Ethan VanValkenburg

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EDUCATION

University of Michigan, Ann Arbor, MI *Expected May 2023*
College of Literature, Science, and the Arts; Residential College
GPA 3.933/4.0, *University Honors*
BS in Ecology, Evolution, and Biodiversity
Minor in Computer Science and Environmental Studies
Honors Thesis in prep: The role of sodium-limitation in plant-pollinator interaction networks in a subalpine meadow
Relevant Coursework: Population and Community Ecology, Computer Modeling of Complex Systems, Biogeography, Evolution, Genetics, Applied Statistics, Linear algebra, Programming and Data Structures, Discrete mathematics

RESEARCH EXPERIENCE

CARADONNA LAB, Rocky Mountain Biological Laboratory *June 2022 – Present*
Advisor: Dr. Paul CaraDonna, Dr. Nate Sanders
Research Experience for Undergraduates (NSF REU)

- Planned, proposed, and conducted a field experiment on sodium limitation in plant-pollinator networks in a subalpine meadow. Treated 10,000 flowers and conducted nearly 40+ hours of pollinator observations.
- Contributed to workshops on responsible conduct in research, diversity and ethics in research, and science communication.
- Collaborated on a long-term census of flowering phenology with the CaraDonna + Iller Lab group

BADGLEY LAB, University of Michigan
Advisor: Dr. Bian Wang, Dr. Catherine Badgley
Independent Study *October 2019 – Present*

- Investigated the formation and causes of species richness and ecological diversity patterns in ungulate mammals. Examined relationships between geographic diversity patterns of occurrence and environmental variables of climate and physical geography.
- Managed a database of climate and occurrence data from hundreds of localities and thousands of species observations. Collated literature to characterize the diets of 150+ mammalian species.

Undergraduate Research Opportunities Program *September 2018 – May 2019*

- Studied the mandibular morphology of artiodactyls using landmark-based geometric morphometrics. Established relationships between jaw shape and diet using multivariate analyses.
- Participated in a supported undergraduate research program with peer mentors and seminars on comprehensive research topics including ethics, methods, inclusivity, and communication.

Field Research Assistant *May 2019 – July 2019*

- Assisted field research on the tectonic and climatic influence of mammalian species richness in Dove Spring, Mojave, CA measuring stratigraphic section and collecting samples.
- Attended an NSF sponsored five-day Western Transects Field Trip with 30 faculty, students, and researchers as part of the North American Rodents, Landscape, Ecology, and Evolution working group.

WINGER LAB, University of Michigan *December 2021 – May 2022*
Advisor: Dr. Ben Winger, Teresa Pegan
Independent Study

- Determined patterns of range expansions, contractions, and sites of refugia for North American boreal birds during Quaternary climate oscillations and glaciations. Results will be compared to genomic analyses.
- Planned an independent study to learn methods of species distribution modeling in paleoenvironments using maxent model in R.

MICHIGAN SEA GRANT, **University of Michigan Biological Station** *May 2021 - August 2021*
Advisor: Dr. Ben Winger
Environmental Intern, Researcher

- Investigated anthropogenic and environmental stressors on Great Lakes coastal wetland marsh bird communities through field research, database synthesis, and data analysis to inform conservation practices in the region.
- Independently proposed and designed a field experiment in collaboration with the Michigan Sea Grant, UM Biological Station, and Great Lakes Coastal Wetland Monitoring Program at Central Michigan University.

RELATED WORK EXPERIENCE

UNDERGRADUATE RESEARCH OPPORTUNITIES PROGRAM, Ann Arbor, MI *August 2021 — Present*
Research Peer Facilitator, Instructor, part-time
- Developed curriculum to support first and second-year students in research in fields of health science, life science, environmental science, and engineering in the Undergraduate Research Opportunity Program. Contributed new materials on diversity in ecological research and indigenous science.
- Taught and facilitated bi-weekly seminars with 30 students with discussions, activities, lectures, and assignments.
- Advanced the introductory research experience for undergraduates through monthly individual meetings, mentorship, support, and prompt communication.

UNIVERSITY OF MICHIGAN BIOLOGICAL STATION, Pellston, MI *May 2022 – June 2022*
Instructional Aide, full-time
- Collaborated with a teaching team to lead a General Ecology Lab course on fundamental concepts from ecology: the protocol for conceptualizing, designing, and conducting experiments, relevant statistical methods, and the tools needed to present research.
- Guided students in designing, implementing, and presenting an independent ecological research project.

OLD TIME SURFCRAFT and OptiMize, Ann Arbor, MI *December 2021— September 2022*
Ecology team lead, fellow, part-time
- Participated in social innovation workshops and activities through the optiMize summer fellowship at the University of Michigan.
- Developed Old Time Surfcraft, an independent project and non-profit to build relationships between communities and their environment through building sustainable wooden watercraft and surfing in the Great Lakes
- Created curriculum and education materials on Great Lakes ecology and contributed to product design and construction

THE LAND INSTITUTE, Salina, KS *September 2020 - January 2021*
Research Intern, full-time
- Assisted in the development of perennial crops and ecologically intensive polycultures in field, greenhouse, and laboratory work to develop alternatives to current destructive and unsustainable agricultural practices.
- Collaborated with research scientists, technicians, and peers on wheat chromosome doubling, QTL mapping for molecular breeding, staining AMF roots, and managing the preparation and organization of thousands of distinct phenotypes for planting.

