

Levi T. Helm

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EDUCATION

Arizona State University Dec. 2023

Ph.D., Biology (Biology and Society), focus: Ecology, Economics, and Ethics of the Environment

Dissertation: *The Land-Use Impacts of Plastic Alternatives*

Dissertation defended October 23, 2023

University of Virginia May 2018

B.S., Environmental Science, double major, Anthropology (*Highest Distinction*)

Thesis: *Measuring Photosynthetic Response to Drought Stress using Active and Passive Fluorescence*

Phi Beta Kappa

ACADEMIC EXPERIENCE

Ph.D. Candidate, Arizona State University August 2018 – present

- Research the impacts of bio-based plastic alternatives on global land use, showing potentially significant adverse tradeoffs from using plastic alternatives at the global level
- Research the unintended social-ecological impacts of plastic waste management strategies
- Develop research thesis proposal and secure over \$30K in funding to conduct research and work with international collaborators

Instructor of Record, Arizona State University May 2020 – present

- Led the development of BIO 414, a course teaching students science communication
- Served as the lead instructor for BIO 414, instructing students to properly and effectively communicate research findings
- Co-developed BIO 307 and BIO 314 courses to teach students how to design and conduct academic research
- Awarded by ASU for excellence in teaching and education

Visiting Researcher, Vrije Universiteit Amsterdam October 2021 – June 2022

- Adapted global models for use in global land-change assessments
- Updated datasets required for use in global land-use modeling

Teaching Assistant, Arizona State University August 2018 – May 2020

- Assisted teaching of multiple courses, including environmental ethics, bioethics, ecology, and biology

Research Assistant, University of Virginia May 2017 – May 2018

- Executed research project relating remote sensing techniques to plant physiology
- Coordinated team of volunteer researchers on months-long project

- Designed and installed instruments at field sites in Virginia and Alaska

PUBLICATIONS AND PRESENTATIONS

Peer-Reviewed Publications

- Helm, L.T.**, (*in preparation*). Research on plastic mitigation underestimates the potential land-use impact of bio-based plastic alternatives
- Helm, L.**, Venier-Cambron, C., & Verburg, P. H. (*in preparation*). The land-use impacts of bio-based plastic alternatives.
- Venier-Cambron, C., **Helm, L.T.**, Malek, Ž., & Verburg, P. H. (*under review*). Representing justice in spatial land-use models: Exploratory scenarios to bridge global environmental goals with local food sovereignty. For *One Earth*.
- Helm, L. T.**, Murphy, E. L., McGivern, A., & Borrelle, S. B. (2022). Impacts of plastic waste management strategies. *Environmental Reviews*. <https://doi.org/10.1139/er-2021-0117>
- Helm, L. T.**, Shi, H., Lerdau, M., & Yang, X. (2020). Solar-induced chlorophyll fluorescence and short-term photosynthetic response to drought. *Ecological Applications*. <https://doi.org/10.1002/eap.2101>
- Murphy, E.L., Bernard, M.L., **Helm, L.T.**, Hill, I., & Tuñas-Corzón, Á. (2020). Policy Recommendations to Reinvigorate Recycling in Arizona. *Journal of Science Policy and Governance*. <https://doi.org/10.38126/JSPG170115>

Presentations

- Helm, L.T.**, Venier-Cambron, C., & Verburg, P.H. (2023, December). Land-Use Impacts of Bio-based Plastic Alternatives. In *Fall Meeting 2023*. AGU.
- Helm, L.T.**, Murphy, E., McGivern, A., & Borrelle, S. (2022, December). Avoiding the Unintended Consequences of Plastic Pollution Policy. In *Fall Meeting 2022*. AGU.
- Helm, L.T.** (2021) Solar-induced Chlorophyll Fluorescence and short-term photosynthetic response to draught. Invited talk, NASA conference on SIF research.
- Helm, L.T.**, Lerdau, M., Wang, W., Yang, X., (2017), Measuring Photosynthetic Response to Drought Stress using Active and Passive Fluorescence, Abstract (B43L-06) presented at 2017 AGU Fall Meeting, New Orleans, La., 11–15 Dec.

