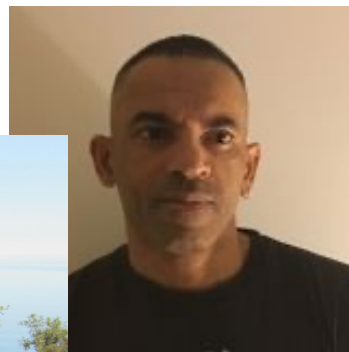
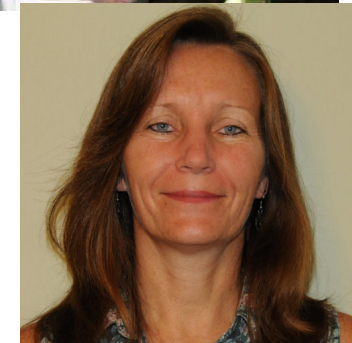


# Entomology extension programs provide research-based solutions

- Seven faculty with UME appointments
- Two retired faculty maintaining active research and extension
- Plant Diagnostic Clinic (Karen Rane, co appointment with PSLA)
- Engagement of students and staff in extension and outreach



# Insect Zoo

Supports adult & youth outreach,  
youth STEM, and other education/  
extension programs. And of course  
**Maryland Day!**

At least 31 events and 2,650  
contacts since last year!



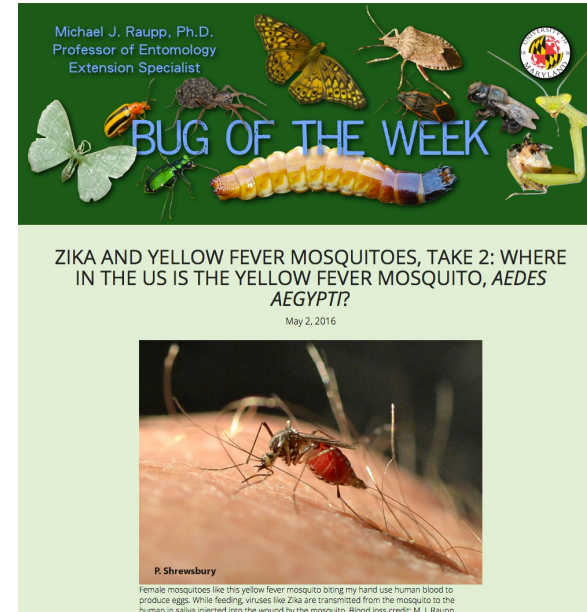
To borrow insects contact Todd Waters: [twaters2@umd.edu](mailto:twaters2@umd.edu)



**Maryland Day (Shrewsbury, Lamp, et al.):** Live insects and arthropods are available to see and touch; 40,000 visitors attend Maryland Day each year; Award for “Best Kids Event 2014”



**Mike Raupp: Bug of the Week**  
>1,000,000 views; National Geographic, Science Channel, NPR, ABC, NBC, etc.; Diane Sawyer, Kojo Nnamdi, Washington Post, Baltimore Sun, TOP, This week, “The Buzz Around Eating Insects...” on the Diane Rehm show and many more



# **Michael Raupp – Emeritus Professor Activity Report January 1, 2020 - Present**

## **Book Chapters - 1**

**Articles in Refereed Journals - 4**

**Articles in non-refereed journals, professional magazines, and newsletters - 7**

**Non-Refereed Presentations and Posters (professional societies) - 7**



## **Significant Works in Public Media (cicadas, invasive species, global change, insect ecology and biology)**

**Television – local, national, international (NBC, ABC, CBS, FOX, PBS, CNN, Weather Channel) – 27**

**Radio – local, national, international (NPR, BBC, ESPN, WTOP, WBAL, Voice of America, Ireland, Canada, Germany, France, Japan, Sweden, Austria, United Kingdom) > 20 (lost count)**

**Print – local, national, international (Associated Press, Time, Newsweek, USA Today, Washington Post, Los Angeles Times, The Guardian, Baltimore Magazine, several others > 20 (lost count))**

