Rhode Island Plant Insect Community Network Conference

A Rhode Island Natural History Survey Science Conference

March 7, 2026
Quonset O' Club
North Kingstown, Rhode Island

RHODE ISLAND
NATURAL HISTORY SURVEY
Ecosystem Resilience Through Biodiversity

RHODE ISLAND
PLANT INSECT
COMMUNITY
NETWORK

RI Plant Insect Community Network Members:

Rhode Island Natural History Survey

University of Rhode Island Bee Lab

15 Minute Field Trips

Providence Pollinator Lab

Ant Lab PVD

RIDEM Pollinator Atlas

Rhode Island Wild Plant Society

Ocean Hour Farm

Roger Williams Park Zoo

URI Biocontrol Lab

URI Master Gardeners

Roger Williams University

Audubon Society of Rhode Island

URI Preisser Lab

Peace & Plenty Community Garden

Eastern RI Conservation District

Congress of the Birds

South Kingstown Land Trust

Westerly Land Trust

In Rhode Island, there's a whole community of programs working on the plant-insect network: studying pollinators, promoting native plants, building sustainable agriculture, and educating people. The **Rhode Island Plant Insect Community Network** is a program that connects these efforts together to leverage strengths, identify gaps, and raise the profile of the whole community. The Network is comprised of organizations, programs, and projects that work on pollinators or "pollinator adjacent" topics in Rhode Island. It uplifts existing initiatives rather than competing with them.

To learn more, visit www.picn.rinhs.org

The Plant Insect Community Network is a program of the Rhode Island Natural History Survey created in 2024 with a generous grant from the One Hive Foundation.

One Hive Foundation

ABSTRACTS OF PRESENTED PAPERS AND POSTERS

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PAPERS

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Morning Session

PHENOLOGICAL SHIFTS IN A FLOWERING SHRUB COMMUNITY: 1982 TO 2025

Ren Johnson[1]

Faye Santaniello[1], Chloe Dyehouse[1], and Evan Preisser[1]
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Climate change and its associated increases in spring temperatures have caused changes in the flowering phenology of many plant species. However, not all plant species shift flowering times at the same rate, which can alter competitive interactions for pollinators among plant communities. From 1977 to 1982, researchers documented the pollinators and flowering phenology of common shrubs in a southern Rhode Island forest. We re-examined the flowering phenologies of these shrub species in 2025 in the same geographic location as the research completed in 1982. We chose five individuals of each species and then selected three branches on each individual for observation. During the blooming period, we counted all the buds, flowers, and fruits on the selected branches. Blooming times of some of our target species have shifted due to climate change, but not all changed at the same rate. Therefore, the flowering times of these shrubs overlap with different species now than in the past, potentially leading to new competitive interactions. Future research will examine the insect pollinators of these shrub species to explore changes in pollinator identity and phenology, and how these changes affect competition between shrubs.

A 30-YEAR COLLABORATION TO REESTABLISH THE AMERICAN BURYING BEETLE (*NICROPHORUS AMERICANUS*) TO NANTUCKET ISLAND, MA

Lou Perrotti[1]

[1]Roger Williams Park Zoo,
Providence, RI 02907

The American burying Beetle (*Nicrophorus americanus* Oliver) is federally listed as a threatened species by the United States Fish and Wildlife Service, once common throughout the eastern and mid-western United States and now surviving in limited habitats in seven states. Starting in 1994 an initiative to re-establish the American burying beetle on Nantucket Island, Massachusetts has been carried out by a partnership of public and private conservation agencies. During the 30-year period, just over 4,000 beetles were released at two sites on the 33,000 acre island. Post-release monitoring has confirmed that beetles are reproducing and surviving over winter, though actual population levels are not known.

RHODE ISLAND POLLINATOR ATLAS: SHOWCASE OF RHODE ISLAND BUMBLEBEE SURVEY AND WILD BEE SURVEY HIGHLIGHTS

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Kingston, RI 02881

From 2022-2025, the Rhode Island Division of Fish and Wildlife coordinated a statewide survey to establish the current status of bumble bees in Rhode Island. We coordinated work among 46 volunteers surveying at 67 sites across the state, with some additional surveys done by the Pollinator Entomologist. RIBS sites were located in all five counties and 37 of Rhode Island's 39 towns. We detected all currently extant species, minus *Bombus auricomus*, and documented their floral hosts, distribution, and relative abundance. We produced general public outreach material from this work, with background material, methodology, and individual species profiles for all historical and extant fauna. We also want to highlight work done for the Rhode Island Wild Bee Survey, including notable species finds, volunteer contributions, and summary of species found.

