

Gretchen C. Coffman, PhD

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EDUCATION

PhD, March 2007, University of California, Los Angeles, CA

School of Public Health, Department of Environmental Health Sciences

Degree – Environmental Science

Factors Influencing Invasion of Giant Reed (Arundo donax) in Riparian Ecosystems of Mediterranean-type Climate Regions

MA, August 1998, San Francisco State University, Biology Department, San Francisco, CA,

Romberg Tiburon Center for Environmental Studies, Tiburon, CA

Degree – Ecology and Systematic Biology

Natural and Restored Salt Marsh Soil Seed Banks in the San Francisco Bay

BA, May 1991, Colgate University, Hamilton, NY

Major – Biology (emphasis on Ecology)

Minor – German

State of the Black Forest Health in 1990

Spring 1990, Colgate University Study Group

Albert-Ludwigs Universität, Freiburg, Germany

Thesis Research – The Forest Research Institute of Baden-Wuerttemberg

ACADEMIC EXPERIENCE

National University of Singapore

Senior Lecturer, Department of Geography

2020 – Present

Bachelor of Environmental Studies, Assistant Director

Jan 2021 – Present

University of San Francisco, San Francisco

Research Professor (Affiliate), Department of Environmental Science

2019 – 2020

Associate Professor, Department of Environmental Science

2017 – 2019

Assistant Professor, Department of Environmental Science

2011 – 2017

Adjunct Professor, Department of Environmental Science

2010 – 2011

Marine Science Institute, University of California, Santa Barbara

Riparian Invasion Research Lab, Ecological Research Collaborator

2010 – Present

Junior Research Scientist

2007 – 2010

San Francisco State University, Romberg Tiburon Center for Environmental Studies

Taught wetland ecology courses in the Wetland Science Series.

1996 – 2011

TEACHING EXPERIENCE

NUS COURSE TITLE	SEMESTERS TAUGHT
GE5211: DYNAMIC ENVIRONMENTS*	20Sem1
GE4224: APPLIED BIOGEOGRAPHY*	21Sem2, 22Sem2
GE3255: AQUATIC, RIPARIAN AND COASTAL SYSTEMS*	21Sem1, 22Sem1
GE2220: TERRESTRIAL AND COASTAL ENVIRONMENTS*	21Sem2
GE2101: METHODS AND PRACTICES IN GEOGRAPHY*	21Sem2, 22Sem2
GE1101: GEOGRAPHICAL JOURNEYS: EXPLORING WORLD ENVIRONMENTS	21Sem1, 22Sem1
ENV3102: FIELD COURSE IN ENVIRONMENTAL STUDIES	Dec 2020, May 2021 & 2022

USF COURSE TITLE	SEMESTERS TAUGHT
ENVS 100: UNDERSTANDING OUR ENVIRONMENT LECTURE	10F, 12F, 12S, 14S, 14F, 15S, 16F, 18F
ENVS 100: UNDERSTANDING OUR ENVIRONMENT LAB**	10F, 11F, 12F, 13F, 14F(2), 16F, 17F, 18S
ENVS 110: INTRO TO ENVIRONMENTAL SCIENCE LAB	11F
ENVS 210: ECOLOGY AND HUMAN IMPACTS LECTURE	10S, 11S, 12S, 13S
ENVS 210: ECOLOGY AND HUMAN IMPACTS LAB**	10S(2), 11S(2), 12S(2), 13S(3), 14S, 15S, 16S(3)
ENVS 325: CALIFORNIA ECOSYSTEMS*	11F, 12F, 13F, 15F
ENVA 385: WILDERNESS IMMERSION: SIERRA TO THE SEA*	13SM
ENVS 390: FIELD BOTANY*	17S, 19S
ENVS 498: DIRECTED STUDY – ECOLOGY RESEARCH	12SM, 12F, 13S, 14S
ENVM 621: RESTORATION ECOLOGY	11F
ENVM 623: CALIFORNIA ECOSYSTEMS*	13F, 14F, 15F, 16F, 17F, 18F
ENVM 625: TROPICAL RESTORATION ECOLOGY*	16SM, 17SM, 18SM, 19SM
ENVM 629: WETLAND DELINEATION I*	13F, 14S, 15S, 16S, 17S, 18S, 19S
ENVM 630: WETLAND DELINEATION II*	14F, 15F, 16F, 17F, 18F
ENVM 680: FIELD BOTANY*	15S, 16S, 17S, 18S, 19S
ENVM 691: SCIENTIFIC ILLUSTRATION INDEPEND. STUDY	17S
ENVM 695: THESIS DESIGN	12F (2), 14S
ENVM 696: THESIS RESEARCH	13S, 13F, 14F
ENVM 697: THESIS COMPLETION	13S, 13F, 15S
ENVM 698: MASTER'S PROJECTS	14S, 17F, 18S, 18F, 19S