## **Outreach Presentations – Master Gardeners, Master Naturalists, Green Industry Professionals - 50**

**Websites – 118 weekly updates including narratives, stories, and videos about insects reach > 200 countries worldwide**

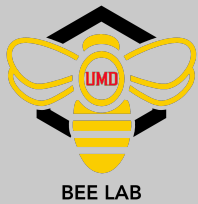
**a. Bug of the Week [www.bugoftheweek.com](http://www.bugoftheweek.com), visits 425,000**

**b. YouTube Bug of the Week <https://www.youtube.com/user/BugOfTheWeek> , views 331,544, total subscribers 1,629**

**Teaching - ENTM 798N, with Dr. Shrewsbury – Adventures in extension, Periodical Cicadas – 8 students**

**Mentor – Karin Burghardt, Assistant Professor**

**Thought for the day – Retirement is great, you don't have to work as hard.**

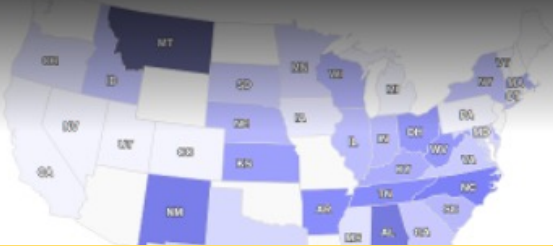


# UMD Honey Bee Research Lab Entomology/CMNS

## National Epidemiological approach to honey bee health

### APHIS State Reports

Review results from random samples of honey bee colonies. This data gives a broad picture of the health of US colonies from 2009 to present.



The National Honey Bee Survey (NHBS) is a comprehensive examination of colonies throughout the US. The National Honey Bee Survey (NHBS) began in 2009 to address the emerging concern about diminishing health in honey bees. This survey takes an epidemiological approach to document honey bee diseases, pests and pathogens. Additionally, this survey monitors for invasive threats to honey bees, including *Tropilaelaps clareae*, *Apis cerana*, and Slow Bee Paralysis Virus. For more information about this program, see [beeinformed.org/aphis/](http://beeinformed.org/aphis/) and the USDA APHIS website.

This page dynamically queries the Bee Informed Partnership database, where the APHIS NHBS data is also stored, to bring you results filtered to the calendar year and state where samples were taken. Click on a year and state for additional results.

APHIS National Honey Bee Survey (NHBS), Collect and diagnosis samples from beekeepers across the country (1000 samples per year).

UNIVERSITY OF MARYLAND  
**BEE SQUAD**  
Bringing Science to the Bee Yard!




NOW OFFERING BEEKEEPING SERVICES!

To learn more about UMD Bee Squad services visit [umdbeesquad.com](http://umdbeesquad.com)

beesquad@umd.edu • UMD Bee Squad • 4112 Plant Science Bldg. College Park, MD 20742

BeeSquad, provides in-field training, webinars, talks and outreach to the public, beekeeping associations, and other interested groups.



### BECOME A BETTER BEEKEEPER — REGISTER NOW FOR BIP'S SENTINEL APIARY PROGRAM

Now through April 30th, registration is open for the Sentinel Apiary Program 2022 beekeeping season! This citizen-science led program is designed to help participants regularly monitor their colonies for Varroa, Nosema, signs and symptoms of common pests and diseases, and overall colony health. The information collected from the Sentinel program also provides this invaluable information regarding regional and U.S. honey bee health metrics to researchers and beekeepers. Visit the [Sentinel Program webpage](#) to learn more, or click the button below to register today.

**REGISTER TODAY! —**

the **Bee Informed Partnership (BIP)**, a nonprofit headquartered at the UMD. BIP collaborates closely with beekeepers from across the country to better understand and link management decisions with colony losses.

# Hamby- IPM for grain, small fruit, & sweet corn

Spray coverage & efficacy



**Dr. Kelly Hamby**  
Associate Professor



Yield benefits?



Pruning and trellising



Non-target impacts?