PROGRESS TOWARD BIOLOGICAL CONTROL OF EMERALD ASH BORER AND SPOTTED LANTERNFLY

Lisa Tewksbury[1]

Dana Terrill[1], Alexandra Johnson[1], Alana Russell[2], and Hannah Broadley[3]

[1]University of Rhode Island, Kingston, RI 02881; [2]Rhode Island DEM Division of Forest Environment, Hope Valley, RI 02823; [3]USDA Forest Pest Methods Lab, Buzzards Bay, MA 02532

Emerald ash borer and spotted lanternfly are two recent invasive exotic insects that have made Rhode Island home within the past ten years. Emerald ash borers have caused devastating mortality of ash trees across the US, and the URI Biocontrol lab has joined the USDA's extensive national biological program by releasing three parasitic wasp species throughout Rhode Island that target emerald ash borer eggs or larvae. The release phase is nearing completion, but the monitoring phase will continue for a few years. One species has been recovered at a Rhode Island release site. With 23 states participating in this program, the number of parasitoids released and recovered is expanding. The biocontrol lab also collaborates with the USDA's Forest Pest Methods lab researching biocontrol for spotted lanternfly by collecting and rearing native planthoppers for use in pre-release testing of a potential non-native parasitoid of spotted lanternfly. Additionally, we have begun assessing the parasitoids of native planthoppers for their potential to help control spotted lanternfly.

RHODE ISLAND GALL STORIES, PART I

Maria Aliberti-Lubertazzi[1]

Ava Buccino[1] and Nitika Rao[1]

[1]Rhode Island School of Design, Providence, RI 02903

Funded by a RINHS Godzala Grant, our small team at RISD began a pilot project to find, collect, raise, identify, catalog, visually describe and teach about insect-induced plant galls in the state of Rhode Island, in July 2025. Our three overarching goals are to: begin a species list/database for the state; produce graphic outreach materials to teach the public about the complex structures, creatures and life cycles involved in gall development; create a curated collection of structures and species for the RISD Nature Lab. We will briefly describe our sampling and rearing methods, then present some of our initial finds. These finds fall into categories like "the new/old look", "who/what is inside", "who/what came out", "intricate 3D structure", etc. We will share physical and video elements in addition to the digital slides.

INSECTS FLY TO LIGHT AT DIFFERENT RATES DEPENDING ON CANOPY COVERAGE

Imogen Daszak[1,2]

Avalon Owens[1], Wei-Ping Chan[1], and Timothy Barker Plotkin[1]
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Insect attraction to artificial light ("flight-to-light behavior") has been leveraged for entomological surveys throughout history, but recent increases in ALAN have had profound and negative impacts on both insect populations and the efficacy of light traps used to assess them. Further complicating this issue, insect phototaxis varies across both artificial and natural light environments, which shift dramatically as twilight progresses, at different latitudes, and with differences in canopy coverage. To understand the taxon- and light environment-specific phototactic behaviors of insects, we have sampled insects at different latitudes and in different forested environments using modified bucket traps that measure the rate at which insects of different orders and size classes arrive at a light throughout the evening. In summer 2024, we sampled seven sites in Lakeville, Maine, with varying canopy coverage. We used these data to quantify the effect of the natural light environment (open, mixed, and closed) on the time at which different taxa engaged in flight-to-light post-sunset. Our results can help us better understand the impacts of artificial light on New England forest communities, as well as inform policy on how to more responsibly use this resource while mitigating its ecological impacts.

INSECT BEHAVIOR ALONG AN URBAN GRADIENT: HOW DO INSECTS RESPOND TO ARTIFICIAL LIGHT THROUGHOUT THE LUNAR CYCLE?

Amine Kousba[1]

Avalon Owens[1] and Qian Tang[1]
[1]Harvard University, Cambridge, MA 02138

Artificial light at night (ALAN) and urbanization are increasingly prevalent drivers of global insect declines. This is partly due to the maladaptive flight-to-light behavior exhibited by nocturnal insects, which is known to be inhibited by the light of a full moon. To investigate other environmental

influences on flight-to-light behavior over the course of the night, we regularly sampled light traps along three different urbanization gradients in eastern Massachusetts throughout summer 2025. We hypothesized that insects at sites with less light pollution would approach our light trap earlier in the night due to a lack of competing ALAN sources, and that flight-to-light activity would vary more across the lunar cycle for the same reason. Our results shed light on environmental determinants of insect flight-to-light behavior in New England habitats, with implications for the conservation of at-risk species in increasingly illuminated urban, suburban, and rural habitats alike.

EFFECT OF DECREASED SNOWPACK ON A RARE BUTTERFLY'S HOST PLANT

Rachael Bonoan[1]

Breelyn Gilbert[1], Elizabeth Glasspool[1], Isabelle Heron[1], Caitlin McHugh[1], and Chris Walsh[2]
[1]Providence College, Providence, RI 02918; [2]Washington State University, Vancouver, WA 98686

The most well-known aspect of climate change is global warming. Among other things, Earth's warming temperature has caused less snow to fall, and snow to melt earlier in the spring. Early melting can alter the phenology, the timing of life history events, of spring organisms. Phenological shifts caused by climate change can vary considerably between taxa, which can lead to mismatches between interacting species. The frosted elfin (*Callophrys irus*) is a spring-flying butterfly in the Eastern United States, and is listed as a species of concern in 11 states. As host plant specialists, frosted elfin only lay eggs on small yellow wild indigo (*Baptisia tinctoria*) and wild lupine (*Lupinus perennis*), and are especially vulnerable to climate-induced mismatches. To simulate the impact of global warming on frosted elfin host plant, we conducted a snow removal experiment at Gavins Pond (Foxboro, MA) where small yellow wild indigo is abundant, but the frosted elfin population has been in decline since 2001. In December 2021, we set up five plots of three treatments each: snow-removal (shoveled), trample-control (plot walked on with snowshoes), and control (untouched). Over three field seasons (2022 – 2024), we tracked temperature and timing of indigo leaf out/development relative to the frosted elfin flight season and larval developmental period (April – July). Decreased snow pack did not affect indigo growth or indigo quality (percent nitrogen and percent carbon), which bodes well for frosted elfin in the face of climate change.

