

SARAH MACNEIL SWOPE

Mills College
Biology Department
Environmental Science Program
5000 MacArthur Blvd.
Oakland, CA 94613
510.430.2158
sswope@mills.edu
www.sarahmswope.com

RESEARCH INTERESTS

Plant population biology; Local adaptation, drift and gene flow; Conservation of rare plants in a rapidly changing climate

EDUCATION

- 2004 – 2009 **Ph.D. Ecology and Evolutionary Biology**
University of California, Santa Cruz
Thesis: Multispecies interactions and demography of the invasive thistle
Centaurea solstitialis in California
Advisor: Ingrid Parker
Committee: Carla D'Antonio, Dan Doak, Laurel Fox
- 1999 – 2002 **M.S. Forest Science: Ecosystem Science and Management**
Northern Arizona University
Thesis: Diversity, disturbance and exotic plant invasions in semi-arid grasslands
Advisor: Laura DeWald
- 1991 – 1994 **B.A. Environmental Studies**
Prescott College

PROFESSIONAL EXPERIENCE

- 2020 – present **Associate Professor, Rhoda Goldman Professor of Environmental Science (Endowed Chair, 2018-2021), Director of Mills Botanic Garden & Herbarium**
Biology Dept. & Environmental Sciences Program, Mills College, Oakland, CA
- 2014 – 2020 **Assistant Professor, Rhoda Goldman Professor of Environmental Science (Endowed Chair, 2018-2021), Director of Mills Botanic Garden & Herbarium**
Biology Dept. & Environmental Sciences Program, Mills College, Oakland, CA
- 2011, 2013 – 2014 **Visiting Assistant Professor**
Biology Dept., Mills College, Oakland, CA
- 2008 – 2013 **Research Plant Ecologist**
USDA ARS Exotic and Invasive Weeds Research Unit, Albany, CA & Reno, NV
- 2002 – 2008 **Plant Ecologist (SCEP appt)**
USDA ARS Exotic and Invasive Weeds Research Unit, Albany, CA
- 1998 – 2002 **Ecologist**
Prescott National Forest, Prescott, AZ

PUBLICATIONS (*Mills College undergraduate co-author)

Swope SM, T. Soto*, N. Rahman-Khan Arana*. 2022. Historic DNA reveals genetic consequences of fragmentation in an endangered, endemic mustard. **Conservation Genetics** 23: 123-137

Swope SM, G Lee*, H Horten*, B Burnett*, AE Pepper. Development of 15 microsatellite loci in the Endangered *Streptanthus glandulosus* subsp. *niger* (Brassicaceae). **Applications in Plant Sciences** 7: 1215-1218 (<https://doi.org/10.1002/aps3.1215>)

Lu-Irving P, J Harenčár*, H Sounart*, S Welles, **S Swope**, D Baltrus and K Dlugosch. 2019. Native and invading yellow starthistle (*Centaurea solstitialis*) microbiomes differ in composition and diversity of bacteria. **Mosphere** 4: 1-16 (<https://doi.org/10.1128/mSphere.00088-19>)

Swope SM, WH Satterthwaite and IM Parker. 2017. Spatiotemporal variation in the strength of density-dependence: implications for biocontrol of *Centaurea solstitialis*. **Biological Invasions** 19: 2675–2691

Barker B, K Andonian, **S Swope**, D Luster and K Dlugosch. 2017. Population genomic analyses reveal a history of range expansion and trait evolution in the invasive plant yellow starthistle (*Centaurea solstitialis*). **Molecular Ecology** 26: 1131-1147 (<https://doi.org/10.1111/mec.13998>)

Dlugosch KM, FA Chang, BS Barker, K Andonian, **SM Swope**, LH Reiseberg. 2015. Evolution of invasiveness through increased resource use in a vacant niche. **Nature Plants** 1: 1-5 (<http://dx.doi.org/10.1038/nplants.2015.66>)

Swope SM. 2014. Biocontrol attack exacerbates pollen- limited seed set in an invasive weed. **Oecologia** 174: 205 – 215 (DOI 10.1007/s00442-013-2750-4)

Swope SM and IM Parker. 2012. Complex interactions among biocontrol agents, pollinators and an invasive weed: a structural equation modeling approach. **Ecological Applications** 22: 2122-2134 (<https://doi.org/10.1890/12-0131.1>)

Swope SM and WH Satterthwaite. 2012. Variable effects of a generalist parasitoid on a biocontrol seed predator and its target weed. **Ecological Applications** 20: 22-34 (<https://doi.org/10.1890/10-2120.1>)

