

Stella J. M. Cousins

Curriculum Vitae

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ACADEMIC APPOINTMENTS

Assistant Research Scientist, 10/2019 –
University of Michigan
School for Environment and Sustainability

Lecturer, 01/2022 –
University of Michigan
School for Environment and Sustainability and School of Literature, Science, and the Arts

Assistant Professor, 9/2018 – 9/2019
California Polytechnic State University, San Luis Obispo
Department of Natural Resource Management and Environmental Science

Postdoctoral Scholar, 10/2016 – 9/2018
University of California Berkeley
Department of Environmental Science, Policy, and Management with U.S. Forest Service,
Pacific Northwest Region Research Station

EDUCATION

Ph.D., 2016. University of California Berkeley, Department of Environmental Science, Policy, and Management. Dissertation: *Causes and Consequences of Tree Growth, Injury, and Decay in Sierra Nevada Forest Ecosystems*

Master of Forest Science, 2010. Yale University, School of the Environment

Bachelor of Science, 2004. Stanford University, Department of Biological Sciences

PUBLICATIONS

Refereed Publications

Mitchell, J. C., Kashian, D. M., Chen, X., **Cousins, S.**, Flaspohler, D., Gruner, D., Johnson, J., Surasinghe, T., Zambrano, J., and Buma, B. 2022. Forest ecosystem properties emerge from interactions of structure and disturbance [in press, *Frontiers in Ecology and the Environment*]

LaRue, E. A., Fahey, R., Alveshere, B. C., Atkins, J. W., Bhatt, P., Buma, B., Chen, A., **Cousins, S.**, Elliott, J. M., Elmore, A. J., Hakkenberg, C. R., Hardiman, B. R., Johnson, J. S., Kashian, D. M., Koirala, A., Papes, M., St. Hilaire, J. B., Surasinghe, T., Zambrano, J., Zhai,

L., and Fei, S., 2022. The ecological role of structural diversity. [accepted and in revision, *Frontiers in Ecology and the Environment*]

Reed, S. E., Volk, D., Martin, D. K. H., Hausman, C. E., Macy, T., Tomon, T., and **Cousins, S.** 2022. The distribution of beech leaf disease and the causal agents of beech bark disease (*Cryptococcus fagisuga*, *Neonectria faginata*, *N. ditissima*) in forests surrounding Lake Erie and future implications. *Forest Ecology and Management* 503: 119753 [pdf]

Sotnik, G., Fischer, A.P., Ibáñez, I. and **Cousins, S.** 2021. A transdisciplinary typology of change identifies new categories of adaptations and forms of co-adaptation in coupled human and natural systems. *Sustainability Science* 16, 1609–1623. [pdf]

Wallen, K., Filbee-Dexter, K., Pittman, J., Posner, S., Alexander, S., Romulo, C., Bennett, D., Clark, E., **Cousins, S.**, Dubik, B., Garcia, M., Haig, H., Koebele, E., Qiu, J., Richards, R., Symons, C., and Zipper, S. 2019. Integrating team science into interdisciplinary graduate education: an exploration of the SESYNC Graduate Pursuit. *Journal of Environmental Studies and Sciences*, 20 March 2019. [pdf]

Romulo, C. R., Posner, S., **Cousins, S.**, Fair, J., Bennett, D., Huber-Stearns, H., Richards, R. and McDonald, R. R. Global State and Potential Scope of Investments in Watershed Services for Large Cities. 2018. *Nature Communications* 9, 4375. [pdf]

Huber-Stearns, H., Bennett, D., Posner, S., Richards, R., Hoyle, J., **Cousins, S.**, and Romulo, C. 2017. Social-Ecological Enabling Conditions for Environmental Policies: A Review of Current Conversations. *Ecology and Society* 22: 1:18. [pdf]

Cousins, S., Battles, J., Sanders, J., and York, R. 2015. Decay patterns and carbon dynamics of standing dead trees in mixed conifer forests. *Forest Ecology and Management* 353: 136-147. [pdf]