GEOGRAPHIC VARIATION IN PREFERENCE, PERFORMANCE, AND CHEMICAL DEFENSE IN A PUTATIVE MIMETIC BUTTERFLY

Abigail Robinson[1]

Carly McDermott[1], Suhani Poore[1], Alejandra Camargo[1], Hannah Aichelman[1], Colin Morrison[2], and Sean Mullen[1]

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Host plant choice shapes larval development, fitness, and chemical defense in herbivorous insects, with cascading consequences for predator deterrence and mimicry. Although the preference–performance hypothesis predicts that females oviposit on hosts that maximize offspring fitness, how tradeoffs among growth, developmental timing, and chemical defense vary across geographic ranges remains poorly understood. *Limenitis arthemis* provides a powerful system for addressing these questions due to its distinct regional morphs and host plant associations. In the southeastern United States, the red-spotted purple (*L. a. astyanax*) primarily uses black cherry (*Prunus serotina*), while in the Northeast, the white admiral (*L. a. arthemis*) favors quaking aspen (*Populus tremuloides*), hosts that contain defensive cyanide and phenolic compounds, respectively. These morphs hybridize in southern New England, near the range edge of the toxic model *Battus philenor*, where both host plants co-occur. We tested whether larvae perform best on locally abundant hosts and whether sequestration of plant toxins generates tradeoffs among growth, development, and chemical defense. Females were collected from Virginia, New England, and Ottawa, and offspring were reared on both host plants. We found that southern larvae performed well on both hosts, whereas northern larvae developed significantly better on their local host, quaking aspen, and hybrids were poorly adapted to both plants. Preliminary chemical analyses indicate that phenolic concentrations are negatively correlated with adult size in southern populations, while cyanide concentrations are positively correlated with developmental time in northern populations. Together, these results provide novel insight into geographic patterns of plant-insect interactions in New England ecosystems.

ASSESSING VARIATION IN INSECT POPULATIONS AND POSSIBLE IMPACTS ON BIRDS IN RHODE ISLAND AND NORTH AMERICA

Scott Ruhren[1]

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The North American Insect Abundance Network was established to expand geographic exploration and compare to similar work ongoing in Europe. The collaborative long-term research at more than 100 sites in North America is in response to troubling global insect declines which may be influenced by climate change. Insect decline could affect the decline of insectivorous bird populations. To examine this correlation in North America, researchers chose tree swallows as a model aerial insectivore. Standard sampling dates follow the phenology of Rhode Island's tree swallows from laying to nestling plus extra later summer dates. In this study, the sole replication in Rhode Island, a Malaise trap was set in grasslands in Marion Eppley and Fisherville Brook Wildlife Refuges. Each sample was from a three-day (72 hour) sampling period in 2024 and repeated in 2025. Replication of these efforts is planned for 2026. Samples were sorted, identified and weighed by insect order except for a more in-depth look at Nematocera (gnats, midges, and mosquitoes), a suborder of Diptera. Nematocera are an abundant and nutritious component of swallow diet, crucial for developing nestlings. As with any sampling effort of this kind, small efforts with two traps may reveal some trends yet also are vulnerable to stochastic effects such as weather and rapid population growth of invasive insects. When comparing to the larger continent-wide data set, collaborators have been making comparisons, noting highlights and trends.

A BRIEF HISTORY OF THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION AND ITS IMPACTS

Gale E. Ridge[1]

Katherine Dugas[1] and Kirby C. Stafford III[1]
[1]The Connecticut Agricultural Experiment Station,
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The Connecticut Agricultural Experiment Station (CAES), founded in 1875, was the first Experiment Station in the country from which all others were modelled. The Station's motto is, "Putting Science to Work for Society, Protecting Agriculture, Public Health, and the Environment." Some of the institution's achievements include discovery of Vitamin A, development of hybrid corn, preventing USDA DDT use against the Spongy moth to later discover a fungal pathogen against the insect; first to isolate Lyme Disease and currently leads in tick and mosquito monitoring and testing which resulted in the discovery of West Nile Virus in 1999, as well as current research in nanotechnology for plant health, and pathogen and parasite research against plant diseases, invasive plants, and insects.

CONNECTING PEOPLE, PLANTS, AND INSECTS THROUGH THE URI MASTER GARDENER PROGRAM

Matthew Durham[1]

[1]University of Rhode Island Master Gardener Program,
Kingston, RI 02881

The University of Rhode Island Master Gardener Program (URIMGP) supports the Rhode Island Plant Insect Community Network (RIPICN) through public education, the management of various demonstration gardens, and school-based pollinator habitat projects that promote native plants and insects, as well as ecological literacy.

In collaboration with the URI Bee Lab, we have provided specialized training for over 50 volunteers to deliver the presentation, “Rhode Island’s Native Bees: Best Gardening Practices for Pollinators.” This training prepares Master Gardener volunteers to educate the public on native bee diversity and pollinator ecology. Trained volunteers now offer this presentation statewide. In 2025, URIMGP volunteers gave this

presentation five times, reaching 82 attendees across five different RI communities.

