maryland Biodiversity Project reports it can be found in most of the central and western counties, with the exception of Garrett in the west, and east of the Bay in only in Cecil and Wicomico counties. See the map below.



County Distribution of Musk Thistle in Maryland.
Courtesy marylandbiodiversity.com.

What is it?

Musk thistle is one of four thistles in Maryland that the state Department of Agriculture (MDA) considers noxious weeds.

Although the MDA contends that musk thistle is now [“under complete biological control,”](#) the invasive continues to be found in many locations across the state. It is most often found in disturbed sites, such as former agricultural lands and roadsides, and can be particularly challenging in areas that are newly planted with tree seedlings. It can spread rapidly due to its high seed production (up to 120,000 straw-colored seeds per plant) and can crowd out native species. It requires mostly open and sunny locations with average moisture; it will not grow well in excessively wet or dry areas. However, it has been known to colonize areas subject to natural disturbances, such as areas where frequent flooding occurs.

How does it spread?

This invasive spreads primarily via seed production and by the wind. The number of seedheads per plant will vary by location, with a single plant able to produce more than two dozen in the most favorable conditions. Each flower head may contain over a thousand seeds that are light enough that they can be windblown for miles. Additionally, seeds may be viable in the soil for over ten years.

How can I identify it?

Musk thistle is an invasive biennial plant, which means individual plants grow for two years. The first year, it grows as a rosette that can reach four feet in diameter. The plant overwinters in the rosette stage and then in the spring of the second year, they grow multi-branched vertical stems that can reach 6 feet in height by mid-summer. Leaves are dark green, coarsely lobed, and have a smooth, waxy surface with a distinctive white midrib. Flowers begin to emerge in May and will continue into July. The flowers last about a month with seed production and dissemination following. Individual plants die at the end of the second year. See the photo gallery on the next page.

How can I control it?

The best means of control is to remove or kill the plant in the rosette stage. Hand pulling is most effective on small populations year round, but should be completed before seed production. Foliar chemical applications of broadleaf herbicides during the rosette stage or prior to flowering has also been effective. Mowing during the rosette stage can prevent the plant from going to seed.

For more information:

Learn more about musk thistle:

[Musk thistle, nodding thistle](#) - Invasive Plant Atlas of the United States

[Invasive Plants in Pennsylvania: Musk Thistle](#) - Pennsylvania Dept. of Conservation and Natural Resources

[Carduus nutans](#) –Global Invasive Species Database

Image Gallery: Musk Thistle

Musk thistle infestation. Photo by Steve Dewey, Utah State University, Bugwood.org



Musk thistle foliage. Photo by Bruce Ackley, The Ohio State University, Bugwood.org



Musk thistle flowers. Photo by Leslie J. Mehrhoff, University of Connecticut, Bugwood.org



Musk thistle basal rosette. Photo by Loke T. Kok, Virginia Polytechnic Institute and State University, Bugwood.org



Musk thistle infestation that sprouted from fill dirt. Photo by Kris Johnson, Great Smoky Mountains National Park, Bugwood.org

Bringing Back Fire to Restore Eastern Habitats

Scientists, landowners, and others are starting to advocate for the increased use of fire, called “controlled burns,” as a way to help restore vital ecosystems and aid plant species that require fire for regeneration or that thrive in open spaces that are becoming increasingly rare in woodlands. Writer Gabriel Popkin visited eastern Maryland to see how it can be accomplished. Read the piece in [Yale Environment 360](#).



Nature Conservancy staff administer a controlled burn at their Sideling Hill Creek Preserve in western Maryland in 2021. Photo by The Nature Conservancy.

“Who Wouldn’t Want to Work With Trees?”

A recent post by Hannah Wagner on the National Association of State Foresters website highlights the continuing diversity in the field of forestry. The piece outlines the growth of women in state agencies across the nation, where 13 out of 59 are currently led by women. The piece interviews five state foresters, including Maryland Acting State Forester Anne Hairston-Strang, about how they became interested in forestry, who motivates them, what advice they’d give to a woman interested in a forestry career, and more.



Read the full post on the National Association of State Foresters’ website [here](#).

The Woodland Stewardship Education program recently announced its lineup of Woodland & Wildlife Webinars for the second half of 2022.

June 15th: Deb Landau, Director of Ecology Management for the MD/DC Chapter of the Nature Conservancy, will present “Fire History and Ecology in Maryland”



July 20th: Bud Reeves of the Anne Arundel Weed Warriors, will share “Weed Warriors—Invasive woodland plants and control methods”

August 17th: Agnes Kedmenecz, UME Forest Stewardship Educator, will provide an “Introduction to Sustainable Forestry”

September 21st: Join Dr. Craig Harper, Professor and Extension Wildlife Specialist at the University of Tennessee, for “Forest Stand Improvement for Wildlife”

October 19th: Shannon P. Browne, Certified Wildlife Biologist, Lecturer and Advisor at University of Maryland, presents “Ecology of Maryland’s Cave Bats”

November 16th: Heather Disque, Maryland Department of Agriculture Forest Service, shares her views of “Forest Health—Pests and Diseases”

Each webinar is free but registration is required. For more information and to register, go to go.umd.edu/woodlandwildlife

List Your Land Care Services Business on Our Website

Following the publication of the [Woodland Health Practices Handbook and Assessment Checklist](#) in 2020, and the [Natural Area Management Services webinar series](#) from Fall 2020 through Spring 2022, the Woodland Stewardship Education program is providing businesses an opportunity to become listed on our website. Our [“Natural Area Management Services Providers Directory”](#) is for businesses in Maryland and the neighboring states that provide land care services such as controlling invasive plant species, planting and/or maintaining riparian buffers, small woodlot tree harvest-



ing, and much more.