Battles, J. Saah, D., Robards, T., **Cousins, S.**, York, R., and Larson, D., 2013. Intact Forests. Sequoia and Kings Canyon National Parks Natural Resource Condition Assessment. Appendix 12 in: Panek, J.A., J.J. Battles, J.T. Austin, C.A. Sydorik, K.R. Nydick, A.M. Esperanza, D.S. Saah. 2013. A natural resource condition assessment for Sequoia and Kings Canyon National Parks. *Natural Resource Report NPS/SEKI/NRR—2013/665.12*. National Park Service, Fort Collins, Colorado. [pdf]

Additional Publications

Axelson, J., Battles, J., Bulaon, B., Cluck, D., **Cousins, S.**, Cox, L., Estes, B., Fettig, C., Hefty, A., Hishinuma, S., Hood, S., Kocher, S., Mortenson, L., Koltunov, A., Kuskulis, E., Poloni, A., Ramirez, C., Restaino, C., Slaton, M., Smith, S., and Tubbesing, C. 2019. The California Tree Mortality Data Network – Enhanced Communication and Collaboration Among Scientists & Stakeholders. *California Agriculture Vol 73 No 2* [pdf]

Battles, J., and **Cousins, S.** University of California Berkeley. 2015. Carbon Dynamics and Greenhouse Gas Emissions of Standing Dead Trees in California Mixed Conifer Forests. California Energy Commission. Publication number: CEC-500-2016-001. [pdf]

Cousins, S., and DuVal, A. 2012. Management Approaches for Protected Areas of Cultural and Biological significance: the Beech Pollards of Aiako Harria Natural Park. Chapter 5 in:

Integrative Protected Area Management: Reconciling conservation, restoration, and recreation objectives in Aiako Harria Natural Park, Northern Spain. Ashton, M., Muruetagoenia, T., and DuVal, A., eds. Nova Publishers, Hauppauge, NY.

Cousins, S., Tyrell, M., and Ward, J. Characterizing Ecosystem Health in Fragmented Northeastern Forests. Proceedings of the Third Emerging Issues Along Urban/Rural Interfaces Conference: Linking Science and Society, April 2010, Atlanta, Georgia. Edited by D.N. Laband.

Paul, G., Nerenberg, J., Duguid, M., **Cousins, S.**, Covey, K., and Campbell, R. 2010. Envisioning the Future of Connecticut's Forests. YFF Review Vol 12, No. 1. Yale Forest Forum, Global Institute of Sustainable Forestry, Yale University, New Haven, CT.

Cousins, S. 2010. What is Forest Health? Policy & Science Meet. Sanctuary, Spring 2010. White Memorial Foundation, Litchfield, CT.

Cousins, S., Lenington, K., and Roessler, C. 2008. Habitat Connectivity Policy for Midpeninsula Regional Open Space District. Chapter XIV in Resource Management Policies. Prepared and adopted July 2008; policies adopted January 2012. Midpeninsula Regional Open Space District, Los Altos, CA.

TEACHING & OUTREACH

University of Michigan

Forest Ecosystems EEB 348 06/2022 – 07/2022; 3 units field-based upper division course at University of Michigan Biological Station, Pellston, MI. (w/ Inés Ibáñez; 20+ undergraduate)

Ecology: Concepts and Applications EAS 509 01/2022 – 05/2022; 4 units graduate survey course with laboratory components and research project (35 first year masters students)

California Polytechnic State University

Silviculture and Vegetation Management: Applied Forest Ecology NR 365 08/2018-12/2018; 4/2019-6/2019. 4 units upper division with laboratory/field components and overnight field trips (8 contact hrs/week, 30 students)

Forest Operations and Environmental Protection NR 260 04/2019-06/2019. 4 units upper division with laboratory/field components (9 contact hrs/week, 45 students)

Natural Resource Ecology and Habitat Management NR 306 01/2019-04/2019. 4 units upper division with laboratory/field components (6 contact hrs/week, 25 students)

University of California Berkeley

Introduction to Environmental Science, Graduate Student Instructor, 8/2015 – 1/2016
M. Potts and R. Rhew. 50 students, lower division all majors.