URIMGP also maintains and expands many demonstration gardens across Rhode Island that model pollinator-friendly landscapes. These include a new native plant garden at the wildlife rehabilitation center Congress of the Birds, and the replacement of sod with native plants for The People's Garden at the Wanskuck Library in Providence. These sites serve as accessible, living demonstrations of plant–insect interactions and habitat restoration.

Additionally, URIMGP supports pollinator-focused school gardens that function as outdoor classrooms for STEM learning and experiential environmental education. Through specially trained URIMGP School Garden Mentors, pollinator gardens have been established at numerous schools across the state. These gardens introduce students to interrelationships in the natural world, while fostering environmental stewardship.

Together, these initiatives highlight the role of community-based education and habitat creation in strengthening Rhode Island's plant–insect network.

MICRO-HABITAT RESTORATION PROJECTS: FOSTERING HABITAT CONNECTIVITY AND BIODIVERSITY THROUGH COMMUNITY ENGAGEMENT

Richard Couse[1]

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Native plants, insects, and their ecological interactions form the backbone of resilient ecosystems, yet habitat fragmentation continues to imperil specialized species even in landscapes with substantial conservation protection. On Martha's Vineyard, where roughly 40% of the land is permanently conserved, loss of rare species persists as a result of fragmented habitat that limits movement and ecological connectivity across private and public lands. To address this challenge, BiodiversityWorks launched the Natural Neighbors Program in 2021 with the aim of increasing native biodiversity and enhancing habitat connectivity by empowering individuals and neighborhoods to integrate ecological features into residential landscapes. By providing tailored, practical recommendations that meet landowners where they are — regardless of experience or resources — the program encourages the creation of small habitat patches, floral resources, and structurally diverse plantings that benefit native plants, pollinators, and other wildlife. These

efforts help create functional “stepping stones” that support insect dispersal, plant–pollinator interactions, and broader ecological networks.

Participation has grown to over 400 private landowners who are collectively transforming residential properties into sources of connectivity across the island. This presentation will share participant engagement data, ecological outcomes, and lessons learned, offering insights and practical recommendations for others seeking to launch similar local programs. We will also discuss opportunities for collaboration among like-minded conservation and community groups to extend the reach of neighborhood-scale restoration within broader plant–insect community networks.

RARE BEES OF SOUTHERN NEW ENGLAND AND HOW TO FIND THEM

David Mantack[1,2]

[1]Southern Connecticut State University, New Haven, CT 06515; [2]The Connecticut Agricultural Experiment Station, New Haven, CT 06511

Targeted bee surveys in Connecticut, combined with review of regional species checklists, suggest that several rare and specialized bee species expected in southern New England likely occur in Rhode Island but remain undocumented, suggesting that there is strong potential for new state records with additional targeted surveys. This talk will discuss how targeted searching, rather than generalized collecting, can be used to efficiently locate species with specialized dietary and habitat requirements.

I will review the historical context of bee collecting in southern New England, how post-glacial landscape history and modern habitat fragmentation shape present-day distributions, and why many species appear “rare” because they are active for brief seasonal windows or restricted to specific host plants or habitats. Particular emphasis will be placed on specialist bees whose strong plant or habitat associations can make them predictable and surprisingly easy to detect.

I will also mention practical, low-cost methods for locating and documenting bees, including using simple photographic and identification techniques that often allow for species-level ID without the need for specimen collection. This talk aims to build enthusiasm for wild bees, with the goal of further expanding Rhode Island’s bee checklist through citizen science.

A HOST PLANT-INFORMED EXPLORATORY FRAMEWORK FOR IMPROVING DETECTION OF RARE SPECIALIST INSECTS

Charlotte G. Brennan[1]

Chadwick D. Rittenhouse[1], Shannon Kearney[2], and Laura Saucier[2]
[1]Department of Natural Resources & the Environment, University of Connecticut, Storrs, CT 06269; [2]Connecticut Department of Energy & Environmental Protection, Wildlife Division, Hartford, CT 06106

Conservation planning for rare specialist insects is often limited by low detectability, incomplete distribution data, and uncertainty about where host plant patches occur at biologically meaningful scales. Using the Frosted Elfin butterfly (*Callophrys irus*) in Connecticut as a case study, we present a plant-informed, tiered exploratory framework designed to support targeted surveys, conservation planning, and habitat restoration.

The framework consists of three integrated components that progress from broad-scale screening to occupancy confirmation: (1) host plant-informed species distribution modeling to identify candidate habitat parcels; (2) vegetation surveys of candidate habitat parcels to locate and delineate host plant clusters exceeding patch-area thresholds; and (3) targeted adult flight surveys to confirm species presence. Sites advance through successive tiers only when criteria from the preceding tier are met.

This standardized, tiered approach supports consistent detection across sites and enables most exploratory work to occur outside narrow adult flight periods by centering host plant information. The framework is scalable and broadly applicable to exploratory surveys and conservation planning for other rare specialist insects in data-limited landscapes.

