**Alyssa L. Young**

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EDUCATION

**Ph.D., Environmental Health Sciences, UNC Greensboro** – Greensboro, NC – **Expected 2025**

*Dissertation:* Ecology of Symbiotic Nitrogen Fixation in a Fire-Dependent Ecosystem

*Advisor*: Sally E. Koerner

*Greensboro Graduate Scholar*

Current GPA: 4.0

**M.S., Biology, UNC Greensboro** – Greensboro, NC – **2019**

*Thesis*: Drivers of Plant Community Biodiversity: Understory Dynamics in Longleaf Pine Savannas of NC

*Advisor*: Sally E. Koerner

GPA: 4.0

**B.S., Biology, UNC Greensboro** – Greensboro, NC – **2014**

Minor in Chemistry

RESEARCH & WORK EXPERIENCE

**Visiting Researcher:** Smithsonian Environmental Research Center 2021 - 2022

**Graduate Research Assistant:** UNC Greensboro 2021 - 2022

**Course-based Undergraduate Research Experience (CURE) Development** 2018 - present

**Research Assistant:** UNC Greensboro

**Field Technician:** Northern Great Plains Steppe in Wyoming and Montana, USA 2022

**Field Technician:** Kruger National Park, South Africa 2018

**Technician:** DNA/Identity Department - LabCorp 2015 – 2016

PUBLICATIONS

Bennett, S.K., Bloodworth, K.J., Alley, S., Blake, E., Brenneman, R., **Young, A.L.**, Shamon, H., Komatsu, K.J. Characterizing the drivers of northern mixed-grass prairie plant community composition. In prep.

Wilfahrt, P., Seabloom, E., Bakker, J., Biederman, L., Bugalho, M., Cadotte, M., Caldeira, M.C., Catford, J., Chen, Q., Donohue, I., Ebeling, A., Eisenhauer, N., Haider, S., Heckman, R., Jentsch, A., Koerner, S.E., Komatsu, K.J., Laungani, R., MacDougall, A., Martina, J., Martinson, H., Moore, J., Niu, Y., Ohlert, T., olde Venterink, H., Orr, D., Peri, P., Pos, E., Price, J., Raynaud, X., Ren, Z., Roscher, C., Smith, N.G., Stevens, C., Sullivan, L., Tedder, M., Tognetti, P., Veen, C., Wheeler, G., **Young, A.L.**, Young, H., Borer, E. Nothing lasts forever: dominant species decline under rapid environmental change in global grasslands. In Review at *Journal of Ecology* (2023). Manuscript ID JEcol-2023-0129.

**Young, A.L**. and Koerner, S.E. Understory dynamics in North Carolina longleaf pine savannas: Biodiversity, dominance, and biomass. *Journal of Vegetation Science* (March 2022).

<https://doi.org/10.1111/jvs.13126>

**Young, A.L.**, Bloodworth, K.J., Frost, M.D.T. *et al.* Heatwave implications for the future of longleaf pine savanna understory restoration. *Plant Ecology* (March 2022). <https://doi.org/10.1007/s11258-021-01212-7>

FELLOWSHIPS & AWARDS

 **Robert P. McIntosh Award –** Ecological Society of America Vegetation Section 2023

Awarded to the best paper in vegetation ecology published in the previous year.

(“Heatwave implications for the future of longleaf pine savanna understory restoration”. *Plant Ecology* (March 2022). <https://doi.org/10.1007/s11258-021-01212-7>)

**Smithsonian Institution Fellowship Program –** Smithsonian Environmental Research Center 2020

 Legume-rhizobia symbiosis as a tool to enhance restoration success in a fire prone

 ecosystem ($7500; 10-week graduate student fellowship – completed Fall 2021)

 **Outstanding Senior Teaching Assistant Award –** UNC Greensboro($200) 2020

Awarded to a graduate student with more than four semesters teaching experience who has demonstrated outstanding teaching practices and high-quality instruction