Swope SM and IR Stein*. 2012. Soil type mediates indirect interactions between *Centaurea solstitialis* and its biocontrol agents. **Biological Invasions** 14: 1697-1710 (DOI 10.1007/s10530-012-0181-5)

Swope SM and IM Parker. 2010. Trait-mediated interactions and lifetime fitness of the invasive plant *Centaurea solstitialis*. **Ecology** 91: 2284-2293 (<https://doi.org/10.1890/09-0855.1>)

Swope SM and IM Parker. 2010. Widespread seed limitation affects plant density but not population trajectory in the invasive plant *Centaurea solstitialis*. **Oecologia** 164: 117-128 (DOI 10.1007/s00442-010-1641-1)

Marsico TD, JW Burt, EK Espeland, GW Gilchrist, MA Jamieson, L Lindström, **SM Swope**, G Roderick, M Szücs, and ND Tsutsui. 2010. Underutilized resources for studying the evolution of invasive species during their introduction, establishment, and lag phases. **Evolutionary Applications** 3: 203-219 (<https://doi.org/10.1111/j.1752-4571.2009.00101.x>)

Gilbert G, E Howard, B Ayala, M Bonilla, J Cummings, S Langridge, I Parker, J Pasari, D Schweizer, **SM Swope**. 2010. Beyond the tropics: forest structure in a temperate forest mapped plot. **Journal of Vegetation Science** 21: 388-405 (<https://doi.org/10.1111/j.1654-1103.2009.01151.x>)

Manuscripts in preparation

Swope SM, J Harenčár*, and J Braasch. Variation in serpentine soil chemistry underlies genetic diversity in the rare endemic *Calochortus tiburonensis*. *In preparation, target journal: Conservation Biology*

Harenčár J, T Soto*, and **Swope SM**. Contrasting patterns of genetic diversity in two narrow endemic mustards. *In preparation, target journal: Conservation Genetics*

K Dlugosch, S Welles, A Davis, A Leotta, A Rodriguez, and **Swope SM**. Demographic consequences of rapid trait evolution in the invasive plant *Centaurea solstitialis*. *In preparation, target journal: Evolutionary Applications*

Swope SM. An experiment to improve undergraduates' understanding of mutualistic interactions and quantitative reasoning. *In preparation, target journal: CBE – Life Sciences Education*

Swope SM. Population Viability Management: a case study with *Calochortus tiburonensis*. *In preparation, target journal: Ecological Applications*

Book reviews

Parker IM, E Cuevas García, K Dlugosch, P Holloran, **SM Swope**, K Hulvey and R Clark. 2007. Invasions as a tool for basic research. **Conservation Biology** 21: 1376-1377

Parker IM, P Holloran, **SM Swope**, J Cummings, S Grove, C Fresquez. 2009. Management of Invasive Weeds. **Biological Invasions** 12: 1447-1448

ORAL AND POSTER PRESENTATIONS (*Mills College undergraduate co-author)

Invited

- Swope SM (2018) San Francisco State University, Dept of Biology
- Swope SM (2015) University of San Francisco, Dept of Biology
- Parker IM and SM Swope (2012) California Invasive Plant Council Annual Meeting, Rohnert Park
- Swope SM (2012) Purdue University, Dept of Entomology
- Parker IM and SM Swope (2010) Annual Meeting of the Botanical Society of America, Providence, RI
- Swope SM (2009) University of California, Davis
- Swope SM (2008) Central California Invasive Weeds Symposium, Monterey
- Swope SM (2006) University of California, Davis