PRESENTATIONS

2022. **VanValkenburg, E.** Salty and Sweet: pollinators and sodium-enriched nectar. *RMBL REU Symposium*, Gothic, CO

2021. **VanValkenburg, E.**, B. Wang, C. Badgley. Talk: Dietary strategies of artiodactyl in relation to climate and topography. *Michigan Geological Union*, Ann Arbor, MI (virtual).

2021. **VanValkenburg, E.** Talk: Conservation of Great Lakes coastal wetland bird communities. *Michigan Sea Grant Symposium* (virtual).

2021. Wang, B., C. Badgley, **E. VanValkenburg**. Talk: Geographic patterns in artiodactyl richness and ecological diversity. *American Society of Mammologists* (virtual).

2020. Wang, B., C. Badgley, M. Zelditch, **E. VanValkenburg**. Talk: Diet and Jaw Disparity in the Artiodactyl in Relation to Climate and Topography. *Society of Vertebrate Paleontology* (virtual).

2019. **VanValkenburg, E.**, C. Turnbow, B. Wang, C. Badgley. Poster: Jaw disparity in relation to diet in the order Artiodactyla with implications for paleoecology. *Undergraduate Research Spring Symposium*, Ann Arbor, MI.

PUBLICATIONS

In prep. **VanValkenburg, E.,** P. CaraDonna, N. Sanders. Sodium-enriched nectar attracts more pollinator visitors in a subalpine meadow.

In prep. Wang, B., C. Badgley, **E. VanValkenburg**. Ecological Diversity of Extant Artiodactyls in Relation to Climate and Topography.

PUBLIC PRESS:

E. VanValkenburg. (2022). Maintaining Peace and Biodiversity in Colombia (Nominated by Omolade Adunbi, AAS 322/ENVIRON 355: Introduction to Environmental Politics: Race, Class and Gender). *Excellence in Upper-Level Writing: UM Sweetland Writing Center.* link [award winner]

Li, E. and **E. VanValkenburg**. (2021, November 28). Study reveals mental health vulnerability among COVID-19 patients. *Michigan Daily.* link

VanValkenburg, E. (2021, December 2). Ford School of Public Policy hosts event discussing growing corporate power amid technological developments. *Michigan Daily.* link

VanValkenburg, E. (2019, September 25). Student Feature Essay: Stepping Back in the Mojave Desert. *University of Michigan Residential College News.* link

STUDENT ORGANIZATIONS

- **Residential College**: Interdisciplinary liberal arts living-learning community with an emphasis on creative exploration and language.
- **Society of Les Voyageurs**: *President.* Student group dedicated to a love and appreciation for nature and the out-of-doors. Planned and attended weekly seminars on ecology, geology, and sustainability from professors and community members. Managed property, repair, canoe maintenance, sauna construction.
- **Epsilon Eta Professional Environmental Fraternity**: *Member.* Professional development and volunteering related to environment, sustainability, and ecology.
- **Michigan Daily**: *Staff news writer.* Research section of the student newspaper.
- **Michigan Ecology, Evolution and Biodiversity Society**: Seminar series from EEB and related disciplines.

SKILLS

Analytical: C++, R Statistical Programing Language, Python (*PyCX, SciPy, NumPy, pandas, NumP, networkx)*, NetLogo, QGIS, Microsoft Excel, ImageJ, Database Management, Data Analysis

Communication: Spanish Fluency, Technical writing, Adobe Illustrator, Adobe Photoshop, Creative Nonfiction writing

ACHIEVEMENTS and AWARDS

2022	**OptiMize Social Innovation Fellowship** to further a project on Great Lakes ecology, sustainability, and watercraft ($10,000)
2022	**Rocky Mountain Biological Laboratory Scholarship** for demonstrated potential in community ecology research ($1,000)
2022	**UM Biology Research Travel Grant** for research at the Rocky Mountain Biological Laboratory ($2,000)
2022	**UM School for Environment and Sustainability Independent Research Award** for summer research ($1,000)
2022	**Sweetland Prize for Excellence in Upper-Level Writing Award** for innovative, complex, and thoughtful writing. Two winning entries selected from all student writing in Social Sciences ($200)
2022	**Phi Beta Kappa**
2018-2022	**University Honors**
2021	**Cathy Bach and Brian Hazlett Student Research Fund** for independent undergraduate research at the University of Michigan Biological Station ($1,700)
2020-2021	**James B. Angell Scholar Award** for maintaining a 4.0 GPA for 3 consecutive semesters
2019	**William J. Branstrom Prize** for distinguished academic achievement and ranking in the top 5% of my class
2018-2019	**Goodwillie Environmental Science Award** for excellence in environmental studies, stewardship, and intentions of pursuing a related career ($4,000)
2018	**UM Club of Grand Rapids Scholarship** for academic merit and outstanding citizenship ($25,000)
2018	**FH Northern Excellence in Science** for demonstrating interest and merit in fields of science

REFERENCES

Paul CaraDonna, Ph.D *Assistant Professor*
Plant Biology and Conservation, Northwestern University
pcaradonna@chicagobotanic.org

Nate Sanders, Ph.D *Professor*
Ecology and Evolutionary Biology, University of Michigan
njsander@umich.edu

Catherine Badgley, Ph.D *Professor*
Ecology and Evolutionary Biology, University of Michigan
cbadgley@umich.edu