**Greensboro Graduate Scholar –** UNC Greensboro Graduate School ($3000) 2019 - 2021

Awarded to exceptional students in UNCG’s graduate programs with outstanding academic records

RESEARCH GRANTS

**Research and Tech Flash Grant** – North Carolina Biotechnology Center 2023

Legume-Rhizobia symbiosis as a tool to enhance restoration success and long-term sustainability of longleaf pine savanna forestry ($27,500)

PI: Sally E. Koerner ($20,000 to fund my dissertation and $7,500 to fund an undergraduate intern);

Co-PI: Alyssa L. Young

**Internal Funding Award for the Physical and Natural Sciences** – UNC Greensboro 2022

Understanding symbiotic nitrogen fixation in longleaf pine savannas to enhance production ($4,995)

PI: Sally E. Koerner (to fund my dissertation); Co-PI: Alyssa L. Young

**Tom and Bruce Shinn Fund –** North Carolina Native Plant Society ($1,000) 2022

**Professional Development Fund –** UNC Greensboro Graduate Student Association ($500) 2022

**Graduate Student Travel Grant –** UNC Greensboro Biology Department 2019, 2022, 2023

($100; $210; $120)

**O’Brien Award for Field Research –** UNC Greensboro Biology Department 2018, 2021

($1,000; $500)

 **Research Capstone Fund –** UNC Greensboro Graduate Student Association 2018, 2021

($1,000; $300)

**Graduate Student Research Grant –** UNC Greensboro Biology Department

($350; $420; $491; $500; $375; $250; $381; $370) 2019, 2020, 2020, 2021, 2021, 2022, 2022, 2023

 **Student Section Registration Grant** – Ecological Society of America ($55) 2021

 **Student Section Real/Brown Travel Grant** – Ecological Society of America ($60) 2020

**Faculty First Award for the Physical and Natural Sciences** – UNC Greensboro 2020

 Legume-rhizobia symbiosis as a tool to enhance restoration success in a fire prone

 ecosystem ($4,250)

 PI: Sally E. Koerner (to fund my dissertation); Co-PI: Alyssa L. Young

INVITED TALKS

**Young, A.L.** December 2022. Legume-rhizobia Symbiosis as a Tool to Enhance Restoration Success. Invited speaker at the North Carolina Sandhills Conservation Partnership Quarterly Meeting. Moore County, North Carolina.

**Young, A.L.** November 2022. Mutualisms in Restoration. Invited seminar speaker at Ecology and Evolutionary Biology Program at Wake Forest University. Winston-Salem, North Carolina.

**Young, A.L.**, Bloodworth, K.J., Frost, M.D.T. April 2022. Lessons Learned: CUREs, COVID, and Insights on Effective Biology Teaching. Invited Speaker at Pedagogy Roundtable Biology Department Seminar at University of North Carolina Greensboro. Greensboro, North Carolina.

PRESENTATIONS (\* = undergraduate researcher whom I mentored)

\*Somero, L., **Young, A.L.**, and Koerner, S.E. April 2023. Trait responses of *Aristida stricta* grass plugs among varying levels of nitrogen in soil. UNCG 17th Annual Carolyn & Norwood Thomas Undergraduate Research and Creativity Expo. Greensboro, North Carolina.

\*Johnson, A., **Young, A.L.**, and Koerner, S.E. April 2023. Investigating the link between rates of nitrogen fixation and legume plant traits in longleaf pine savannas. UNCG 17th Annual Carolyn & Norwood Thomas Undergraduate Research and Creativity Expo. Greensboro, North Carolina.

**Young, A.L.**, Komatsu, K.J., and Koerner, S.E. October 2022. Predictors of symbiotic nitrogen fixation in longleaf pine savannas. 14th Biennial Longleaf Conference. Wilmington, NC.

Mann, W.T., **Young, A.L.**, Bloodworth, K.J., and Koerner, S.E. October 2022. Effects of nutrient addition on longleaf pine savanna understory plant species. 14th Biennial Longleaf Conference. Wilmington, NC.

