

RH Kappler

Holden Forests & Gardens 9500 Sperry Rd., Kirtland, OH 44094
rkappler@holdenfg.org

EDUCATION

Ph.D. in Biology specialization: Population Ecology, Bowling Green State University 2018

M.S. in Biology specialization: Conservation Ecology, Bowling Green State University 2009

B.S. in Zoology specialization: Ecology & Evolution, Michigan State University 2006

PROFESSIONAL EXPERIENCE

Post-doctoral Researcher at Holden Forests and Gardens, 2025-present

- Research related to propagation and assessment of individual tree defenses towards invasive pests and disease.

Great Lakes Basin Forest Health Collaborative Coordinator at Holden Forests and Gardens

- From 2021-2025 coordinated stakeholders to help them build long term tree management, conservation & breeding programs aimed at ash, hemlock and beech resistance to pests and diseases. Built awareness with outreach, training, workshops, and maintaining a webpage.

Post-doctoral Researcher at Bowling Green State University, 2018 - 2020

- Research related to the emerald ash borer beetle invasion and ash tree restoration efforts.

Research Associate at University of Illinois – Chicago, Summer 2018

- Lead and coordinated research groups in ash tree data collection throughout Allegheny National Forest, PA. Trained local government employees in data collection techniques.

Teaching Assistant at Bowling Green State University, 2014 – 2018

- Anatomy & Physiology labs

Adjunct Instructor at Brown Mackie College, 2012 - 2014

- Anatomy & Physiology, Microbiology, Chemistry, and Environmental Science

ACADEMIC SERVICE

Graduate Student Senate at Bowling Green State University

-*Senator (Biology Dept. Representative)* 2014 – 2015 & 2017 – 2018

-*Environmental Chair* - Liaison between Campus Sustainability office and the senate. 2014 – 2015

Biology Graduate Student Association at Bowling Green State University

-*President* 2015-2016 & 2017 – 2018; *Vice President* 2016 – 2017; *Fundraising Chair* 9/2014 – 2018
6 Fundraising events & 10 STEM Outreach event booths.

GRANTS

USDA Forest Service Joint Venture	BGSU	\$200,000	(1/2019–3/2021)
USDA Forest Service Grant	BGSU	\$50,000	(6/2016-12/2019)
Oman Grant	BGSU	\$1,600	(06/2017-08/2017)

SCIENTIFIC PUBLICATIONS

Knight, Kathleen S.; Flower, Charles E.; Kilgore, Jason K.; Royo, Alejandro A.; Fox, Timothy D.; **Kappler, Rachel H.**; Hoven, Brian M.; Wigal, Joshua S.; Long, Robert P. 2023. Ash tree decline and mortality in Ohio and the Allegheny National Forest in Pennsylvania. In: Potter, Kevin M.; Conkling, Barbara L., eds. Forest Health Monitoring: national status, trends, and analysis 2022. Gen. Tech. Rep. SRS-273. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station: 139-147. Chapter 8. <https://doi.org/10.2737/SRS-GTR-273-Chap8>.

Kappler, R.H.; Knight, K.S.; Bienemann, R.; Root, K.V. 2020. Recovery potential for a green ash floodplain forest using various emerald ash borer management strategies in a population viability analysis. Forest Ecology and Management. 461(4): 117925. 11 p. <https://doi.org/10.1016/j.foreco.2020.117925>.

Knight, Kathleen S.; **Kappler, Rachel H.**; Root, Karen V.; Koch, Jennifer L.; Flower, Charles E. 2020. Monitoring of Ash Mortality Patterns Informs Emerald Ash Borer (EAB) Resistance Breeding Efforts: Integrated Pest Management for EAB. In: Nelson, C. Dana; Koch, Jennifer L.; Snieszko, Richard A., eds. Proceedings of the Sixth International Workshop on the Genetics of Host-Parasite Interactions in Forestry—Tree Resistance to Insects and Diseases: Putting Promise into Practice. Gen. Tech. Rep. SRS-252. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station.