Contributed

- Swope SM, TY Soto*, N Rahman-Khan Arana* (2021, scheduled), Conservation Biology, Kigali, Rwanda
- Swope SM, S Minnick (2021, scheduled) Northern California Botanists, Chico, CA
- Swope SM. (2020) Evo-Demog working group, Røros, Norway (online due to Covid-19)
- Swope SM (2019) Ecological Society of America Annual Meeting, Louisville, KY
- Swope SM, J Braasch (2019) Botanical Society of America, Annual Meeting, Tucson, AZ
- Swope SM (2018) Ecological Society of America Annual Meeting, New Orleans, LA
- Swope SM (2018) California Native Plant Society, Annual Meeting, Los Angeles, CA
- Swope SM & GT Lee* (2017) American Society of Plant Biologists, Annual Meeting, Honolulu, HI
- Swope SM (2016) Ecological Society of America Annual Meeting, Fort Lauderdale, FL
- Swope S & J Harenčár* (2016) Ecological Society of America Annual Meeting, Fort Lauderdale, FL
- Swope SM (2015) Ecology and Management of Alien Plant Invasions, Waikoloa, HI
- Swope SM (2015) Ecological Society of America Annual Meeting, Baltimore, MD
- Swope SM (2015) California Native Plant Society Annual Meeting, San Jose, CA
- Swope SM (2014) Ecological Society of America Annual Meeting, Sacramento, CA
- Swope SM (2012) Ecological Society of America Annual Meeting, Portland, OR
- Swope SM (2012) Society for Conservation Biology Annual Meeting, Oakland, CA
- Swope SM (2011) Ecological Society of America Annual Meeting, Austin, TX
- Swope SM (2011) Bay Area Conservation Biology Symposium, Berkeley, CA
- Swope SM (2010) Ecological Society of America Annual Meeting, Pittsburgh, PA

Swope SM (2009) California Invasive Plants Council (Cal-IPC) Annual Meeting, Visalia

Posters

Swope SM & H Lu-Way* (2018) California Native Plant Society, Annual Meeting, Los Angeles, CA

Swope SM & H Horten* (2018) California Native Plant Society, Annual Meeting, Los Angeles, CA

Swope SM (2017) Gordon Research Conference, Ventura, CA

Bolton E*, Lee G*, Sounart H*, Tran M*, Burnett B*, Kuftin A*, Swope S (2016) Ecological Society of America Annual Meeting, Fort Lauderdale, FL

Swope SM, J Harenčár*, G Lee*, D Thrumston*, A Kuftin* (2015) Ecological Society of America Annual Meeting, Baltimore, MD

Swope SM, J Harenčár*, G Lee*, D Thrumston*, K Franson* (2014) Ecological Society of America Annual Meeting, Sacramento, CA

Swope SM (2011) Annual Meeting of the Society for Range Management, Billings, MT

Swope SM (2009) Gordon Research Conference, Galveston, TX

GRANTS, FELLOWSHIPS AND AWARDS

2022	Mills Faculty Development Grant: Genetic structure of two rare plants, \$4,000
2021 – 2023	Golden Gate National Parks Conservancy: Marin Monarch Overwintering and Breeding Habitat Assessment and Restoration Project, \$400,000 (sub-award to Mills: \$25,000)
2021	Mills Faculty Development Research Mini-grant, \$1,000
2020	Mills Faculty Development Research Mini-grant, \$1,000
2016 – 2019	Marin County Parks: genetic diversity and patch isolation in the Tiburon jewelflower, \$39,900
2019	Mills Faculty Development Grant: Community-Based Conservation in Ecuador, \$3,000
2014 – 2018	USDA NIFA REE (Award #: 2015-67013-23000): Genetic contributions to control of yellow starthistle (<i>Centaurea solstitialis</i>) (co-PI), \$500,000 (sub-award to Mills \$70,000)
2018	Faculty Research Grant: mapping genetic diversity onto soil chemistry, (co-PI with Kristina Faul), \$4,000
2018	MillsNext grant to support the development of the Tropical Ecology and Conservation course in Ecuador, \$7,100
2015 – 2019	Faculty Travel Awards, \$7,300 over five years
2014 – 2017	Marin County Parks: eco-evolutionary dynamics of the Tiburon jewelflower, \$39,000
2014	Marin County Parks: habitat use by songbirds in urban-wildlands interface, \$10,000
2008	Jean Langenheim Fellowship in Plant Ecology and Evolution, University of California, \$5500
2007	National Science Foundation Doctoral Dissertation Improvement Grant, University of California, \$9800

EXTRAMURAL FELLOWSHIPS & AWARDS GIVEN TO STUDENTS FOR RESEARCH IN MY LAB

2018	Tatyana Soto: California Native Plant Society Myrtle Wolf Fellowship. \$1,000
2016	Geneva Lee: American Society of Plant Biologists Summer Undergraduate Research Fellowship (1 of only 3 undergraduate fellowships awarded nationally). \$7,100 + travel
2016	Michelle Tran: Norther California Botanists Research Scholarship. \$1,000
2015	Devon Thrumston: Norther California Botanists Research Scholarship. \$1,000
2015	Geneva Lee: California Native Plant Society Myrtle Wolf Fellowship. \$1,000
2013	Julia Harenčár: California Native Plant Society Hardman Native Plant Fellowship. \$800