Frost, M.D., Bloodworth, K.J., Gora, S.L., Mann, W.T., Terry, R., **Young, A.L.**, and Koerner, S.E. October 2022. Classroom-based restoration research: the legacy effects of heatwaves on growth of *Schizachyrium scoparium*. 14th Biennial Longleaf Conference. Wilmington, NC.

**Young, A.L.**, Komatsu, K.J., and Koerner, S.E. August 2022. The influence of legume plant traits and abiotic factors on rates of symbiotic nitrogen fixation in longleaf pine savannas. Ecological Society of America 107th Meeting. Montreal, Quebec, Canada.

\*Turner, P., **Young, A.L.**, and Koerner, S.E. April 2022. Impact of burn frequency on arthropod communities in NC longleaf pine savannas. UNCG 16th Annual Carolyn & Norwood Thomas Undergraduate Research and Creativity Expo. Virtual. Expo Winner.

\*Jolin, A., **Young, A.L.**, and Koerner, S.E. April 2022. Impact of germination and inoculation method on above- and belowground biomass in *Chamaecrista nictitans*. UNCG 16th Annual Carolyn & Norwood Thomas Undergraduate Research and Creativity Expo. Virtual.

\*Sabiston, N., **Young, A.L.**, and Koerner, S.E. April 2022. Impact of nutrient addition on arthropod communities in the longleaf pine savanna ecosystem. UNCG 16th Annual Carolyn & Norwood Thomas Undergraduate Research and Creativity Expo. Virtual.

\*Turner, P., **Young, A.L.**, and Koerner, S.E. March 2022. Impact of burn frequency on arthropod communities in NC longleaf pine savannas. UNCG 22nd  Annual Undergraduate Honors Symposium. Virtual. Symposium Winner.

\*Sabiston, N., **Young, A.L.**, and Koerner, S.E. March 2022. Impact of nutrient addition on insect communities in the longleaf pine savanna ecosystem. UNCG 22nd Annual Undergraduate Honors Symposium. Virtual.

**Young, A.L.**, Komatsu, K.J., and Koerner, S.E. August 2021. Ecology of symbiotic nitrogen fixation in a fire-dependent ecosystem. Ecological Society of America 106th Meeting. Virtual.

\*Gora, S.L., **Young, A.L.**, and Koerner, S.E. August 2021. Legume-rhizobia symbiosis: How do plant traits influence number of nodules in the longleaf pine. Ecological Society of America 106th Meeting. Virtual.

\*Hussain, K., **Young, A.L.**, and Koerner, S.E. April 2021. Identifying Growth of Rhizobial Bacteria from Legume Root Nodules in a Controlled Environment. UNCG 15th Annual Carolyn & Norwood Thomas Undergraduate Research and Creativity Expo. Virtual.

\*Gora, S.L., **Young, A.L.**, and Koerner, S.E. April 2021. Legume-rhizobia symbiosis: How do plant traits influence number of nodules in the longleaf pine. UNCG 15th Annual Carolyn & Norwood Thomas Undergraduate Research and Creativity Expo. Virtual.

**Young, A.L.** and Koerner, S.E. October 2020. Drivers of plant community biodiversity: understory dynamics in longleaf pine savannas of North Carolina. 13th Biennial Longleaf Conference. Virtual.

**Young, A.L.**, Komatsu, K.J., and Koerner, S.E. October 2020. Legume-rhizobia symbiosis as a tool to enhance restoration success in a fire prone ecosystem. 13th Biennial Longleaf Conference. Virtual.

Koerner, S.E., **Young, A.L.**, Bloodworth, K.J., Frost, M.D., and Green, C. October 2020. Restoration of dominant understory grasses in the face of climate change: lessons from course-based undergraduate research experiences. 13th Biennial Longleaf Conference. Virtual.

Bloodworth, K.J., Frost, M.D., **Young, A.L.**, and Koerner, S.E. October 2020. Implications of watering frequency and nitrogen addition on a dominant Longleaf pine ecosystem grass, Aristida stricta. 13th Biennial Longleaf Conference. Virtual.