Kappler, R.H.; Knight, K.S.; Root, K.V. 2019. Evaluating the population viability of green ash trees (*Fraxinus pennsylvanica*) before and after the emerald ash borer beetle (*Agrilus planipennis*) invasion. Ecological Modelling. 400: 53-59. <https://doi.org/10.1016/j.ecolmodel.2019.03.017>.

Kappler, R. H.; Knight, K.S.; Koch, J.; Root, K.V. 2018. Neighboring tree effects and soil nutrient associations with surviving green ash (*Fraxinus pennsylvanica*) in and emerald ash borer (*Agrilus planipennis*) infested floodplain forest. Forests, 9(4): 183. 11 p. <https://doi.org/10.3390/f9040183>.

Kappler, R. H. 2018. Exploring the population viability of green ash (*Fraxinus pennsylvanica*) with a stage based model (Doctoral dissertation, Bowling Green State University). Retrieved from <https://etd.ohiolink.edu/>

Knight, Kathleen S.; Flash, Britton P.; **Kappler, Rachel H.**; Throckmorton, Joel A.; Grafton, Bernadette; Flower, Charles E. 2014. Monitoring Ash (*Fraxinus* spp.) Decline and Emerald Ash Borer (*Agrilus planipennis*) Symptoms in Infested Areas. Gen. Tech. Rep. NRS-139. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 18 p. <https://doi.org/10.2737/NRS-GTR-139>.

Kappler, R. H.; Michaels, H. J.; Root, K. V. 2012. Impact of Seed Predation by Mice on Wild Lupine in and near Oak Savannas. The American Midland Naturalist, 168(1), 18-29. <http://www.jstor.org/stable/23269927>

Williams, P. J.; Robb, J. R.; **Kappler, R. H.**; Piening, T. E.; Karns, D. R. 2012. Intraspecific Density Dependence in Larval Development of the Crawfish Frog, *Lithobates areolatus*. Herpetological Review, 43(1), 36.

SCIENTIFIC PUBLICATIONS CONTINUED

Knight, Kathleen S.; Herms, Daniel; Plumb, Reid; Sawyer, Eileen; Spalink, Daniel; Pisarczyk, Elizabeth; Wiggin, Bernadette; **Kappler, Rachel**; Ziegler, Emily; Menard, Karen. 2012. Dynamics of surviving ash (*Fraxinus* spp.) populations in areas long infested by emerald ash borer (*Agrilus planipennis*). In: Snieszko, Richard A.; Yanchuk, Alvin D.; Kliejunas, John T.; Palmieri, Katharine M.; Alexander, Janice M.; Frankel, Susan J., tech. coords. 2012. Proceedings of the fourth international workshop on the genetics of host-parasite interactions in forestry: Disease and insect resistance in forest trees. Gen. Tech. Rep. PSW-GTR-240. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture. pp. 143-152

Knight, Kathleen S.; Slavicek, James M.; **Kappler, Rachel**; Pisarczyk, Elizabeth; Wiggin, Bernadette; Menard, Karen. 2012. Using Dutch elm disease-tolerant elm to restore floodplains impacted by emerald ash borer. In: Snieszko, Richard A.; Yanchuk, Alvin D.; Kliejunas, John T.; Palmieri, Katharine M.; Alexander, Janice M.; Frankel, Susan J., tech. coords. Proceedings of the fourth international workshop on the genetics of host-parasite interactions in forestry: Disease and insect resistance in forest trees. Gen. Tech. Rep. PSW-GTR-240. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture. pp. 317-323

Kappler, R. 2009. *Peromyscus* Population Dynamics and Seed Predation of *Lupinus perennis* in and Near Oak Savannas of Northwest Ohio. (Electronic Thesis, Bowling Green State University). Retrieved from <https://etd.ohiolink.edu/>

SCIENTIFIC LECTURES

Guest Lecturer for Conservation Biology in Practice at Bowling Green State University

Kappler, R. January 30, 2017, "Habitat Impacts"

Kappler, R. January 5, 2018, "What is Conservation"

TRAINING PRESENTATIONS

Lingering Ash Scion Collection. 12/14/23. Ecological Research Institute of NY.

Seed care and propagation methods for ash, beech, and hemlock. 10/7/22. Tree corps of Holden Forests and Gardens.

