

Camille Pawlak

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Remote-sensing and spatial ecologist specializing in large-scale environmental monitoring and ecological change detection. My research applies satellite, aerial, and field data to terrestrial, urban, and coastal ecosystems.

Education

2023- 2026	Ph.D. University of California, Los Angeles Geography Advisor: Dr. Thomas Gillespie
2021-2023	M.S. Cal Poly, San Luis Obispo Biology Advisor: Dr. Matt Ritter
2016-2020	B.S. University of California, Los Angeles Environmental Science Minors: GIS, Conservation Biology

Experience

2024 - Present - **Staff Scientist**, Urban Forest Institute

2025 - **Science Mentor**- Oceans Group - NASA SARP

2023 - **Urban Forest Analyst**, Dudek

2021-2023 - **Scientific Consultant**, Class One Arboriculture

2020-2021 - **Drone and Remote Sensing Technician**, UCLA Geography

Fall 2019 - **NASA Develop Intern**, Science, Systems and Applications Inc.

2018-2020 - **Undergraduate Research Assistant** (volunteer), Dr. David Jacobs, UCLA Ecology and Evolutionary Biology

2019-2020 - **Undergraduate Research Assistant**, Dr. Kyle Cavanaugh, UCLA Geography

2019 - **Herbarium Technician** (volunteer), UCLA

Summer 2018 - **Restoration Intern**, TreePeople

Peer-Reviewed Publications

- [12] Zhang, Y., Wu, K., Wang, H., Pfannerstill, E. Y., Nagalingam, S., Coggon, M. M., Stockwell, C., Ruiz, V. M., Ho, C., Yu, Y., Novelly, J., **Pawlak, C.**, Kim, S., Warneke, C., Goldstein, A. H., & Guenther, A. B. (2026). Reconciling observed and modeled estimates of urban terpenoid emissions. *Nature Communications*. <https://doi.org/10.1038/s41467-026-75075-9>
- [11] Kenny, R., Johns, J., **Pawlak, C.**, Fricker, A., Yost, J., & Ritter, M. (2026). Urban trees and structure loss in the 2025 Eaton and Palisades fires. *Urban Forestry & Urban Greening*, 121, 129470. <https://doi.org/10.1016/j.ufug.2026.129470>
- [10] Love, N. L. R., Althaus, K., Esperon-Rodriguez, M., Ossola, A., Johns, J., **Pawlak, C.**, Igić, B., Ritter, M., & Yost, J. (2025). Genetic diversity in urban forests and their potential role in conserving the world's threatened tree species. *Annals of Botany*, mcaf238. <https://doi.org/10.1093/aob/mcaf238>
- [9] Vannucci, P. F., Kianmehr, A., **Pawlak, C. C.**, Faiola, C. L., Wilson, J. P., & Berelson, W. M. (2025). The role of urban forest composition in modulating summertime air quality in Los Angeles. *Science of The Total Environment*, 1003, 180715. <https://doi.org/10.1016/j.scitotenv.2025.180715>
- [8] Thorne, J. H., Godfrey, J. M., Boynton, R. M., Shapiro, K. D., Stern, M. A., **Pawlak, C.**, Ritter, M., & Choe, H. (2025). A spatial triage of at-risk conifer forests to support seed collection efforts and sustainable

forestry. *Journal of Environmental Management*, 373, 123654.
<https://doi.org/10.1016/j.jenvman.2024.123654>