**Young, A.L.** and Koerner, S.E. August 2020. The response of a dominant longleaf pine savanna understory grass, Sorghastrum nutans, to a simulated heatwave. Ecological Society of America 105th Meeting. Virtual.

**Young, A.L.**, Pavlova, I., Remington, D., Tomlin, E., Horton, M., Koerner, S.E., Green, C., and Schug, M. October 2019. Scaffolding research in courses throughout the biology curriculum. Annual Council of Undergraduate Research Transformations Project Conference. Houston, Texas.

**Young, A.L.** and Koerner, S.E. August 2019. Drivers of plant community biodiversity: Understory dynamics in longleaf pine savannas of North Carolina. Ecological Society of American 104th Meeting. Louisville, Kentucky.

**Young, A.L.** and Koerner, S.E. April 2019. Drivers of plant community biodiversity: Understory dynamics in longleaf pine savannas of North Carolina. UNCG Graduate Research and Creativity Expo. Greensboro, North Carolina.

PROFESSIONAL AFFILIATIONS & ACTIVITIES

 **Memberships:** Ecological Society of America, The Longleaf Alliance, Council in Undergraduate Research, Spartans for Science and Policy, and The National Society of Leadership and Success

TEACHING EXPERIENCE

**Teaching Assistant**

Ecology and Evolution Lab (BIO 315) Course-based Undergraduate Research Experience (CURE) Assistant – UNC Greensboro

* Semesters assisted: Fall 2018, Spring 2019, Fall 2019, Spring 2020, Fall 2020, Spring 2021, Fall 2022, Spring 2023

Ecology and Evolution Lab (BIO 315) – UNC Greensboro

* Semesters taught: Fall 2018, Spring 2019, Fall 2019, Spring 2020, Fall 2020, Spring 2021, Fall 2022, Spring 2023

Marine Biology Coastal Field Excursion Assistant (BIO 420) – UNC Greensboro

* Semesters assisted: Fall 2019

Principles of Biology II Lab – Inquiry Based (BIO 112L) – UNC Greensboro

* Semesters taught: Spring 2018, Fall 2018

Major Concepts in Biology Lab (BIO 105L) – UNC Greensboro

* Semesters taught: Fall 2017, Spring 2018

**Guest Lecture**

Principles of Ecology (BIO 301) – UNC Greensboro November 2022

* “Global Change in the Anthropocene”

Principles of Ecology (BIO 301) – UNC Greensboro October 2019

* “Ecosystem Function – Aboveground Net Primary Productivity”

Global Change Ecology (BIO 456) – UNC Greensboro March 2019

* Served as a panelist to provide feedback for students’ presentations on global change topics.

**Other**

Instructional Video Narrator – UNC Greensboro 2019

* Narrated an instructional video for use in all undergraduate biology labs highlighting the UNC Greensboro Peabody Park

MENTORING EXPERIENCE

 **Biodiversity Lab (UNCG) undergraduates** 2018 – present

 To date, I have mentored 26 undergraduate students on how to collect field data, set up greenhouse experiments, process field samples, proper data keeping, data analyses, and how to think critically about the results of scientific experiments.

**High school students (Greensboro, NC)** 2018 – 2019 In Fall 2018, I mentored 1 high school student who volunteered in the lab on how to process field samples, proper data keeping, setting academic and personal goals, and how to choose an undergraduate institution.

SERVICE & OUTREACH

**Peabody Park Committee:** UNC Greensboro 2020 - present

**Undergraduate Program Committee Member:** UNC Greensboro 2020 - present

**Biology Social Committee Member:** UNC Greensboro 2022 - present

**Science Olympiad Event Leader:** UNC Greensboro 2020

**Global Change Panelist:** UNC Greensboro 2019

**Science Olympiad Mentor:** UNC Greensboro 2019

**Speaker at Meet a Scientist Day:** Union Pines High School, Cameron, NC 2019

 REFERENCES

**Dr. Sally E. Koerner Dr. Kasie Raymann**

Assistant Professor Assistant Professor

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