Berkeley Connect Mentorship Program, Teaching Fellow & Graduate Student Instructor
1/2014 – 5/2014. Mentorship and career skills course, J. Brashares and E. Rosenblum. 40 students, lower division College of Natural Resources.

Introduction to Environmental Studies, Graduate Student Instructor, 8/2012 – 12/2012
Interdisciplinary course (English/ESPM), G. Sposito and R. Hass. 50 students, all levels.

Invited Talks & Workshops (Presenter/Instructor)

“Tracking trees to decode drought, air pollution, and the fate of forests.” Ecosystem Science and Management Seminar Series. University of Michigan School for Environment and Sustainability, Ann Arbor, MI. March 5, 2021

“What Forests Hath Man Wrought? Leaf and landscape outcomes of chronic environmental stress”. Yale Forest Forum public seminar, School of Forestry and Environmental Studies, Yale University, New Haven, CT. Jan 23, 2020

Invited panelist, Pathways for PhDs in Ecology and Environmental Management. Women in Science at Yale. School of Forestry and Environmental Studies, Yale University, New Haven, CT. Jan 24, 2020.

“What is sustainable forest management?” California Polytechnic State University Extended Education, Forest Stewardship Practices (FNR 475). Jul 3, 2019

Examining the transformed mixed conifer forest through many lenses. Pennsylvania State University, Department of Ecosystem Science and Management. State College, PA, Mar 11, 2019

Inventory-based mortality estimates for California forests, 2001-2015. Presentation, Cousins, S., Gray, A. N., and Potts, M. D. Monitoring Tree Mortality in the Sierra Nevada stakeholder workshop. Sacramento, CA, Mar 12, 2018

Understanding the Transformed Forest. California Polytechnic State University, Department of Natural Resources Management and Environmental Science. San Luis Obispo, CA, Nov 14, 2017

Methods of Environmental Science / ESPM 100 UC Berkeley
Invited Guest Lecturer, Feb 2016. 40 undergraduate students.

International Silviculture Field Course Yale/Technische Universität München
Field Instructor, Blodgett Forest Research Station, May 2015. 30 graduate students, faculty.

Fire Ecology, Yale University School of Forestry and Environmental Studies
Guest Lecturer, Mar 2010. 30 graduate students. Ann Camp, Professor.

An Introduction to Dendrochronology: Methods and Applications, Yale School of Forestry and Environmental Studies, Professional Skills Module Series.
Workshop planner and instructor, Nov 2009. 25 participants.

Monitoring Coastal Grasslands for Responsible Range Management. Midpeninsula Regional Open Space District employee training. La Honda, California.
Workshop planner and co-instructor, May 2008. 20 staff participants.

Informal Education Settings

- Career paths in forestry and land management (2020, Yale School of Forestry and Environmental Studies, 10 graduate students)
- Radiata pine planting at Camp Ocean Pines (2018-2019, with 30 Cal Poly students)
- Bay Area Scientists in Schools (2011-2018, 3-4 events/yr, 30 youth)
- Expanding Your Horizons UC Berkeley (2011; 2017, 60 youth)
- California Academy of Sciences NightLife (2016, 200 participants)
- Understanding Fire Field Day, Hopland Research & Extension Center (2016, 60 youth)
- Forestry Institute for Teachers (2014-2015; 50 educators over 1 week)
- Cal Day American Indian Graduate Student Association Open House, Berkeley (2014, 35 youth and adults)
- NatureBridge Environmental Education Programs Annual Gala, SF, CA (2014, 200 guests)
- STEMposium Workshop for Youth. Youth Speaks, Oakland, CA. (2010-2012, 50 participants)

AWARDS

[PENDING DECISION 2022-2024] *Understanding the threat of Beech Leaf Disease to forest ecosystems of the Upper Midwest*. USDA McIntire-Stennis block grant to University of Michigan. PIs: S. Cousins Co-I, M. Kost. \$78,000