- [7] Ventura, J., **Pawlak, C.**, Honsberger, M., Gonsalves, C., Rice, J., Love, N. L. R., Han, S., Nguyen, V., Sugano, K., Doremus, J., Fricker, G. A., Yost, J., & Ritter, M. (2024). Individual tree detection in large-scale urban environments using high-resolution multispectral imagery. *International Journal of Applied Earth Observation and Geoinformation*, 130, 103848. <https://doi.org/10.1016/j.jag.2024.103848>
- [6] Rendon, P., Love, N., **Pawlak, C.**, Yost, J., Ritter, M., & Doremus, J. (2024). Street tree diversity and urban heat. *Urban Forestry & Urban Greening*, 91, 128180. <https://doi.org/10.1016/j.ufug.2023.128180>
- [5] **Pawlak, C. C.***, Love, N. L. R.*, Yost, J. M., Fricker, G. A., Doremus, J. M., & Ritter, M. K. (2023). California's native trees and their use in the urban forest. *Urban Forestry & Urban Greening*, 89, 128125. <https://doi.org/10.1016/j.ufug.2023.128125>
- [4] Cavanaugh, K. C., Cavanaugh, K. C., **Pawlak, C. C.**, Bell, T. W., & Saccomanno, V. R. (2023). CubeSats show persistence of bull kelp refugia amidst a regional collapse in California. *Remote Sensing of Environment*, 290, 113521. <https://doi.org/10.1016/j.rse.2023.113521>
- [3] Saccomanno, V. R., Bell, T., **Pawlak, C.**, Stanley, C. K., Cavanaugh, K. C., Hohman, R., Klausmeyer, K. R., Cavanaugh, K., Nickels, A., Hewerdine, W., Garza, C., Fleener, G., & Gleason, M. (2023). Using unoccupied aerial vehicles to map and monitor changes in emergent kelp canopy after an ecological regime shift. *Remote Sensing in Ecology and Conservation*, 9(1), 62-75. <https://doi.org/10.1002/rse2.295>
- [2] Love, N. L. R., Nguyen, V., **Pawlak C.**, Pineda, A., Reimer, J. L., Yost, J. M., Fricker, G. A., Ventura, J. D., Doremus, J. M., Crow, T., & Ritter, M. K. (2022). Diversity and structure in California's urban forest: What over six million data points tell us about one of the world's largest urban forests. *Urban Forestry & Urban Greening*, 74, 127679. <https://doi.org/10.1016/j.ufug.2022.127679>
- [1] Houskeeper, H. F., Rosenthal, I. S., Cavanaugh, K. C., **Pawlak, C.**, Trouille, L., Byrnes, J. E. K., Bell, T. W., & Cavanaugh, K. C. (2022). Automated satellite remote sensing of giant kelp at the Falkland Islands (Islas Malvinas). *PLOS ONE*, 17(1), e0257933. <https://doi.org/10.1371/journal.pone.0257933>

In preparation

- Pawlak, C. C.**, Yost, J., Ventura, J., Guizan, G., Arnold, S., Okin, G., Cavanaugh, K., Fricker, G. A., Ritter, M., & Gillespie, T. W. (2026). *Mapping California's Urban Forest at Scale: An Error-Adjusted Canopy Time Series for Monitoring Change*. *Ecology*. <https://doi.org/10.64898/2026.05.04.722774> [Pre-print, Under Review @ PLOS ONE]
- Love, N.L.R., E.L. Grady, **C. Pawlak**, J. Yost, J. Ventura, G.A. Fricker, J. Doremus, and M. Ritter. In prep. Patterns in the distribution of public vs. private urban trees: Implications for tree equity in one of the world's largest urban forests. Target journal: *Urban Forestry & Urban Greening*.
- Johns J., Love, N.L.R., **C. Pawlak**, J. Yost, and M. Ritter. In Prep. Using climatic niches to plan climate resilient urban forests. Target journal: *Urban Forestry & Urban Greening*.
- C. Pawlak**, R. Kenny, T. Ruiz, J. Schedler, K. Veerasingham, A. Fricker, J. Yost, and M. Ritter. In Prep. Integrating Arborist Records and Remote Sensing to Improve Urban Tree Allometric Equations and Benefit Estimates. Target journal: *Scientific Data*.

Scholarships

\$14,500	Graduate Dean's Scholar Award, University of California, Los Angeles (2023-2024)
\$12,000	David and Frieda Wertman Scholarship, Cal Poly, San Luis Obispo (2021, 2022)
\$300	Western Chapter of International Society of Arboriculture Annual Conference Student Scholarship (2022)

Research Grants

\$8,000	The Britton Fund - Research Awards Program (2022) Trends in Native Tree Planting in California
\$5,000	Cal Poly, San Luis Obispo Data Strategic Research Initiative – Grant Incubation Competition (2022) Expansions and Utilization of the California Urban Forest Inventory

Dataset Publications

Baiza, J., **Pawlak, C.**, Baehr, A., Yost, J., Ritter, M., & Fricker, A. (2022). *Mapping Social and Environmental Justice Across*

California Schools (Version V4) [dataset]. Harvard Dataverse. <https://doi.org/10.7910/DVN/7NNBJD>

Becerra, M., Rivera, O., **Pawlak, C.**, Crocker, A., & Pinto, N. (2022). *Base de datos de cobertura de cultivos de cacao en la Amazonia Peruana (Version V3) [dataset]*. Harvard Dataverse. <https://doi.org/10.7910/DVN/XMQNC2>

Reports and Professional Publications

CAL FIRE Urban and Community Forestry & Urban Forest Ecosystems Institute. (2026). *Greening the Golden State: Urban Forest Canopy Plan for California* [Draft strategic plan]. Named collaborator and contributing author.