Hot callus grafting set up and logistics. 3/7/22. New Jersey Forest Service.

Deciduous tree hot callus grafting.

7/30/24 Forest Genetics Conservation Association

3/04/24 Cornell Botanical Garden

3/31/22. New Jersey Forest Service.

1/25/22. Holden Forest and Gardens.

Lingering Hemlock ID & Reporting Training.

1/15/25 Co-presented with Adventure Scientists

5/22/24 North Carolina Partnerships

Seed Collection for Eastern Hemlocks.

9/20/21. Online for GLB FHC partners.

8/10/22. Online Webinar recorded and posted on webpage.

TRAINING PRESENTATIONS CONTINUED

Identifying and reporting lingering ash trees.

7/10/24 Ontario Woodlot Association

5/14/24 Grand Traverse Regional Conservation Organizations

1/10/24 Maryland Partnerships

8/10/23 City of Akron Environmental Protection Department

4/04/23 Ohio Forest Health Professionals

7/16/22 Pennsylvania Forest Stewards

6/18/22 Dawes Arboretum

6/16/22 Online for GLB FHC partners

6/10/22 Muskegon State Park, MI DNR Parks & Rec. Volunteers

6/09/22 Maybury State Park, MI DNR Parks & Rec. Volunteers

8/13/21 Fort Custar, MI DNR Parks & Rec. Volunteers

8/12/21 Waterloo Recreation Center, MI DNR Parks & Rec. Volunteers.

PUBLIC PRESENTATIONS

Kappler, R. 2/11/25. Ash Tree Breeding and Resistance to EAB. Grand Traverse Regional Land Conservancy Webinar.

5/20/24. Kappler, R. & Koch, J. Ash Tree Breeding and Resistance to EAB. TNC Don't Move Firewood Invasive Species Week Webinar.

Kappler, R. 1/31/24. New Hope for Ash, Breeding EAB resistant trees. Harris Nature Center, NH webinar.

Kappler, R. 1/11/23. How you can support a healthy hemlock forest. The Stewardship Network Webinar.

Kappler, R. 9/14/22. Forest health update on ash, beech and hemlock. OH Society of American Foresters Working Woods Tour at Holden Arboretum, Kirtland, OH.

Kappler, R. 7/11/22. My involvement in tree breeding for pest/disease resistance. Forest Service Northern Research Station Summer Webinar.

Kappler, R. 5/26/22. Breeding for EAB-Resistance; What does the future look like for ash? EAB University Webinar.

Kappler, R. and Wood, A. 12/14/21. Emerging pests & diseases in Ohio. Ohio Society of Arboriculture Webinar.

Kappler, R. Jan 2021-June 2023, Introduction to the Great Lakes Basin Forest Health Collaborative. 18 different organizations.

HF & G, Cleveland Coalition, Society for Ecological Restoration, Lake Erie Allegheny Partnership, N. American Forest Insect Workshop, NE/Midwest State Foresters Alliance Forest Health Committee, MI Forest Assistance Program, OH Society of American Foresters, N. Central Forest Pest Workshop, Green Ribbon Initiative, Arbor Day Foundation, IL Arborists Ass., Northern Forests Genetics Association, Wild Ones Grand Traverse, USDA Invasive Species Workshop, OH Forest Health Meeting, National Ass. of State Foresters Forest Health Conference.

Conference/Meeting Presentations

Kappler, R. & Koch, J. 6/25/25. GLB FHC, who we are and what we do. Forest Genetics Conference. College Station, PA.

Kappler, R. 5/14/25. Ash Tree Breeding and Resistance to EAB. MI Forestry Assistance Program.

Kappler, R. 3/20/25. GLB FHC Updates. Northeast and Midwest State Foresters Association.

Kappler, R. 2/13/25. GLB FHC in WI, MI, MN. Forest Health State Cooperators Virtual Meeting.

Kappler, R. 12/4/24. Hemlock updates from GLB FHC. Michigan HWA partners meeting.

Kappler, R. & Koch, J. 11/13/24. A regional forest health collaborative for tree improvement breeding. Upper Midwest Invasive Species Conference. Duluth, MN.