KEYNOTE

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FLOODLIGHTS AND FIREFLIES: ENVIRONMENTAL SUSTAINABILITY STARTS IN YOUR FRONT YARD

Dr. Avalon Owens

Rowland Institute at Harvard,
Cambridge, MA 02138

Insect populations around the world are declining rapidly. But why? While habitat loss, pesticide use, and climate change all have something to do with it, Dr. Avalon Owens shows in this talk that light pollution is another important — but too often overlooked — bringer of the insect apocalypse. Light pollution interferes with the development, movement, foraging, courtship, and reproduction of diverse insects, including many that we know and love to see in our gardens. It can also be cheaply, easily, and instantly eliminated, and doing so might offer threatened species a brighter future.

Dr. Avalon Owens is a research fellow at the Rowland Institute at Harvard. Her research group studies the impact of light pollution on organisms and ecosystems, with a focus on firefly conservation and moth evolution. Avalon holds an M.S. in Entomology from National Taiwan University and a Ph.D. in Biology from Tufts University.

The 1st Rhode Island Plant Insect Community Network Conference
Saturday, March 7, 2026 | Quonset 'O' Club, North Kingstown, RI

Conference Program Schedule	
MORNING SESSION	
9:00 - 10:00	Registration | Coffee & tea
10:00 - 10:10	Welcoming Remarks
10:10 - 10:30	Ren Johnson: "Phenological shifts in a flowering shrub community: 1982 to 2025"
10:32 - 10:52	Lou Perrotti: "A 30-year collaboration to reestablish the American Burying Beetle (*Nicrophorus americanus*) to Nantucket Island, MA"
10:54 - 11:14	Toby Shaya: "Rhode Island Pollinator Atlas: Showcase of Rhode Island Bumblebee Survey and Wild Bee Survey Highlights"
11:16 - 11:36	Lisa Tewksbury: "Progress toward biological control of emerald ash borer and spotted lanternfly"
11:38 - 11:58	Maria Aliberti-Lubertazzi: "Rhode Island gall stories"
12:00 - 1:00	~ LUNCH ~
1:00 - 2:00	**Keynote:** Avalon Owens: "Floodlights and Fireflies: Environmental sustainability starts in your front yard"
2:00 - 2:30	Poster Session
2:30 – 2:40	~ Break ~

AFTERNOON SESSION		
	Concurrent Session I	**Concurrent Session II**
2:40 – 3:00	Imogen Daszak: “Insect fly to light at different rates depending on canopy coverage”	Gale Ridge: “A brief history of The Connecticut Agricultural Experiment Station and its impacts”
3:02 – 3:22	Amine Kousba: “Insect behavior along an urban gradient: how do insects respond to artificial light throughout the lunar cycle?”	Matt Durham: “Connecting people, plants, and insects through the University of Rhode Island Master Gardener Program”
3:24 – 3:44	Rachael Bonoan: “Effect of decreased snowpack on a rare butterfly’s host plant”	Richard Couse: “Micro-habitat restoration projects: Fostering habitat connectivity and biodiversity through community engagement”
3:46 – 4:06	Abigail Robinson: “Geographic variation in preference, performance, and chemical defense in a putative mimetic butterfly”	David Mantack: “Rare bees of southern New England and how to find them”
4:08 – 4:28	Scott Ruhren: “Assessing variation in insect populations and possible impacts on birds in Rhode Island and North America”	Charlotte Brennan: “A host plant-informed exploratory framework for improving detection of rare specialist insects”
4:28 – 4:40	~ Break ~	
4:40 – 5:15	Discussion Panel	
5:15 – 5:20	Closing Remarks	
5:20 – 7:00	~ Networking Cocktail Hour ~	

WATER FORAGING PREFERENCES OF THE EUROPEAN HONEY BEE (*APIS MELLIFERA*)

Rachel Arabian[1]

Casey Johnson[1], Emma Tondre[1], Rachael Bonoan[2],
Anna Tattelman[2], and Steven Alm[1]
[1]University of Rhode Island, Kingston, RI 02881;
[2]Providence College, Providence, RI 02918

This study sought to determine if European honey bees (*Apis mellifera*) show preferences for specific types of water when the typical visual and physical cues are absent. These preferences were studied by providing bees with 5 different water solutions: 2 moss, 1 mineral, 1 salt, and distilled water. Study sites were observed for ten minutes at three different times of day, and the number of bees visiting each solution was counted during each observation. Honey bees displayed a strong preference for a Sphagnum spp. moss water solution over distilled water. They also showed a preference for distilled water over a commercially available mineral solution (Mineral Bee). Additionally, researchers found that there were more bees collecting water in the afternoon than in the morning. The first finding suggests that there are specific compounds in Sphagnum spp. moss that bees are looking for when collecting water, and that there is a clear relationship between moss and honey bees that should be further investigated. The second finding suggests that when collecting water, bees are not looking for the compounds present in Mineral Bee (which are also found in pollen and honey). The last finding raises a question as to why there are more foragers in the afternoon, such as due to job switching or increased heat stress as temperatures rise throughout the day. Future research should be conducted to further investigate water collecting behavior and why honey bees have specific preferences.