Resistance bioassays



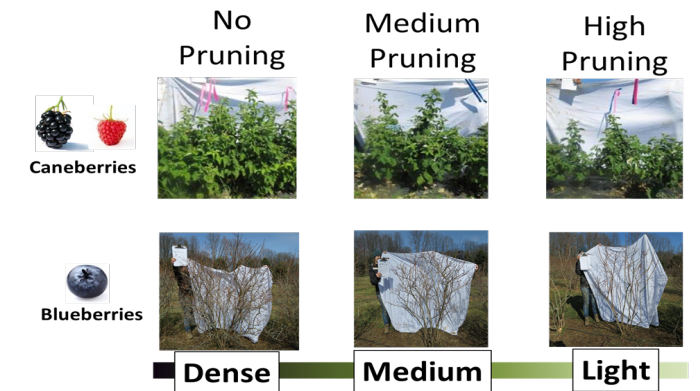
**Optimized insecticide use & resistance management**



**Corn earworm**

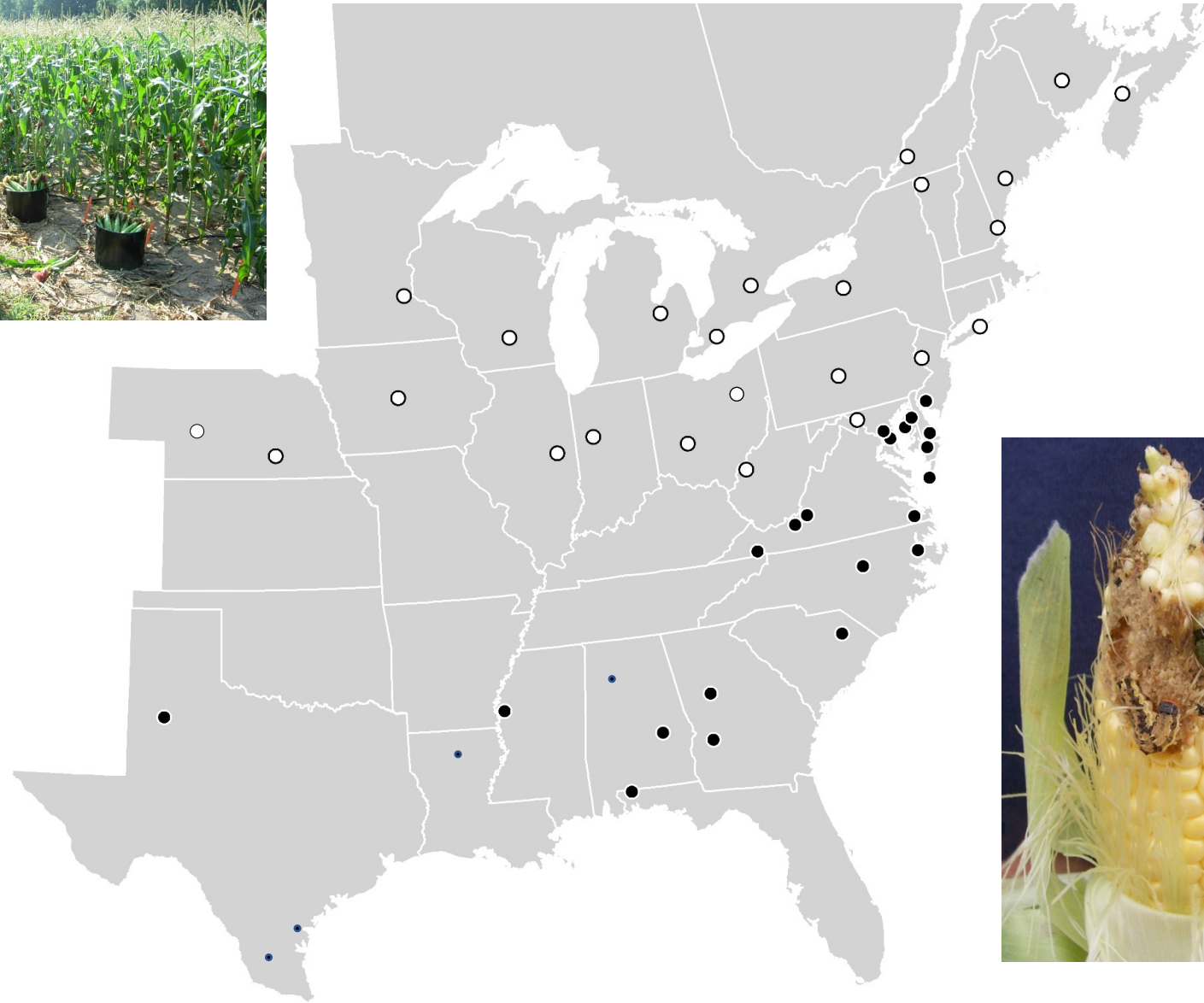


**Spotted wing drosophila**



**Sustainable solutions**

# Galen Dively: 2021 Sweet Corn Sentinel Monitoring Network





Anahí Espíndola

**Blogging** - Accessible information for the (non-)specialist

## Extensión en Español

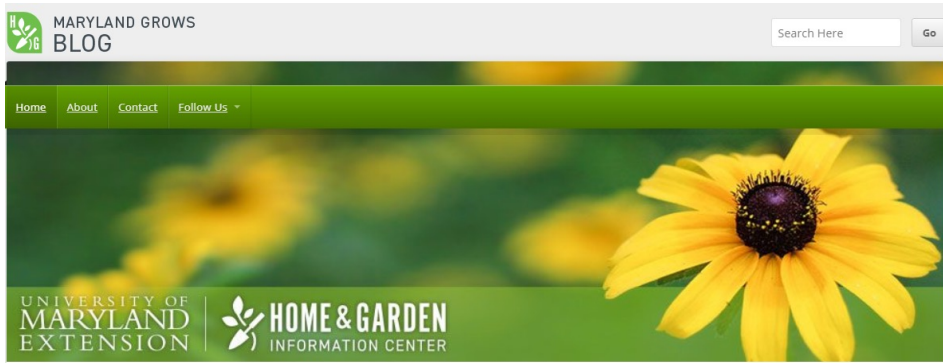