Pawlak, C., Love, N., Yost, J., Ritter, M. (2023). Native to Where? California's Native Trees and Their Use in the Urban Environment. *Western Arborist*.

Komen, J., Falco, C., **Pawlak, C.**, & Hodel, D. (2023). Gallery Characteristics of the Invasive Shot Hole Borer and Extent of Accompanying Fusarium Dieback Disease Spread in Relation to the CODIT Model and Principles in London Plane Trees. *Western Arborist*.

Hodel, D. , Falco, C., **Pawlak, C.**, & Komen, J. (2022). Testing treatment effectiveness for Invasive Shot Hole Borers. *Western Arborist*.

Map Publications

Camille Pawlak. 2025. Maps created for California's Trees: A Field Guide to the Native Species (Authors: Matt Ritter and Michael Edward Kauffmann). Backcountry Press.

Camille Pawlak. 2023. Maps created for Vascular Plants of San Luis Obispo County, California (Author: David J. Keil). Pacific Street Publishing.

Presentations

2025 February. Tracking California's Urban Forest: Big Data and Remote Sensing for Smarter Management. Invited Talk at Climate Solutions Now - Online.

2024 December. Harnessing Neural Networks for Broad-Scale Urban Canopy Cover Mapping: A Remote Sensing Approach in California. Presentation at the American Geophysical Union annual conference - Washington D.C.

2024 May. Open Canopy: mapping California's urban canopy. Presentation at the Western Chapter of the International Society of Arboriculture annual conference - San Diego, CA.

2023 August. Data-Driven Urban Forest: How We Can Use Data and Tools to Manage Urban Forests. Invited talk at the Professional Tree Care Association of San Diego annual meeting - San Diego, CA.

2023 May. Trends in California's Native Trees in the Urban Environment. Presentation at Cal Poly College of Science & Mathematics 2023 Conference - San Luis Obispo, CA.

2023 May. Data-Driven Urban Forest: How We Can Use Data and Tools to Manage Urban Forests. Invited talk at the Annual ReLeaf Network Retreat - Sacramento, CA.

2023 May. New Tools for the Urban Forest Ecosystem Institute. Invited talk at the Western Chapter of the International Society of Arboriculture annual conference - Palisades, CA.

2022 November. Trends in California's Native Trees in the Urban Environment. Invited talk at the annual Britton Fund Putting Research to Work Conference - Colma, CA.

2022 October. Data-Driven Urban Forest: Using Data to Make Better Species Selections. Invited talk at the California Urban Forest Council: Lead with Trees Conference - Rancho Mirage, CA.

Poster Sessions

2023 August. OpenCanopy: Leveraging aerial imagery and deep learning to delineate California's urban tree canopy. SIGKDD Conference on Knowledge, Discovery, and Data Mining - Long Beach, CA.

2022 November. Trends in California's Native Trees in the Urban Environment. Poster at San Luis Obispo GIS Users Group annual GIS day - San Luis Obispo, CA

2022 November. May the forest be with you: utilizing GEDI for crop height estimations in the Amazon, Poster at San Luis Obispo GIS Users Group annual GIS day - San Luis Obispo, CA

2022 June. Toward Automatic Urban Forest Inventories with Remote Sensing. Data Strategic Research Initiative Poster Session, California Polytechnic State University- San Luis Obispo, CA

Teaching Assistantships

Spring 2025 UCLA; GEOG 7 Introduction to GIS

Winter 2025 UCLA; GEOG 5 People and Earth's Ecosystems
 Fall 2024 UCLA; GEOG 109 Invasive Species
 Spring 2023 Cal Poly, SLO; GEOG 440 Advanced GIS
 Spring 2023 Cal Poly, SLO; BOT 433 Field Botany
 Fall 2022 Cal Poly, SLO; BOT 121 Introductory Botany
 Spring 2022 Cal Poly, SLO; BIO 163 Introductory Ecology and Evolution

