

Zachary Beneduci

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Education

Auburn University

M.Sc. in Entomology; GPA: 4.0

Auburn, AL, US

2022 - 2024

University of Maine

B.Sc. in Wildlife Ecology; GPA: 3.75

Orono, ME, US

2015 - 2019

Employment

Research Technician

Auburn University

Auburn, AL, US

2025 - present

- Analyzed data, prepared manuscripts, and determined bee species. Provided statistical consultation.

Graduate Research Assistant

Auburn University

Auburn, AL, US

2021 - 2024

- Established two 4-year long research projects. First, to test the effects of fall management practices (no management, mowing, light disking, and mowing + light disking) on wildflower and foraging-bee density, diversity, and community composition. Second, to test the effect of a pine-based biochar on the wildflower and foraging-bee density, diversity, and community composition in a southeastern soil.

Pollinator Habitat Technician

University of Massachusetts Amherst

Amherst, MA, US

2021 - 2021

- Sampled bees and vegetation for the Pollinator Habitat in Log Landings (PHiLL) research project conducted in the Hoosier, Shawnee, and Mark Twain National Forests. Bees were collected by timed netting surveys and bowl traps, while vegetation species composition and cover characteristics were measured in seeded split-plots. Minor duties included bee processing and data entry.

Pollinator Field Research Technician

North Dakota State University

Fargo, ND, US

2020 - 2020

- Surveyed bees and butterflies in rangelands across northeastern North Dakota as part of a statewide monitoring effort. Conducted distance sampling of butterflies along line transects. Netted bees during timed surveys along belt transects and passively collected bees using pan traps. Sorted bees and pan trap bycatch by taxon and labeled for future pinning. Counted floral units along transects and performed vegetation cover surveys. Navigated to sites using Garmin Handheld GPS. Arranged site visits with landowners and managers.

Restoration Ecology Apprentice

The Wilds

Cumberland, OH, US

2019 - 2019

- Co-created a research project in collaboration with the Ohio Department of Natural Resources to study pollinator composition and diversity on abandoned surface coal mines. Collected, via targeted netting, and processed 540 flower-visiting insects. Identified 29 bee and 36 wildflower species. Entered, managed, and analyzed measures of pollinator diversity in program R and designed sitemaps in ArcGIS Pro for publication. Conducted Pollard walk-style butterfly population surveillance in managed tallgrass prairie. Collected capture-mark-recapture data from American burying beetles (*Nicrophorus americanus*) and congeners.

Lab and Field Technician

Orono, ME, US

The University of Maine

2017 - 2018

- Collected and entered data to assess population dynamics, pesticide resistance, and parasitism of/on invasive browntail moth (*Euproctis chrysorrhoea*) (BTM) at field sites throughout coastal Maine. Collected live BTM egg masses, larvae, and overwintering and pupation nests. Identified parasitic flies (Tachinids), their puparia, and wasps (Ichneumonids and Chalcidoids) reared from collected BTM nests and pupae. Maintained in-lab experimental assays testing the effect of several pesticides and pathogens on BTM survival and feeding. Developed a leaf area measurement protocol using ImageJ to compare larval browse within and among treatment groups.

Publications

1. Bruckner, S., Straub, L., Villamar-Bouza, L., **Beneduci, Z. J.**, Neumann, P., & Williams, G. R. (2024). Life stage dependent effects of neonicotinoid exposure on honey bee hypopharyngeal gland development. *Ecotoxicology and Environmental Safety*, 288, 117337. <https://doi.org/10.1016/j.ecoenv.2024.117337>
2. **Beneduci, Z. J.**, Scott, D. A., Byrd, S. M., & Swab, R. M. (2023). We built it; did they come? Pollinator diversity and community structure in a post-mining prairie restoration project. *Ecological Restoration*, 41(4), 180--188. <https://doi.org/10.3368/er.41.4.180>

Presentations

1. Beneduci, Z. J. (2024). *Evaluating practices to maintain diverse and abundant CP42-pollinator habitat (USDA: FSA) plantings in the southeastern USA.*

Awards

2018 & 2019: Penobscot County Conservation Scholarship. Awarded to wildlife students who show high promise as potential wildlife biologists and are dedicated to a career in wildlife conservation.

2018 & : Wayland A. Shands Scholarship. Awarded to a student of Entomology with high academic standing.