2020-2022 *Forecasting effects of forestry responses to climate change on landscape scale forest structure and wildlife habitats*. USDA McIntire-Stennis block grant to University of Michigan. PIs: S. Cousins, P. Fischer, N. Carter. \$151,074

2020-2021 *Western Forests Initiative -- A Proposal to Develop an Engaged Research Program around Managing Forests for Change*. UM School for Environment and Sustainability. PIs: P. Fischer, S. Yaffee, J. Wondolleck, S. Cousins, D. Norton, G. Keppel-Aleks. \$68,430

2019-2020 *Understanding transformed forests: developing applications of long term inventory to assess the risk of collapse*, California State University Agricultural Research Institute: (PI: S. Cousins; \$5000, declined due to relocation)

2016-2018 *Rates, Patterns, and Potential Causes of Tree Mortality in California's Forests* USDA-Forest Service, Pacific Northwest Region Research Station PI: Matthew Potts/UC Berkeley Center for Forestry \$150,000. Lead investigator/postdoctoral scholar, S. Cousins

2016 Summer Dissertation Grant, University of California/Graduate Division (\$3,500)
2016 William Carroll Smith Plant Pathology Fellow, University of California/ESPM (\$17,300)
2015-2016 Graduate Fellow, National Socio-Environmental Synthesis Center (\$2,000)
2015 Carbon Neutrality Initiative Fellow, Univ. of California Office of the President (\$3,750)
2015 Ecosystem Sciences Summer Research Award, UC Berkeley/ESPM (\$3,500)
2015 Award to Student Association for Fire Ecology for Outreach Materials, UC Berkeley -- Graduate Assembly (\$935)
2014-2015 *Building Environmental Literacy Through the Forestry Institute for Teachers* Renewable Resources Extension Act, UC-ANR Grants Program (Lead cooperator, PI: J. Battles) (\$8,798)

2014-2015 Frank Myers Forestry Fellow, University of California/ESPM (\$17,510)
2014-2015 “*Eye-opening resources and accessible research on California forests,*” Cooperative Extension Graduate Trainee Fellowship, University of California Cooperative Extension Graduate Training in Cooperative Extension Pilot Program, (\$17,131)
2014 Berkeley Connect Fellow, University of California Berkeley (\$18,828)
2013-2014 Baker-Bidwell Fellow, University of California Berkeley/ESPM (\$9,163)
2009-2010 Doris Duke Charitable Foundation Conservation Fellow (\$27,000)

PRESENTATIONS OF RESEARCH

- 24 Cousins, S., Gray, A., and Potts, M. Patterns and Predictors of Tree Mortality Amidst Exceptional Drought. American Geophysical Union Fall Meeting. Virtual, Dec 1-17, 2020
- 23 Cousins, S., Gray, A., and Potts, M. Mortality in California forests: stand to climatic influences on vital rates. Ecological Society of America 105th Annual Meeting. Virtual, August 3-6, 2020.
- 22 Cousins, S. How do forest ecosystems respond to intensifying environmental and societal pressures? USDA - McIntire-Stennis Cal Poly program review, On-campus presentation, September 27, 2018.
- 21 Gray, A.N., and S.J.M. Cousins. 2018. Is Tree Mortality Increasing in Oregon’s Forests? Invited Presentation at: Forest Health in Oregon: State of the State 2018, Oregon State University, Corvallis, OR February 28- March 1, 2018.
- 20 Cousins, S., Gray, A., and Potts, M. Characterizing tree mortality during California’s catastrophic drought. US Forest Service – Forest Inventory and Analysis Program Science Stakeholder Meeting. Park City, UT, October 26-28, 2017.
- 19 Cousins, S. Strategies for Fostering Forest Stewardship. Mendocino County Cooperative Extension. Ukiah, CA, September 27, 2017.
- 18 Cousins, S., Sanders, J. and Battles, J. Forest ecosystem responses to chronic stress: Interacting effects of air pollution and climate on tree growth Ecological Society of America 102nd Annual Meeting. Portland, OR, August 6-11, 2017.
- 17 Cousins, S., Allen, S., Wilkin, K., Oldfather, M., Willing, C., and Boisraime, G. Science in Parks and Protected Areas. Presentation (and seminar facilitator). UC Berkeley EcoLunch Seminar. Berkeley, CA. March 20, 2017.
- 16 Cousins, S., Battles, J., and Sanders, J. Climate, pollution, and tree growth in the southern Sierra Nevada. Presentation. Natural Areas Association National Conference 2016. Davis, CA. October 18-20, 2016.
- 15 Cousins, S. Consequences of chronic air pollution in California forests. Presentation. Environmental Science Policy and Management Graduate Research Symposium, Berkeley, CA May 2, 2016.
- 14 Cousins, S. Battles, J. Schweizer, D., Cisneros, R, Esperanza, A., and Swenson, D. Ecosystem Consequences of Prolonged Ozone Pollution in the Southern Sierra Nevada. Poster. American Geophysical Union Fall Meeting. SF, CA December 14-18, 2015.