Kappler, R. 10/15/24. Great Lakes Basin Forest Health Collaborative in MI. Michigan Interagency Forests Invasives Committee Meeting. Lansing, Michigan.

Kappler, R. 10/2/24. Great Lakes Basin Forest Health Collaborative Updates. Northern Forest Genetics Association Meeting. Burlington, Vermont.

Kappler, R. & Koch, J. 9/26/24. How to propagate EAB resistant ash. International Plant Propagators Society Regional meeting. Columbus, Ohio.

Kappler, R. 9/12/24. Great Lakes Basin Forest Health Collaborative Updates. North Central Forest pest Workshop. Sault St. Marie, Ontario, Canada.

Kappler, R. & Koch, J. 6/19/24. Great Lakes Basin Forest Health Collaborative Efforts. Genetics Forest Conservation Association Virtual Meeting.

Kappler R., Pike, C., & Koch, J. 6/13/24. GLB FHC Formation, Outreach, Processes Overview. Wisconsin DNR Forest Collaborative Meeting.

Kappler, R. & Koch, J. 2/14/24. A Regional Forest Health Collaborative for Tree Improvement Breeding. Invasive Species Virtual Forum, Invasive Species Centre Ontario, Canada.

Kappler, R., Burke, D., Koch, J., Wegrzyn, J., Smith, B., and Sandell, D. 9/12/23. Update on resistance breeding in ash, beech, and hemlock. N. Central Forest Pest Workshop, Wausau, WI.

Kappler, R. Burke, D., Koch, J., Wegrzyn, J., Smith, B., Sandell, D., and Knisley, C. 8/24/23. Update from Holden about hemlock. Ohio DNR HWA Managers Meeting.

Kappler, R., Burke, D., Koch, J., Wegrzyn, J., Smith, B., and Sandell, D. 7/18/23. Update on resistance breeding in eastern hemlock. Northeast and Southern Forest and Conservation Nursery Associations Meeting.

Kappler, R. & Koch, J. 6/7/23. How the Great Lakes Basin Forest Health Collaborative Facilitates Advances in Accelerated Tree Breeding. National Association of State Foresters Forest Health virtual meeting.

Kappler, R. 9/14/21. Hemlock resistance breeding activities. Region 9 HWA Managers Virtual Meeting.

Scientific Research Presentations

Nelson, D., J. Kilgore, K. Knight, C. Flower, D. Salsgiver, W. Oldland, A. Hille, and R. Kappler. 11/1/18. What's happening in the understory? A prelude to a forest future without white ash. Poster, Pennsylvania Botany Symposium, State College, PA.

Kappler, R. Root, KV. 7/23/18. Population Viability of Green Ash (*Fraxinus pennsylvanica*) with Emerald Ash Borer Scenarios. Talk, North American Congress for Conservation Biology, Toronto, Ontario, Canada.

Kappler, R. Root, KV. 4/14/18. A Population Viability of Green Ash Trees (*Fraxinus pennsylvanica*) with Emerald ash borer (*Agrilus planipennis*) impacts. Talk, Ohio Academy of Science Conference, Bowling Green State University, Bowling Green, OH.

Kappler, R. Root, KV. 4/10/18. Evaluating Population Viability of Green Ash (*Fraxinus pennsylvanica*) Before and After the Emerald Ash Borer (*Agrilus planipennis*) Invasion using Stage-based Models. Talk, Shanklin Colloquium, BGSU, Bowling Green, OH.

Kappler, R. Root, KV. 7/22/17. Population Viability of Green Ash (*Fraxinus pennsylvanica*) with Emerald Ash Borer Scenarios. Talk, International Congress for Conservation Biology, Cartagena, Columbia.

Kappler, R. Root, KV. Multiple dates. Exploring the Population Viability of Green Ash (*Fraxinus pennsylvanica*) with a Stage-Based Model.

EAB Research and Technology Development Meeting, *Poster*, 19 October 2016, Wooster, OH.

North American Congress for Conservation Biology, *Talk*, 17 July 2016, Madison, WI.

Midwest Ecology and Evolution Conference, *Talk*, 26 March 2016, Miami University, OH.