Blogs de Extensión de la Universidad de Maryland



Extension Blog in Spanish – [extensionesp.umd.edu](http://extensionesp.umd.edu)

>8000 views since start (Feb 2021) – currently >1200 views per month

By Feb '22: published and/or managed 44 posts



Regular Blogger for Maryland Grows

By Feb '22: 29 posts

>35,000 views (Jan '22)

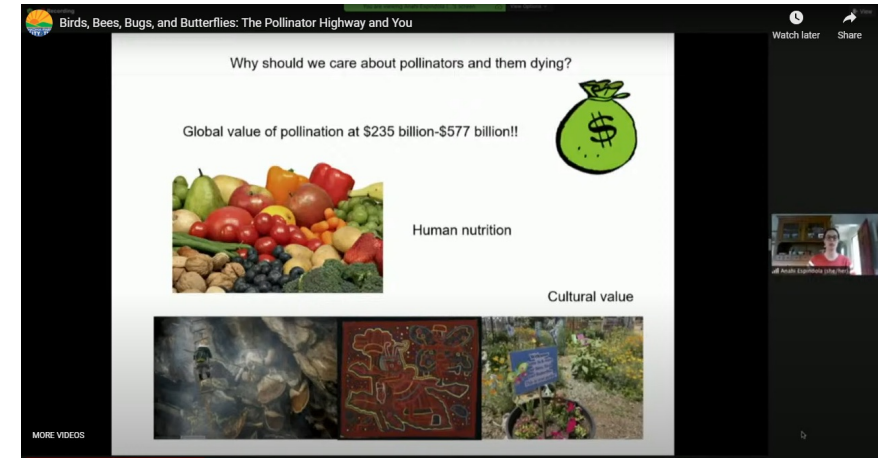
### What people say

“Quiero agradecer la claridad y sencillez con que explican los temas.”

