

Zachary J. Beneduci

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Education

M.Sc. in Entomology; GPA: 4.0 **2022 - 2024**

Auburn University, Auburn, AL, USA

B.Sc. in Wildlife Ecology; GPA: 3.75 **2015 - 2019**

University of Maine, Orono, ME, USA

Employment

Research Technician **2025 - present**

Auburn University, Auburn, AL, USA

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

Graduate Research Assistant **2021 - 2024**

Auburn University, Auburn, AL, USA

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 **2021 - 2021**

University of Massachusetts Amherst, Amherst, MA, USA

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 **2020 - 2020**

North Dakota State University, Fargo, ND, USA

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 **2019 - 2019**

The Wilds, Cumberland, OH, USA

Collaborated with the Ohio Department of Natural Resources to study pollinator composition and diversity on abandoned surface coal mines. Collected flower-visiting insects via targeted netting. Processed and identified specimens. Entered, managed, and analyzed data in program R and designed sitemaps in ArcGIS Pro. 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

2017 - 2018

The University of Maine, Orono, ME, USA

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* [Conference presentation]. Presented at the Entomological Society of America Annual Meeting, Phoenix, AZ, USA.
2. **Beneduci, Z. J.** (2024). *Biochar impacts on pollinator planting community characteristics in a southeastern soil* [Conference presentation]. Presented at the Plants, Insects,; Microbes Symposium, Auburn, AL, USA.
3. **Beneduci, Z. J.** (2023). *Evaluating suitable practices for maintaining diverse and abundant wildflower plantings under CP42-Pollinator Habitat (USDA: FSA) requirements in the southeastern USA* [Conference poster]. Presented at the Entomological Society of America Annual Meeting, National Harbor, MD, USA.

Awards

First Place, Oral Presentation

2024

Plants, Insects, and Microbes Symposium

Student competition award.

Penobscot County Conservation Scholarship

2018 & 2019

The University of Maine

Awarded to wildlife students who show high promise as potential wildlife biologists and are dedicated to a career in wildlife conservation.

Wayland A. Shands Scholarship

2018

The University of Maine

Awarded to a student of Entomology with high academic standing.

Teaching

Teaching Assitantships.....

2024: WILD 7150. Advanced Analysis for Ecological Sciences

Outreach

Talks.....

Tabled Events.....

Articles.....