COURSES TAUGHT, UNDERGRADUATE MENTORSHIP, AND TEACHER TRAININGS

Courses taught

- 2011 – present **General Biology** (BIO 002) Introductory survey course required for all Biology and related majors
- Plant Ecology for Non-Majors** (BIO 055) Open to sophomores to seniors across all majors; fulfills Critical Analysis, Scientific Inquiry, and Written and Oral Communication II requirements of the Core Curriculum
- Tropical Ecology & Conservation: Ecuador** (BIO 147, aka BIO 180a) Upper division elective for Biology, Environmental Studies and Environmental Sciences majors; includes a 10-day trip to rural Ecuador; fulfills Critical Analysis and Community Engaged Learning requirements of the Core Curriculum
- Evolution** (BIO 148) Upper division course required for all Biology and related majors
- Conservation Biology with Lab** (BIO 149) Upper division elective for Biology, Environmental Studies and Environmental Sciences majors; fulfills Critical Analysis, Quantitative Literacy, Written and Oral Communication II requirements of the Core Curriculum
- Plant Ecology with Lab** (BIO 155) Upper division elective for Biology, Environmental Studies and Environmental Sciences majors; fulfills Create, Innovate & Experiment, Quantitative Literacy, Written and Oral Communication II requirements of the Core Curriculum
- Senior Seminar** (BIO 191) Capstone course required for all Biology and related majors
- 2012 – 2014 (not currently in rotation) **California Flora with Lab** (BIO 110) Upper division elective for Biology, Environmental Studies and Environmental Sciences majors
- Community & Ecosystem Ecology** (BIO 145) Upper division elective for Biology, Environmental Studies and Environmental Sciences majors
- Restoration Ecology with Lab** (BIO 178) Upper division elective for Biology, Environmental Studies and Environmental Sciences majors

Research mentorship

- 2010 – present I mentor a team of 3 – 10 undergraduate researchers during the academic year (BIO 179 Directed Research) and 3 – 6 undergraduates researchers during the summer (supported by the Jill Barrett Biology Research Program or external grants)

Teacher Trainings

- 2021 Summit on Science Literacy in Higher Education, Princeton University
- 2020 Academics For Black Survival and Wellness: Anti-racism in the classroom
- 2020 Association of College and University Educators: Examining and Mitigating Implicit Bias Confirmation
- 2018 – 2019 Association of College and University Educators: Effective Teaching Practices
- 2017 Association of American Colleges & Universities: Transforming Undergraduate STEM Education: Implications for 21st-Century Society

Teaching assistantships (graduate school)

- 2008 *Graduate student instructor*: Seminar – Structural Equation Modeling (BIO293, graduate student seminar)
- 2008 *Graduate student co-instructor*: Seminar – Biological invasions (BIO293, graduate student seminar)
- 2008 *Teaching Assistant*: Community Ecology (BIO152, upper division undergraduate)

2008	<i>Workshop Leader: Course Design</i> (Center for Teaching Excellence)
2007	<i>Teaching Assistant: Plant Ecology</i> (BIO169, upper division undergraduate)
2007	<i>Teaching Assistant: Ecology</i> (BIO150, upper division undergraduate)
2007	<i>Workshop Leader: Leading Discussions in the Biological & Physical Sciences</i> (Graduate Student Orientation)
2007	<i>Workshop Leader: Using Small Groups Effectively</i> (Center for Teaching Excellence)
2006	<i>Teaching Assistant: Community Ecology</i> (BIO152, upper division undergraduate)
2006	<i>Workshop Leader: Getting Started as a Teaching Assist.</i> (Graduate Student Orientation)
2006	<i>Workshop Participant: Learning Objectives; Active Learning Strategies</i> (Center for Teaching Excellence)
2005	<i>Teaching Assistant: Ecology and Evolution</i> (BIO20B, lower division undergraduate)

I have trained 62 undergraduates, interns and technicians in complicated field and laboratory techniques, of whom 53 are women and 32 are BIPOC and/or first generation college students. With the exception of students still in school, all but two have gone on to graduate school in the natural sciences or now work in research or natural resource management.

