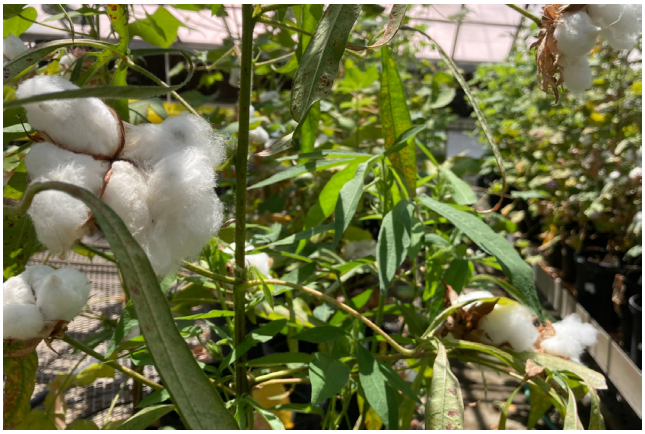
this stage. This co-culture method will be used to phenotype recombinant inbred lines derived from parents contrasting for incompatibility in efforts to identify the gene(s) underlying this *Striga* resistance trait.

Research advisor Patrick Rich writes: "Cameron meticulously phenotyped a recombinant *inbred sorghum population for resistance to the parasitic weed* Striga hermonthica. *He worked for months in our special containment facility with delicate biological materials that required careful handling, observations, and record keeping. His work moves us closer to finding genes controlling post-attachment* Striga *resistance."*

Gossypium hirsutum as a Study Species to Understand Plant Responses to Drought Stress

Student researcher: *Sam Schafer, Senior*

Throughout the past year of working with cultivated upland cotton (*Gossypium hirsutum* L.), it has been intriguing to learn how it can serve as a study species for understanding the effects of genotype and water stress on photosynthetic parameters. The goal of the project is to discover whether genotype and environment play a significant role in crop photosynthesis and to quantify any potential interaction between the two variables. Photosynthesis-CO_2 response (A/C_i) curves of 14 biogeographically diverse cotton accessions grown under controlled greenhouse conditions were collected using a Li-COR 6800 Portable Photosynthesis System (Li-COR: Lincoln, Nebraska) and analyzed using R software. Broad-sense heritability (H^2) for maximum rate of rubisco carboxylation (V_{cmax}) and electron transport (J_{max}) were 0.575 and 0.686, respectively. Paired with a one-way ANOVA test, results suggested that photosynthetic parameters were not significantly affected by genotype. A subset of 4 cotton accessions were selected for a follow-up study. During the second experiment, a control group of replicates were maintained under well-watered conditions while another replicate group experienced a 75% reduction in irrigation for two weeks after flowering. Following the first week of treatment, a suite of physiological parameters were collected including plant height, number of developing bolls, number of healthy leaves, and number of buds. Results indicated significant differences between the two populations, which suggests a reduction in photosynthetic activity.



Upland cotton plants growing under controlled greenhouse conditions.

A/C_i curves were collected at the two-week mark of drought treatment and are yet to be analyzed. Conclusions will be drawn based on the differences in photosynthetic performance between accessions from the first and second experiments.

Research advisor Diane Wang writes: "Sam came to me one and a half years ago with an interest in plant physiology research. He has since led this study from concept to analysis and has continuously impressed me with his energy, enthusiasm, and ability to master new skills from technical measurements to data analysis using R."

Lake Michigan Shoreline Landowner Survey

Student researcher: *Colby Smock, Junior*

The Lake Michigan Shoreline Landowner Survey was developed to understand the perspectives of homeowners along Indiana's shoreline who have experienced rapidly changing conditions due to water level fluctuations over the past 10 years. From near-record lows in 2013 to record highs in 2020, the significant water level swing is one of many factors that are causing severe erosion of the beach and foredune area. These erosion problems have put the communities along the Indiana shoreline in a dire spot as they risk losing their beaches and homes along the lakeshore. Based on a comprehensive review of community plans and ordinances, many of these communities have little to no plan for addressing the management of their shoreline, significantly altering the ability to fund future management advancements.