METHODOLOGY OF REARING FIELD COLLECTED PARASITOID WASPS FROM THEIR HOSTS IN RHODE ISLAND

Julia Bentz[1]

Alexandra Johnson[1], Lisa Tewksbury[1], Daniel Farnworth[1], Nicholas Durinzi[2], and Carly Tribull[3]
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Parasitoid wasps of plant hoppers, specifically from the family Dryinidae, have many specialized adaptations to make them successful in parasitizing plant hoppers. They're specialized in their anatomy with chelae and their ant-like appearance. While those from the family Dryinidae are common, they are generally under-studied due to the difficulty of rearing parasitoids from their host hoppers. Dyrinids are of great significance to biocontrol projects such as *N. typhlocybae* in Europe and *T. orizicolus* in South America. In addition, native dryinids are a common beneficial insect in RI. Here we introduce a methodology for rearing parasitoids from field collected Auchenorrhynchic hoppers in Rhode Island between 2023 and 2025.

SEARCHING FOR POLLEN SPECIALIST BEES IN RHODE ISLAND

Fiona Dell'Antonio[1]

Casey Johnson[1], Emma Tondre[1], and Steven Alm[1]
[1]University of Rhode Island, Kingston, RI 02881

Specialist bees, which rely on pollen resources only from certain plants, are particularly vulnerable to population declines and habitat loss. Specialist bees form close evolutionary relationships with their host plants, and both species rely on each other for survival. Utilizing targeted surveys on known host plants, this project establishes which specialist bee species are present in Rhode Island, and documents their distribution within the state. Four bee species were recorded in Rhode Island for the first time in 2025: *Andrena uvulariae*, a specialist on bellworts (*Uvularia* spp.), *Melitta melittoides*, a specialist on maleberry (*Lyonia ligustrina*), *Andrena confederata*, and *Osmia albiventris*. Multiple bee species previously documented in Rhode Island were recorded in new counties, including *Coelioxys octodentatus*, a kleptoparasitic bee which had not been recorded in Rhode Island in over 65 years. Bee distribution data created by this project will be used to amend a checklist of bee species in Rhode Island to

better understand population dynamics and improve conservation efforts. Further research should be conducted to continue to survey rare and undersurveyed plants in order to locate more specialist bee species.

POLLINATORS OF RHODE ISLAND CRANBERRY (*VACCINIUM MACROCARPON*)

Chloe Dyehouse[1]

Evan Preisser[2], Ren Johnson[2], and Fay Santianello[2]
[1]Smith College, Northampton, MA 01063; [2]University of Rhode Island, Kingston, RI 02881

Vaccinium macrocarpon, or cranberry, grows both commercially and natively in Rhode Island. Cranberry grows in bogs, and is buzz pollinated by generalist pollinators (bumblebees, honeybees when introduced, etc) as well as several specialist bee species. While research has been conducted in other areas of New England to survey pollinator diversity of cranberry, no studies have been done for cranberry in Rhode Island. This investigation sought to identify specifics of Rhode Island cranberry pollinator diversity in wild and commercial cranberry bogs. Surveys were conducted in June and July of 2025 to identify pollinators, primarily utilizing vial catching. All insects seen visiting cranberry flowers were collected in 15 minute collecting sessions , and floral density within sites was calculated by counting each bloom within a 0.5m^2 quadrat. Bees represented much of the visitation, and generalist bumblebees and specialist solitary bees were found at both commercial and wild sites. Future research may include identification of pollen species found on collected bees from the 2025 field season.

BIOCONTROL OF THE INVASIVE SPOTTED WING DROSOPHILA USING THE PARASITOID *GANASPIS KIMORUM*

Kristen Goodrich[1]

Lisa Tewksbury[1] and Alexandra Johnson[1]
[1]University of Rhode Island, Kingston, RI 02881

Spotted wing drosophila (SWD) is an invasive fruit fly from Southeast Asia that lays its eggs in ripening berry crops, which results in losses in fruit quality and yield. The parasitoid wasp *Ganaspis kimorum* is a natural enemy from Southeast Asia that parasitises SWD larvae and was permitted for release in the US as a classical biological control agent for SWD. This wasp is being released and evaluated in many states as a biocontrol option to

help RI farmers minimize SWD damage. We maintained colonies of SWD and *G. kimorum* in the lab with the goal of releasing *G. kimorum* at berry farms in Rhode Island. After releases, berries were collected from these farms to monitor for the presence of spotted wing drosophila and to determine parasitism rates of SWD larvae post *G. kimorum* release. In 2025, 3,490 *G. kimorum* were released at five sites with varying berry crops.In post release monitoring the most SWD pupae were found in black raspberries, and the highest parasitism rates were found in blackberries. Peak numbers of SWD were seen in September in all fruits, with lowest numbers in early summer. Many wasps have been recovered from our field berry samples and are in the process of being identified. Releases and monitoring will continue in 2026 and new release sites will be added to increase populations of *G. kimorum* throughout Rhode Island.

BIOSURVEILLANCE OF INVASIVE EMERALD ASH BORER (*AGRILUS PLANIPENNIS*) WITH *CERCERIS FUMIPENNIS* WASPS

Elliott Haber[1]

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Invasive insects can decimate native plant species populations, making it a critical part of conservation to monitor them to best protect our ecosystems. This study is important because it continues the survey URI Biocontrol started in 2014 of Emerald Ash Borer (*Agrilus planipennis*, EAB), an introduced beetle from Asia that feeds on ash trees across New England. Using the method of "biosurveillance" created by Phillip Careless in 2009, *Cerceris fumipennis* is used to survey for EAB because they are natural predators of members of the family Buprestidae in which EAB belong to. We collected 134 buprestids across 6 survey sites with only two specimens being identified as EAB in 2025. The overall number of buprestids in 2025 was lower than the previous 11 years, and the number of EAB collected has been decreasing with each year since 2021. Our findings suggest that there might be alternative benefits to doing this study based on the non-target species found, and determining how climate change has affected the timing of *Cerceris* and EAB emergence since this method was first created.