The online directory will enable customers to search for providers based on a dozen different land care practices. To have your business listed, please visit <https://go.umd.edu/GSP-directory> and complete the form found at the “Submission Form” button. Each submission will be reviewed before being included in the directory.

Flood, from p. 2.

Researchers will pipe freshwater to the forest from large nearby storage tanks that must be replenished by truck. They will pump water from the Rhode a short distance uphill to a 20,000- gallon inflatable bladder that will be refilled four times during each simulated flood. The water dribbles evenly into the forest plots via an irrigation system. A network of sensors installed on the trees and in the soil feed data to a computer, enabling researchers to track the impacts in real time.

High-tech as it sounds, it involved some good old-fashioned shopping for parts. "I spent a lot of time at Home Depot trying to find the right thing," said Anya Hopple, a post-doctoral researcher with the Pacific Northwest National Laboratory who's leading the project. Her lab, part of the Department of Energy, is partnering with the Smithsonian center and several other institutions on the project.

Home Depot yielded the caulking needed to seal "flux chambers," small boxes attached to the trunks of trees to capture the methane and carbon dioxide the trees absorb or emit through their bark.

Some tree trunks are also fitted with paired sets of needles, which measure the flow of sap beneath the bark. Probes on and in the ground measure soil characteristics, including temperature, water content and methane both before and during flooding

Like carbon dioxide, methane is a gas that contributes to global warming. Depending on conditions, forests can absorb methane or release it. When the soil is dry, bacteria in the ground consume methane "like little natural gas stoves," Megonigal said. But when the soil is flooded, different microbes produce methane, releasing it into the atmosphere.



Pat Megonigal, associate director for research at the Smithsonian Environmental Research Center in Edgewater, MD, checks out plants among irrigation lines where scientists are studying the impacts of sea level rise on forests. Photo by Dave Harp, *Bay Journal*

Last year, during a test run with freshwater, Megonigal said they were surprised how quickly the soil began producing methane, as water ponded on the forest floor and some began to run off.

Researchers don't expect to see dramatic changes to the forest plot that will be flooded with freshwater. Those trees may actually benefit from inundation because their growth is typically limited in late summer when there's usually little rain.

The patch to be saturated with brackish water should be another story. The salt stays behind in the soil when the water drains away, impairing tree roots' ability to absorb the water they need to grow and survive.

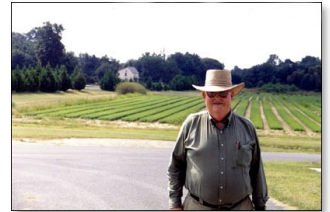
"Each time you do it, you're adding a little more salt to the system," he said, "and there will come a tipping point where the trees here aren't adapted to the stress and they'll start to decline."

The information gleaned from this study will be used in computer modeling to help scientists refine predictions of how quickly and extensively upland forests might respond to extreme weather and sea level rise.

"This isn't going to stop sea level rise," Hopple said. "It's just going to help us understand how it unfolds."

This Issue's Brain Tickler...

Last issue we challenged you to tell us the role John S. Ayton played in the management of Maryland's woodlands. Fred Dickinson and Marsha Brett both noted that Ayton contributed to the design and development of the state nursery that today bears his name. Congratulations to both!



For this issue, consider this photo:



Photo courtesy nj.gov

Identify the invasive insect, currently starting to hatch across Maryland. Email Andrew Kling at akling1@umd.edu with your answer.

Events Calendar

For more events and information, go to <http://extension.umd.edu/woodland/events>

June 14, 2022, 9 am—3 pm

Recovering Quail - Maryland Early Succession Habitat Workshop

Washington College, Chestertown MD

Bobwhite quail have experienced the greatest decline of all birds in Maryland in the last 50 years, in large part due to the loss of early succession habitat – meadows, grassland, shrubland, and young forests. To reverse this trend, we will be holding a workshop for farmers, foresters, landowners, and land managers with a strong interest in creating or managing quail and early succession habitat on a scale of 10 acres or more. To view the agenda and register to attend, please visit go umd.edu/quailmeeting.

June 14-16, 2022

BeaverCON

Delta Hotel, Hunt Valley MD

Re-scheduled from March BeaverCON is a biennial, international conference for professionals, practitioners and researchers to learn what works in beaver conflict management and watershed restoration. Presentations will include information on progressive stream restoration, beaver restoration and management, public policy, and more. [Click here](#) for more information.

July 24—July 30, 2022

Natural Resources Career Camp Garrett County, MD

Know a high school student? They can join high school students from across Maryland at this week-long camp in Garrett County to explore careers and college studies in natural resources. This partnership with Allegany College of Maryland and the Maryland Department of Natural Resources-Forest Service offers high school students a co-educational opportunity to learn from industry professionals and develop contacts that could lead to future employment and a career in natural resources. .

For more information, go to: <https://marylandforestryfoundation.org/index.cfm?event=nrcc>

September 29, 2022, 10 am—12 noon

2022 Wood Heater Slam Online

The fifth Wood Heater Design Challenge from the Alliance for Green Heat will be held via Zoom on September 29th. The 2022 Wood Heater Slam is an opportunity for teams

to pitch innovative wood stove ideas to retailers, the public and panels of experts, who will assess whose stove is the most innovative and has the most market potential. Teams who get the most points are eligible for funding to move forward to the competition stage of the 5th Wood Heater Design Challenge. The short form application is due **June 15th**. [Click here](#) for more information.

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Branching Out

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