- 13 Cousins, S., Esperanza, A., and Battles, J. Outcomes of chronic ozone pollution in the southern Sierra Nevada: a 20-year study. Poster. California Forest Pest Council annual meeting. North Highlands, CA November 4-5, 2015
- 12 De Lasaux, M., Cousins, S., and Valachovic, Y. DeSantis, R., Rodrigues, K., Nakamura, G. Forestry, science and environmental literacy: Forestry Institute for Teachers program effectiveness. Poster. UC ANR Joint Strategic Initiative Conference. Sacramento, CA Oct 5-7, 2015
- 11 Cousins, S., and Battles, J. Patterns of pollution damage and tree growth in Sequoia and Kings Canyon National Parks. Presentation. Science for Parks and Parks for Science: The Next Century. Berkeley, CA. March 25-27, 2015.
- 10 Cousins, S., Sanders, J., York, R., and Battles, J. Improving estimates of carbon dynamics for snags in the Sierra Nevada range. Presentation. International Union of Forest Research Organizations/Society of American Foresters Joint World Congress. Salt Lake City, UT. October 6-11, 2014.
- 9 Cousins, S. Pines under pressure: how Sierra Nevada forests respond to ozone and drought. Presentation. International Union of Forest Research Organizations World Congress. Salt Lake City, UT. October 6-10, 2014.
- 8 Cousins, S., Sanders, J., York, R., and Battles, J. Trees in Transition: the role of standing dead trees in forest carbon dynamics. Presentation. 99th Annual Meeting of the Ecological Society of America. Sacramento, CA, August 11-15, 2014.
- 7 *Fertel, J., Cousins, S. and Battles, J. The effect of spring snow regime on tree growth in the Sierra Nevada. Poster. UC Berkeley College of Natural Resources Sponsored Projects in Undergraduate Research (SPUR) Symposium. April 2014. **Mentored student author*
- 6 Cousins, S., Battles, J., and D. Larson. Deciphering forest response to drought and air pollution in the Sierra Nevada. Presentation. Second American Conference on Dendrochronology. Tucson, AZ, May 13-18, 2013.
- 5 Cousins, S. and Battles, J. Current conditions and trends in ozone injury to pines in the Southern Sierra Nevada. Poster. Southern Sierra Change Adaptation Workshop. Visalia, California, February 20-22, 2013.
- 4 Tyrrell, M., Cousins, S, and Ward, J. Monitoring Ecosystem Health in the Connecticut Highlands. Presentation. Society of American Foresters Annual Convention, Biosecurity Session. Oahu, Hawaii. November 5, 2011.
- 3 Cousins, S. Ashton, P.M.S., and Tyrrell, M. Patterns in the Forest Ecosystem across Urban-Rural Gradients. Presentation. Yale School of Forestry and Environmental Studies Research Colloquium. New Haven, Connecticut, May 2010.
- 2 Cousins, S., Tyrrell, M., and Ward, J. Characterizing Ecosystem Health in Fragmented Northeastern Forests. Presentation, Conference on Emerging Issues at the Rural-Urban Interface: Linking Science and Society. Session: Monitoring and Predicting Human Influences on Ecosystems. Atlanta, Georgia. April 2010.