UNDERSTANDING THE GROWTH OF SPOTTED LANTERNFLIES AND EFFECTIVENESS OF DIFFERENT TRAPS

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Throughout Rhode Island, particularly in the Providence area, the warmer months bring widespread infestations of the spotted lanternfly (*Lycorma delicatula*). Native to Asia, this invasive species harms native trees by draining their sap and promoting mold growth. Their primary host plant, the tree of heaven (*Ailanthus altissima*), is commonly planted around Providence, contributing to yearly increases in lanternfly populations. Our goal was to leverage the lanternflies' natural climbing habits to design and deploy traps, allowing us to better understand the growth of this invasive insect, identify congregation sites, and develop effective, non-invasive strategies to reduce their numbers. We invite community members, city officials, and local organizations to partner with us in implementing citywide coverage of environmentally friendly traps throughout Providence.

EVALUATION OF A NORTH AMERICAN DRYINID FOR BIOCONTROL OF SPOTTED LANTERNFLY

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Spotted lanternfly (SLF) is an invasive planthopper in eastern North America threatening viticulture and other agricultural industries. A classical biological control program has been initiated by the USDA APHIS Forest Pest Methods lab, and the URI Biocontrol Lab is collaborating on host range testing of the proposed biocontrol agent *Dryinus sinicus* by collecting and rearing native hopper species for no-choice testing. While collecting nymphs from the field in Rhode Island, we have recovered multiple dryinid wasps from native planthopper species *Acanalonia conica* and *A. bivittata*. To evaluate the potential for these dryinids to help control SLF populations we ran no-choice experiments with wasps alternating between exposure to SLF nymphs of varying sizes and their usual host *Acanalonia* spp. nymphs of varying sizes. Instances of host feeding were recorded and nymphs were monitored for signs of parasitism. To

investigate if host plant has an effect, SLF nymphs were reared on either *Ailanthus altissima* or *Vitis labrusca* before being exposed to the parasitoids, while *Acanalonia* spp. were reared solely on *Vitis labrusca.* Understanding the potential for native wasp species to provide control of SLF should be investigated further as part of the pre-release studies for classical biocontrol of SLF.

TASTES OF HOME: EVALUATING AFRICAN VEGETABLES FOR RHODE ISLAND

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Immigration into Rhode Island has increased 35.1% from 2000 to 2023, with 24.4% of immigrants originating from Africa or Asia. For many of these communities, African eggplant (*Solanum aethiopicum*) and okra (*Abelmoschus esculentus*) allow access to food items from their country of origin, avoiding a critical aspect of food insecurity that is often overlooked. This presents a unique opportunity for Rhode Island growers to provide for those that otherwise would not have access to fresh food from their home country. The yield of African eggplant (12 varieties) and okra (15 varieties) were evaluated using a randomized block design to assess how the Rhode Island climate creates opportunities and challenges for growers. The okra trial displayed weak evidence of statistically significant results in regard to variety performance, with the highest performer among these varieties being Annie Oakley okra, which produced 256 pods on average, compared to the lowest performer– Nkruma Tenten–that produced 12.3 pods on average. The African eggplant trial had a high degree of statistical significance. Two varieties–Intore (total average weight of 9.77 kg) and Nya Nya Chungu (total average weight of 9.22 kg), exhibited high yield performance, compared to the lowest performer –Liberian Green Pumpkin Bitterball, which averaged 3.65 kg. Future trials should be conducted in the Northeast United States, in order to test for consistency across multiple growing seasons and to scrutinize the high-performing varieties highlighted in this study.

BIOLOGICAL CONTROL OF INVASIVE SWALLOW-WORTS WITH *HYPENA OPULENTA*

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Black swallow-wort (*Vincetoxicum nigrum*) and pale swallow-wort (*Vincetoxicum rossicum*) are invasive vining plant species in North America that outcompete native vegetation, reduce habitat quality, and negatively affect monarch butterflies by acting as a sink for monarch eggs. In response to the continued spread of swallow-worts, a classical biological control program was initiated using the noctuid moth *Hypena opulenta*, a specialist herbivore native to Ukraine. Following successful establishment in Canada, field cage releases of *H. opulenta* were conducted by the URI Biocontrol Lab at multiple swallow-wort–infested sites throughout Rhode Island, Connecticut, and Massachusetts beginning in 2017. The goal of this study was to survey swallow-wort abundance and document the presence of *H. opulenta* larval feeding damage at previous release sites. From June–August 2025, presence/absence surveys were conducted at 10 release sites using haphazardly placed quadrats, along with stem density measurements to represent swallow-wort abundance. Additional monitoring for adult moths was conducted using light traps and mothing nights. Unfortunately, no *H. opulenta* larval feeding damage or adult moths were detected throughout the ten surveyed sites, despite swallow-wort stem densities ranging from 9–32 stems per m^2. However, flatid and *Acanalonia* spp. planthoppers were observed feeding on both swallow-wort species at multiple sites in Connecticut and Massachusetts, which had not been previously recorded. Our findings suggest that *H. opulenta* has not yet established in southern New England, potentially due to constraints regarding photoperiod. Continued monitoring is planned, while ongoing research by the USDA and SUNY ESF is evaluating alternative biological control agents.