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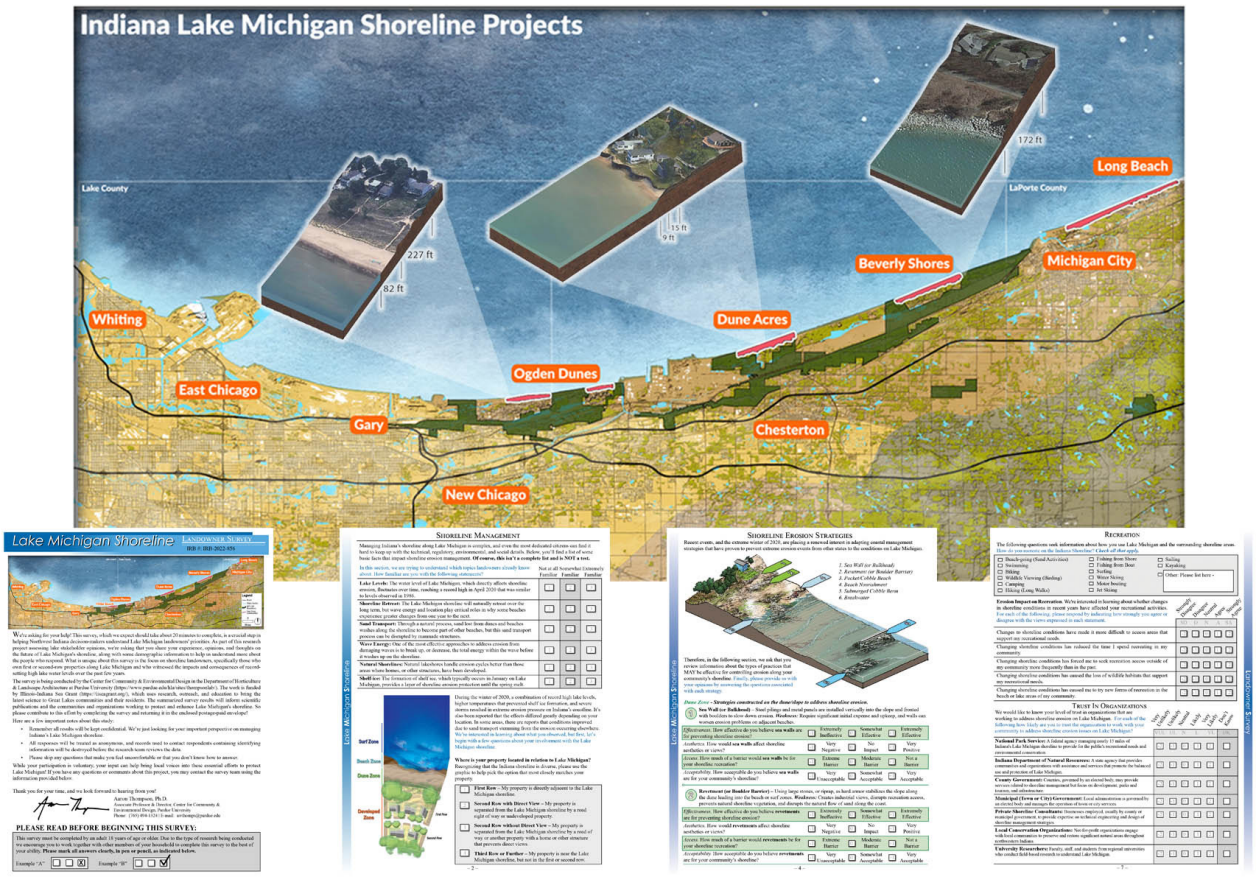

The Lake Michigan Shoreline Landowner Survey has led to both social and ecological understanding along Indiana's shoreline. This image shows a map of our project areas and includes cross-sections to give an idea of what the current conditions of the shoreline are like. Thank you to Dr. Aaron Thompson and Zac Cody for contributing to the creation of this graphic.

The Lake Michigan Shoreline Landowner Survey is exploratory research that seeks to identify homeowners' attitudes about shoreline erosion management that can inform community actions. We are allowing members of these communities to share what they have witnessed and what they would like to see done in the future with their shoreline. We hope that these conclusions can help guide community-based informed decision-making and kickstart the planning process for these communities along the Indiana shoreline.

Research advisor Aaron Thompson writes: "Engaging the public in solving environmental challenges requires a multidisciplinary approach. Colby has constructed a model of social and ecological conditions along the Indiana shoreline that will become more robust by completing the landowner survey. Colby's willingness to see past disciplinary boundaries and engage these communities contributes to our success."

BUSINESS

Tourism Insights: ESG in Lodging and Hospitality

Student researcher: *Emily Cassanmagnago, Senior*

Our world is aiming to be a more sustainable place. In recent years, more and more companies have been adopting reporting formats that address the ESG—environmental, social, and governance—aspects of their activities. A guide was created to explain what ESG covers, why businesses are adopting it, and how it differs from other forms of reporting on corporate