“I want to thank you for the clarity and humility you use to explain these topics.”



MD 4H **educational packets** for summer camps  
“Pollination, Pollinators, Wild Plants, and our Food”



**Extension talks and articles** on pollination and pollinators for farmers, the general public, schools

“I learned a lot from reading your article about flower pollination. [...] Many more like me will learn a lot about flower pollination by reading your article.”

“Thank you for a fascinating explanation. [...] Now I have a new respect (as well as understanding) for this beautiful ground cover.”



**Paula M. Shrewsbury**  
**Professor and Extension Specialist in IPM**  
**Department of Entomology, UMD**

### Extension Program Summary

**Program focus:** to create sustainable urban landscapes, nurseries, and turf systems with an emphasis on biological control, conservation of natural enemies and pollinators, and management of invasive species through applied research and stakeholder education

#### Applied research projects

- Conservation of natural enemies and pollinators in nurseries (several projects) and urban landscapes; Biological control of the invasive emerald ash borer and brown marmorated stink bug (several projects)
- Over \$3,050,000 in external support for research and extension

#### Educational programs to address needs of stakeholders

- Develop educational and training materials (web-based, print)
  - Team member of the highly impactful UME IPM Alert Weekly Newsletter, including “Beneficial of the Week” articles and pest updates (since 2005, >450 articles)
  - “Pest Predictive Calendar” (Comm. Ornamental Hort. IPMnet website)
  - Fact sheets, bulletins, articles in stakeholder magazines, etc. (>140)
- Presentations and workshops for stakeholders
  - UME Annual Advanced Landscape IPM Short Course (4 day) (22 years; >1,050 trained)
  - Stakeholder association and other conferences (local, regional, national, international; >36,000 trained)

#### Media outreach

- Web / print interviews (33); TV (8); Radio/podcast interviews (6)

#### Train the next generation of Extension professionals

- Adventures in Extension: Periodical cicada outreach (Spr2021, 8 grad. students)
- Graduate (13 as advisor) and undergraduate students (~60)
- STEM – MD Day –coordinator of the award winning *Insect Petting Zoo*



**Dr. Sara Via**, Professor

# Climate Extension

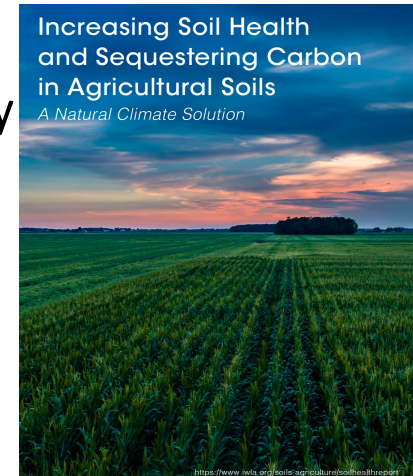
**Climate change is already affecting every single person in Maryland**

Through talks, webinars, a website, outreach in public schools and research on soil health, my program increases public awareness & understanding of the climate crisis and how to solve it.

- I give simple & engaging presentations to community groups, teachers & students about
  - how climate change works,
  - how we know it's real,
  - how it affects us right now
  - how we can curb it with available solutions
- I do research on regenerative landscaping, soil health, & carbon sequestration
- I study climate science, climate impacts, possible solutions, and how to convert increased climate awareness into climate action.

## Accomplishments 2019 - 2021:

- 113 invited talks (>3000 attendees)
- 15 webinars (5067 attendees, 53,450 video views)
- Mailing list of >1200 people from 24 states
- Represent Maryland on the US Climate Alliance Natural & Working Lands Workgroup, and consult with state legislators & agency personnel in six states on soil health.
- Published comprehensive report:  
Via, S. 2021. Izaak Walton League and NWF. 81 pp. →
- website: [www.climatecorner.org](http://www.climatecorner.org)