FROM PLANTS UP: EWA BUGGY PROTOCOLS FOR INSECT–PLANT INTERACTION MONITORING

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Global declines in insect populations threaten ecosystem stability and food security, yet consistent, long-term studies with standardized methods remain rare. Social platforms, such as iNaturalist, have greatly expanded public participation in biodiversity tracking; however, their presence-only data and lack of standardized collection protocols limit accurate biodiversity measurement and prevent a robust assessment of species abundance and community composition over time.

Earthwise Aware (EwA) addresses these gaps with a systems approach to insect conservation that studies insects in the context of their co-evolved relationships with native plants and the habitats that support them. Understanding plant–insect associations is essential for identifying which plant species sustain the highest insect diversity and for tracking how these relationships shift across seasons, sites, and environmental conditions.

To advance this goal, EwA developed EwA Buggy, a user-friendly and rigorous field protocol hosted on the Anecdata platform. Enabled by Anecdata's mobile and web tools, Buggy standardizes the collection of detailed data on arthropod–host plant interactions, including life stages, behavior, abundance, absence, plant phenology, and co-occurring arthropods, with all observations georeferenced and supported by photo documentation.

By filling critical gaps in insect ecology, EwA Buggy provides a robust open-access dataset and strengthens the capacity of researchers and community scientists to generate actionable insights for insect conservation and habitat protection. Building on its successful use in Massachusetts, where EwA Buggy data inform the Somerville Pollinator Action Plan, we offer this protocol as a ready-to-use tool and encourage its adoption in Rhode Island to monitor local plant–insect biodiversity.

POLLINATOR DIVERSITY OF GREAT RHODODENDRON (*RHODODENDRON MAXIMUM*)

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Ren Johnson[1] and Evan Preisser[1]
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Great rhododendron (*Rhododendron maximum*) is abundant in Rhode Island, thriving in the shady understory of forests. It blooms during a period when other native shrubs do not, filling an open niche in the understory community. Although great rhododendron may thus be a crucial food source to wild bees and insects, its pollinators are virtually unknown. To identify the pollinators who may rely on great rhododendron in southern Rhode Island, surveys were conducted in June and July 2025. Insect visitors within reach were collected from flowers along the thicket's edge with vials and nets. The vast majority of visitors were bees, many of which were bumblebees and solitary living sweat bees. Future research may include pollen identification from insect specimens to further understand the foraging behavior and pollen preference of forest-dwelling bees.

THE INFLUENCE OF LAND COVER ON WILD BEE COMMUNITIES IN POLLINATOR MEADOWS IN SOUTHERN NEW ENGLAND: A FIRST LOOK

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Habitat availability for bees is dependent on many factors, including land-use, soil characteristics, and floral resources. Understanding the influence of land cover on wild bee communities is crucial to improving habitat management strategies. In 2023 and 2024, we surveyed bees at 22 sites across Rhode Island and Connecticut. Using ArcGIS Pro 3.1.3 and Python, we examined the land cover composition in the area surrounding site boundaries. Multiple buffer distances were chosen to reflect the potential range of foraging distances of different bee species from their nesting locations. We used generalized linear models to understand associations between bee populations and the surrounding landscape. Our objectives were to (1) determine if and how the observed bee species are associated with specific land cover categories, (2) identify focal landscape characteristics to be used in further analyses in conjunction with our in-situ data, and ultimately, (3) use this important contextual information to improve the establishment and management of pollinator plantings.

ORGANIZATIONAL DISPLAYS & EXHIBITORS

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15 Minute Field Trips
Eastern Rhode Island Conservation District
New England Botanical Society
Providence Pollinator Lab
ReSeeding RI
Rhode Island Audubon
Rhode Island Wild Plant Society
RIDEM, Division of Agriculture and Forestry
Roger Williams Park Zoo
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University of Rhode Island Biocontrol Lab
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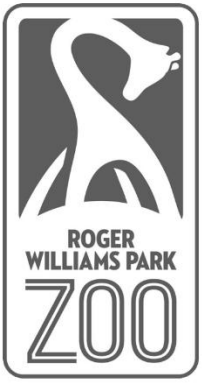

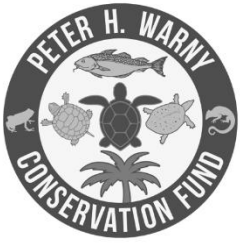

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To promote ecosystem resilience, the Rhode Island Natural History Survey collects, organizes, and disseminates information on Rhode Island's biodiversity and ecosystems and fosters public involvement in environmental science and the use of science-based solutions to environmental challenges.

The Rhode Island Natural History Survey is a member-supported, non-profit founded in 1994 to gather and share desperately needed knowledge about the natural world. We connect academic scientists, agency managers, conservation professionals, and amateur naturalists, people at all skill levels and abilities. No one knows everything and no one knows nothing, so bring what you have to the table, and let's learn about what's out there, together!

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