Mentoring

2025	Logn Jewell, Grace Woerner, Melanie Lin, Alex Lacayo, John Lund, and Molly Mackellar NASA SARP Summer Research Program
2024-2025	Katharine McDaniel - Undergraduate research, Cal Poly SLO Mapping urban tree cover in California
2024	Miles Caldwell - Undergraduate summer research, Pasadena City College Tracking tree health and characteristics in Pasadena, CA
2024	April Engelmeier - Undergraduate summer research, UC Davis Mapping urban tree cover in California
2023-2024	Sara Arnold, Griffen Guizan, Ryley Chase, Lexxie Crocker, Jessica Baiza - Frost and SURP Summer Research Program, Cal Poly SLO Mapping urban tree cover in California
2022-2023	Jessica Baiza and Alice Baehr - Senior Project, Geography and Anthropology, Cal Poly SLO Mapping schoolyard canopy cover
2022-2023	Erin Grady - Frost Scholar in Biology, Cal Poly SLO Assessing the suitability of urban tree species to California's current climates
2022-2023	Cameron Gonsalves and Ben Brown - Senior Project, Geography and Anthropology, Cal Poly SLO Mapping Trees of Laguna Lake, CA
2022	Keilana Sugano and Cameron Gonsalves - Frost Summer Research Program, Cal Poly SLO Tree Detection in Urban Environments
2022	Kylee Nielson - Undergraduate research, Cal Poly SLO Canopy cover in mobile home parks
2022	Olivia Ross - Undergraduate research, Cal Poly SLO Mapping Santa Cruz Island
2022	Ben Glossner, Sarah Rietkerk, Jenna Whilden, and Eshley Freed-Doerr - Computer Science capstone, Cal Poly SLO Tracking San Luis Obispo's Trees: 10tall.calpoly.edu
2022	Ben Mangelsdorf, Ryan Zhang, and Nathan Johnson - Undergraduate data science capstone, Cal Poly SLO Bird Diversity in California Urban Forest
2020-2021	Skyler Lu - Undergraduate Research, Cal Poly SLO Mapping California public and private trees
2020-2023	Paola Rendon - Undergraduate Senior Project in Economics, Cal Poly SLO Street tree biodiversity and heat island effect

Awards

2024	Esri User Conference, 3 rd Place, Communicating Science Spatially - Urban Canopy: Mapping California's Canopy Cover from 2016-2022
2024	Award of Arboriculture Research, Western Chapter of the International Society of Arboriculture (WCISA)

Skills

Programming (Python, R, Google Earth Engine); remote sensing and GIS (ArcGis Pro, ArcGis Online, QGIS, ENVI); analyzing, creating and maintaining large dataset (Google Big Query/Google Cloud Service, AWS); botany; UAV flight and data management (Map Pilot, Agisoft Metashape, Micasense Atlas, Drone Deploy, DJI Go); UAV pilot (FAA UAV License part 107); scientific and grant writing; teaching and public speaking

Media Coverage

- Slater, E. (2024) Shaping California's Future: Cal Poly to Lead the Charge for Greener Cities. College of Engineering Connection. <https://ceng.calpoly.edu/connection/2024/11/shaping-californias-future-cal-poly-to-lead-the-charge-for-greener-cities/>
- Wilson, N. (2023) Urban Tree Diversity and Global Warming. Cal Poly Bailey College of Science and Mathematics Intersections Magazine. <https://cosam.calpoly.edu/intersections-2023/urban-tree-diversity>

Ferreira, G. (2023). Beating the Heat: Students Map California Tree Canopy to Cool Cities as Climate Warms. Cal Poly News.
<https://www.calpoly.edu/news/beating-heat-students-map-california-tree-canopy-cool-cities-climate-warms>

Service

2024- Present	Peer Reviewer for: Methods in Ecology and Evolution, Urban Forestry and Urban Greening, Arboriculture and Urban Forestry, Annals of the Association of American Geographers
2026	Scientific Review Committee – California Emerald Ash Borer Preparation Plan
2025-2026	Technical Contributor – California Air Resources Board Natural and Working Lands Carbon Inventory • Provided urban forest data, technical expertise, and analytical support for statewide carbon accounting.
2024-2025	Graduate Student Colloquium Chair – Department of Geography, UCLA