<p><b>I give simple and engaging talks to community groups, teachers &amp; students addressing</b></p>	<p><b>Outreach 2019-2021:</b></p>
<ul style="list-style-type: none"> <li>-how climate change works,</li> <li>-how we know it's real,</li> <li>-how it affects us right now and</li> <li>- how we can curb it</li> </ul>	<ul style="list-style-type: none"> <li>-113 invited talks (&gt;3000 attendees)</li> <li>- 15 webinars (5067 attendees, 53,450 video views)</li> <li>- mailing list of &gt;1200 people from 24 states</li> </ul>
<p><b>I do research on regenerative landscaping/gardening, soil health and carbon sequestration</b></p>	<p><b>Consulted with agency personnel and legislators in 6 states on soil health and carbon sequestration</b></p>
<p><b>I represent Maryland on the US Climate Alliance Natural &amp; Working Lands Workgroup in collaboration with MDA, MDE</b></p>	



## Specialty areas

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**Agricultural systems** - organic and conventional vegetable & agronomic crops

**Study organisms** - weeds, insects free-living nematodes and spiders

**Research** - ecological pest management and conservation biological control

## Overall extension

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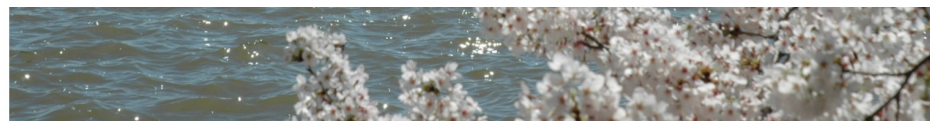


- Help producers adopt more eco-friendly and sustainable farming practices.
- Stakeholders receive training on mitigating insects and weeds, and enhancing beneficial organisms above and below the soil.
- Information is transferred various ways (e.g., blogs, newsletters, electronically, face-to-face, field days, farm walking tours, crop schools, in-service meetings, workshops, conferences).
- Evaluations of our extension program over the years have shown changes in attitudes skills, knowledge and practices.



# Ecological Landscaping

UNIVERSITY OF  
MARYLAND  
EXTENSION



## Cómo los famosos cerezos exóticos de Washington DC ayudaron a protegernos de plagas

Por Lauren Schmitt, Kelsey McGurrin y Karin Twardosz Burghardt Cada año más de un millón de personas acuden a Washington, DC, para ver los cerezos del Tidal Basin en flor. Los cerezos, que fueron un regalo del gobierno japonés en 1912, han sido durante mucho tiempo un atractivo para turistas y gente de la zona. ... [Continúa leyendo](#)



por [Extensión en Español](#) febrero 22, 2022



**Extension Specialist:** Karin Burghardt

**Program clientele:** Residents with yards or greenspace; tree planting organizations; Master Gardeners, Master Watershed Stewards

### Major Projects/Outputs:

- 6 unique trainings/workshops delivered to 1000+
- Blog contributions to [Extensión en Español](#) and ecological landscaping, IPM, entomology blogs & videos on [www.burghardtlab.org](http://www.burghardtlab.org)
- Development of autumn leaf retention demonstration plots in network of yards
- Developing native street tree suitability list for MD nurseries and tree planting organizations. Addresses supply/demand imbalance for ½ million urban trees planted in underserved areas through MD HB 991 (MD TREES ACT) passed in 2021.

**Mentoring:** 5 lab members actively training/participating in content development

**Collaborations within Extension:** Master Gardener Program-Stephanie Pully (EIPM USDA grant team); Woodland Stewards- *Agnes Kedmenecz* ; 4H Forestry team etc.



vimeo Why Vimeo? Features Resources Watch Pricing Contact Sales Log in Join New video



# Entomology UME contacts

- **Karin Burghardt**, Assistant Professor, [kburghar@umd.edu](mailto:kburghar@umd.edu)
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- **Karen Rane**, Plant Diagnostic Laboratory, [rane@umd.edu](mailto:rane@umd.edu)
- Insect Zoo, **Todd Waters**, [twaters2@umd.edu](mailto:twaters2@umd.edu)
- Administrative support: **Amy Yaich**, [ayaich@umd.edu](mailto:ayaich@umd.edu)

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