PROFESSIONAL SERVICE

Institutional

Department Co-chair: Biology & Chemistry (including Environmental Science Program; starting June 2022)

Committees

2021 – present	Academic Innovations workstream: Northeastern-Mills alliance
2019 – present	Animal Care and Use Committee
2016 – present	Faculty Development Grant committee (Chair 2020 – present)
2016 – present	Doris Duke Conservation Scholars Representative (internships for URM students in conservation)
2016 – present	Morris K. Udall Foundation Representative (scholarships for Native American students)
2014 – present	Environmental Studies Interdisciplinary Program
2016 – 2020	Undergraduate Research Opportunities Program (Chair)
2015 – 2018	Mills College Community Farm Steering Committee
2017	Global Justice Journeys
2017	MillsNext: Appreciative Advising
2014 – 2017	Sustainability Committee
2014 – 2017	Natural Sciences Division Secretary
2014 – 2016	Faculty advisor for the Mills College Garden Club
2014 – 2016	Faculty advisor for the Mills College Aquaponics Club
2011 – 2013	Represented the Pacific West Area (9 western states) on the USDA Diversity Task Force
2011 – 2013	Chair: USDA ARS-Reno Outreach, Diversity and Equal Opportunity Advisory Committee
2006 – 2008	Graduate Student Committee for Diversity Enhancement, University of Calif., Santa Cruz

Search committees

2020	Lab Manager, Biology Dept
2020	Professor of Psychology (non-tenure track)
2018	Urban Farm Manager
2015	Professor of Biology (molecular/cellular) (tenure track)
2015	Urban Farm Manager

Symposia organization

2022	The art and science of biological illustration: a show of 42 original works by John Gould, with Stephanie Hanor, Director of the Mills College Museum (Oct. 2022)
------	---

- 2022 Climate Change Summit (Oct. 2022, rescheduled from 2020 due to Covid-19)
- 2013 – present Barrett Research Symposium
- 2018 Environmental Summit: The New Abnormal

Curricular, recruitment, advising

- 2014 – 2019 Mills Open House for prospective students and parents
- 2014 – 2019 Mills Preview day, demonstration lecture
- 2014 – 2018 Workshop: Careers in biology, environ. policy, resource management & conservation
- 2018 iPad initiative
- 2017 MillsNext grant (Mellon Foundation): Creating a Biology curriculum in which URM students thrive (co-PI with Drs. Young and Walter)
- 2017 Advising workshop for APER students and faculty
- 2017 Scientific Inquiry curricular alignment task force
- 2017 Advising Syllabus Committee
- 2016 Revisions to the Environmental Studies major with Drs. Kristina Faul and Mark Henderson
- 2015 Creation of the Ecology, Evolution and Behavior concentration in the Biology major, with Dr. Jenn Smith
- 2015 – 2017 Promise and Pathways Preview Day

One-time service

- 2019 Catalyzing Science Leadership at Mills with Cris Russell (50th reunion gift)
- 2018 President's Circle of the Board of Trustees
- 2018 Founders Society of the Board of Trustees
- 2018 Class of 1965 Reunion
- 2015 Academic Awards for the Biology Dept graduating seniors

Professional

- 2008 – present Reviewer for the following journals: Ecology, Ecological Applications, Oecologia, Biological Invasions, Journal of Applied Ecology, Applications in Plant Sciences, Plant Ecology, Ecological Entomology, American Journal of Botany, Journal of Range Ecology and Management, Biological Control, Remote Sensing of Environment
- 2014 & 2015 Ecological Society of America SEEDS (Strategies for Ecology Education, Diversity and Sustainability) mentor to undergraduates at University of American Samoa
- 2013 Special Symposium: "Doing good while doing good science: Bridging basic and applied science," Annual Meeting of the Ecological Society of America, Minneapolis, co-organized with Virginia Matzek, SCU

Community

- 2021 Wrote new monitoring protocol and management plan for the Threatened *Calochortus tiburonensis*, Marin County Parks
- 2021 Assessment and review of the status of two protected plant species for the Five Year Review as required by the Endangered Species Act, Calif. Dept Fish & Wildlife
- 2014 – present Annual research and status updates to US Fish & Wildlife, Calif. Dept Fish & Wildlife & Marin county Parks, Marin Municipal Watershed District
- 2020 Review of listing/delisting criteria for endangered plants, US Fish & Wildlife & Calif. Dept Fish & Wildlife
- 2020 Marin Mills Association (alumni, members of the Board of Trustees)
- 2016 – 2019 Guest lecture, First Year Seminar
- 2016 California Native Plant Society research talk
- 2014 – 2016 Naturalist walks for the public at two preserves in Marin

PROFESSIONAL MEMBERSHIPS

Ecological Society of America, American Society of Naturalists, Society for Conservation Biology, Botanical Society of America, American Association of University Professors, California Native Plant Society