General Audience Outreach and Publications

- Helm, L.T.** (2023) The East Palestine Train Derailment and the Perils of Plastic. *Slate*. <https://slate.com/technology/2023/03/east-palestine-plastics-policy-united-nations.html>
- Kahn, N., McColley, C., **Helm, L.T.**, (2021) Ep 17: Policy- Science Outside the Lab discussion with Levi Helm and Campbell McColley. Talk Green to Me Podcast. Invited guest

Helm, L.T. (2020) Environmental Mitigation: A Values Issue. SciPolBites blog.
<https://scipolnetwork.org/news/334558>

Murphy, E.L., Bernard, M.L., **Helm, L.T.**, Hill, I., & Tuñas-Corzón, Á. (2020). Arizona should take steps to reinvigorate recycling. *Arizona Capitol Times*
<https://azcapitoltimes.com/news/2020/12/04/arizona-should-take-steps-to-reinvigorate-recycling/>

Murphy, E.L., & **Helm, L.T.** (2020) Lawmakers raided funds meant for recycling, raising fees or scaling back programs. *Arizona Republic*. <https://www.azcentral.com/story/opinion/op-ed/2021/02/05/arizona-recycling-fund-raided-lawmakers-hurt-programs/4377908001/>

OTHER PROFESSIONAL EXPERIENCE

American Geophysical Union (AGU)

April 2023 – present

Voices for Science—Policy Advocate

- Completed 20+ hours of specialized training in science communication and science policy
- Met with Congressional representatives in Washington, D.C. to advocate for support of science and evidence-based policymaking
- Led conversations with elected officials, in collaboration with AGU staff, on science issues
- Wrote expert commentary for Environmental Protection Agency’s plastic pollution strategy

Foreign Policy for America

January 2023 – present

NextGen Fellow

- Selected as member due to expertise in science policy and the trade-offs in international environmental policy
- Completed 10+ hours of training and professional development related to foreign policy

National Science Policy Network

March 2021 – September 2021

Science Diplomacy Fellow

- Designed “Science Diplomacy for Sustainable Development” course, in partnership with the Diplo Foundation, for diplomacy practitioners around the world
- Completed 15+ hours of science diplomacy training, including experience in international scientific collaboration, science and democracy advocacy, and evidence-based foreign policy

Science Outside the Lab

May 2020 – June 2020

- Completed 40+ hour science and technology policy training program including presentation skills, policy pitches, and mentoring from federal policy experts and professionals

LEADERSHIP AND PROFESSIONAL SERVICE

Executive Board, Arizona Science Policy Network

August 2020 – January 2023

- Developed and hosted trainings to teach early-career scientists about the policymaking process and evidence-based policy
- Regularly met with state legislators to discuss science and policy issues
- Coordinated organization-wide monthly meetings with members across Arizona
- Planned and hosted Science Day at the state capitol, an event that connects scientists with members of the state legislature to discuss science and policy issues
- Wrote numerous op-eds and letters to elected officials about science and policy issues
- Developed and implemented advocacy campaign for state-level recycling funding

Vice President, Sustainability Committee for School of Life Sciences

2019-2021

- Developed, discussed, and implemented sustainable practices for the school

Co-Founder, Friends of Appalachia

2017-present

- Founded student organization to build capacity for Appalachian students at the University of Virginia, and increase coordination between the region and the University with regards to education, outreach, research, and economic development programs
- Consulted University of Virginia’s admissions office to develop strategies for recruitment of rural students, leading to increased enrollment from key counties in the state
- Visited Appalachian High Schools to discuss college and college applications
- Created network of alumni, regional partners, faculty, researchers, and donors

CONFERNCES & EVENTS ORGANIZED

STGlobal Conference (2021) Science at Service: Building Inclusive Communities. April 16-17, 2021. Online

ASU School of Life Sciences Three Minute Thesis Competition. November, 2023

AWARDS AND HONORS

Doctoral Completion Fellowship (\$12,687)	
Graduate College Fellowship (\$10,000)	2022-23
GPSA Teaching Excellence Award (\$750)	2022
Center For Biology and Society Travel Award (\$1000)	2022
GPSA Travel Award (\$950)	2022
Center for Biology and Society Research Award (\$5000)	2021
School of Life Sciences Research Advancement Fellowship (\$2000)	2021
GPSA Research Grant (\$2000)	2021
Doctoral Recruitment Fellowship (\$10,000)	2018
Mahlon G. Kelly Award for outstanding Ecology student	2018
College Science Scholar	2015-18

PROFESSIONAL MEMBERSHIPS AND AFFILIATIONS

American Association for the Advancement of Science, 2023 – present

American Geophysical Union, 2022 – present

Phi Beta Kappa National Honor Society, 2018 – present

REFERENCES

Available upon request