- 1 Cousins, S. and Tyrrell, M. Characterizing Forest Health in Rural New England. Combined Talk and Poster Presentation, New England Society of American Foresters Annual Meeting. Nashua, New Hampshire, March 2010.

PREVIOUS PROFESSIONAL EXPERIENCE

Research Assistant and Field Collections Lead, 9/2008 – 5/2010
Global Institute of Sustainable Forestry, New Haven, CT

Open Space Planner I, 9/2006 – 8/2008
Midpeninsula Regional Open Space District, Los Altos, CA

Planning and Geographic Information Systems Technician, 3/2006 – 9/2006
Midpeninsula Regional Open Space District, Los Altos, CA

Assistant Conservation Easement Steward, 7/2005 – 1/2006
Marin Agricultural Land Trust, Point Reyes Station, CA

Botanical Survey Technician, 2/2005 – 7/2005
California Native Plant Society/California Department of Fish and Game, Sacramento, CA

UNIVERSITY AND DISCIPLINARY SERVICE

- MS Thesis Review Committee, UM-SEAS (Kirk Acharya, completed 2020; Chantelle Vincent, in progress)
- City of Ann Arbor, Urban Forestry Commission. Resident Representative for Management Plan Update 2022-2023.
- University of Michigan Matthaei Botanical Gardens and Nichols Arboretum 2020-present
Prescribed fire volunteer
- Ann Arbor Natural Areas Program 2019- Prescribed burn, herpetology survey volunteer
- State of California Forest Management Task Force Science Advisory Panel, 2018-present
- Cal Poly NRES Department Liaison to Swanton Pacific Ranch (teaching and research working ranch). 2018-2019.
- Reviewer, Forest Ecology and Management, PLOS One, Ecosphere 2017- present
- Member, Berkeley Chapter Student Association for Fire Ecology (SAFE), 2011-2018.
- Search committee, CE Specialist - Forest Health, UCB/ESPM, 2014-2015.
- Co-coordinator, CE and Outreach Graduate Student Working group. 2013-2015.
- Abstract Reviewer, Science for Parks/Parks for Science Conference, UCB, December 2014.
- Organizing Committee, California Cooperative Extension Showcase, UCB, 2014, 2015.
- Workshop lead/organizer, Skills in Sharing Science: informal education methods. Nov 2014.
- Review Committee, ESPM Graduate Starter Grants (201C Grants). Fall 2013.
- Workshop Co-coordinator, Public Participation Skills for Scientists, Dec 2013.
- Participant, ESPM Student-Initiated Graduate Teaching seminar. 2012-2013.
- Organizing committee, Future of Connecticut's Forests Symposium, Yale Univ., 2009-2010.
- Stanford University Marching Band Alumni Board of Directors, 2003-2005.

- Search committee, Stanford University Dean of Students. 2003-2004.

Professional Development Activities, 2010 to present

- Workshop, Analysis of Ecosystem Structure, National Ecological Observatory Network (Invited) 05/2020
- Reprex use in R, RLadies/National Center for Ecological Analysis and Synthesis, 12/2018
- National Ecological Observatory Network Data Science Training, 06/2016
- Media Relations for Early Career Scientists Workshop, 05/2015
- Skills for Sharing Science Education Workshop, 11/2014
- Scientific Computing and Data Science with Python and Git, 04/2014
- Facilitation and Public Participation for Scientists and Students, 12/2013
- Identifying causes of drivers of tree mortality in the Sierra (field training), 04/2012
- North American Dendroecological Field Week, Valles Caldera NM, 05/2012
- National Wildfire Coordinating Group Trainings, 01/2010: S-130, S-190, S-191

Disciplinary Affiliations

- Association for Fire Ecology
- American Geophysical Union
- California Native Plant Society
- Ecological Society of America
- Forest Stewards Guild
- Society of American Foresters/Michigan-California