Kappler, R. Knight, KS, Root, KV. Multiple Dates. Ash tree (*Fraxinus spp.*) seedling dynamics in emerald ash borer (*Agrilus planipennis*) infested forests. Ecological Society of America Conference, *Talk*, 10 August 2015, Baltimore, MD & Oak Openings Research Forum, *Poster*, 30 January 2016, Toledo, OH.

Kappler, R. 3/28/15. Understanding effects of the emerald ash borer (*Agrilus planipennis*) on ash (*Fraxinus*) seedling dynamics. Talk, Midwest Ecology and Evolution Conference, Indiana University.

Kappler, R. Hefflinger, R, Knight, KS, Root, KV. 3/7/15. Understanding forest ecosystem dynamics changed by the emerald ash borer (*Agrilus planipennis*) and responding to the aftermath. Talk, Oak Openings Research Forum, Toledo, OH.

Media

Kappler, R. & Funk, A. 2021-2025. [Great Lakes Basin Forest Health Collaborative newsletters](#).

Kappler, R. & Willis, M. 7/29/25 Sound of Ideas Radio Interview. [Ohio sees surging cases of Lyme disease driven by blacklegged tick. Ideastream Public Media.](#)

Hiltner, S. 9/2/24. [Holden Arboretum Studies Resistant Beech and Ash](#). Princeton Nature Notes Blog.

Media continued

Kappler, R. & Lagucki, E. 8/13/24. Sound of Ideas Radio Interview. [Invasive Pests and Diseases. Ideastream Public Media.](#)

Durst, B. 5/1/24. [Holden Arboretum Seeks Public Help to Research Beech Leaf Disease.](#) The News Herald.

4/20/24. [If-you-have-this-tree-contact-ne-ohio-researchers.](#) Fox 8 News, Cleveland.

Crable, A. 4/1/24. [Wave of defense tactics aim to save eastern hemlocks.](#) The Bay Journal.

Kappler, R. 3/21/2024. Let's Celebrate the Forest Today. [Get Growing Blog](#) Holden Forests & Gardens Blog.

2023. Kappler, R. & Funk, A. "How to identify and report lingering ash", a flier for forestry professionals.

2023. Kappler, R., Troutman, R. and Macy, T. "Hemlock Woolly Adelgid & Elongate Hemlock Scale", a public flier.

12/18/23. Kappler, R. Why and How We Collect and Store Tree Seeds at the Holden Arboretum. [Holden Forests and Gardens Blog.](#)

3/21/23. Kappler, R. The Benefits of a Healthy Forest. [Holden Forests and Gardens Blog.](#)

12/19/22. Kappler, R. & Funk, A. Great Lakes Great Trees. [Holden Forests and Gardens Blog.](#)

10/21/22. Kappler, R. & Funk, A. Ash Trees Are Exploding with Seeds; Researchers Are Capitalizing on It. [Holden Forests and Gardens Blog.](#)

10/13/22. Quoted in: Barber, S. Save your ash effort sprouts to save the endangered tree. [Travers City Record Eagle.](#)

9/28/22. Quoted in: Kelsey, E. Group seeks Jo Daviess County residents' help in ash breeding project. [Telegraph Herald.](#)

9/24/22. Quoted in: Researchers seek ash seeds from local landowners. [Chillicothe Gazette.](#)

9/20/22. Quoted in: Werly, R. and Viscount, I. Call to action: Scientists asking for help to save the ash trees. [UpNorthLive.com](#)

9/20/22. Quoted in: LaSalle, Ogle County residents asked to collect ash seeds for regional forest health efforts. [The Mendota Reporter.](#)

7/22/22. Kappler, R. Holden's Clone Orchard Vital Research Spot for Ash Scientists. [Holden Forests and Gardens Blog.](#)

6/16/22. Kappler, R. & Funk, A. New Eastern Hemlock Conservation work kicks off at Holden. [Holden Forests and Gardens Blog.](#)

5/6/22. Kappler, R. & Funk, A. How to clone a tree. [Holden Forests and Gardens Blog.](#)

4/21/22. Kappler, R. New Research Collaborations Aim to Save Eastern Hemlock. [Holden Forests and Gardens Blog.](#)