* Classes I developed

** Faculty Lab Coordinator for 4 years

PROFESSIONAL CLASSES

Romberg Tiburon Center for Environmental Studies, Wetland Science Series, San Francisco State University.

- **Lead Instructor – Basic Wetland Delineation, Spring 2007 - 2011**
- **Instructor – Wetland Restoration Ecology, Summer 2007 - 2011**
- **Instructor – Wetland Restoration Monitoring Techniques, Summer 2008 – 2011**

- **Instructor – Ecology of San Francisco Bay Marshes, Summer 1997 – 2000**

GRADUATE SCHOOL TEACHING ASSISTANT POSITIONS AND RESEARCH MENTORING

Research Mentor – Master’s Degree Students, UCLA Department of Environmental Health Science, Griffith University, Brisbane, Australia, and Hebrew University, Israel. Mentored two Master’s student research projects. **2003 – 2006.**

Mentor – Independent Research Student, UCLA. Department of Geography. Mentored undergraduate student who conducted GIS research on historical extent of fire along the Santa Clara River and comparison of remote sensing methods for identification/mapping of invasive *Arundo donax*. **2005.**

Mentor – CARE Bridge Summer Research Program, UCLA. Mentored two community college students (East Los Angeles College and LA Pierce College) who assisted in my dissertation research. **1999 and 2004.**

HONORS

NATIONAL UNIVERSITY OF SINGAPORE

Annual Digital Education Award, NUS University-level award, AY 2020 – 2021 (Spring 2022). The only faculty member in FASS who received this award.

Faculty Teaching Award, Faculty of Arts and Social Sciences (FASS), AY 2020 – 2021 (Fall 2022).

NUS Module Design Institute, Selected member and completed 5-day course, July 2021.

UNIVERSITY OF SAN FRANCISCO

Arthur Furst Award for Research, April 6, 2016 for conducting research for the betterment of humanity.

National Geographic Explorer, 2015, Restoration of Critically Endangered Swamp Cypress Trees of Laos.

National Park Service Harzog Award, Shark Stewards, 2017 worked as science advisor when awarded for outstanding volunteer service, Youth Award with the Aquatic Park Stewards Program

Volunteer of the Year, 2016 Shark Stewards, working on marine conservation outreach and citizen science projects with my USF graduate and undergraduate students.

GRADUATE ACADEMIC

- Dissertation Year Fellowship, 2004-2005
- Society of Wetland Scientists Student Research Grant, 2004
- APRU International Doctoral Students Conference, August 9 – 13, 2004
- University and Departmental Fellowships and Research Travel Grants, 1998-2004
- Best Student Paper (1st place), 1st Annual CALFED Science Conference, October 3 – 5, 2000
- Stephen A. Vavra Research Fellowship, 2000-2001
- Stephen A. Vavra Travel Fellowship, 2000, for MEDECOS X International Conference, South Africa
- ARCS Foundation Scholarship, 1996 – 1997, Rhoda Goldman Memorial Scholarship from the Northern California Chapter of Achievement Rewards for College Scientists (ARCS) Foundation, Inc.
- Graduate Assistance in Areas of National Need (GAANN) Pre-Doctoral Fellowship, 1996 – 1997

SERVICE TO PROFESSION, UNIVERSITY AND COMMUNITY

Professional and Scholarly Service

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| 2021 | Invited lecture, American Cetacean Society of San Francisco on community-based mangrove restoration in SE Asia to Ocean health, July 2021. |
| 2018 | Presented lecture in the Compensatory Mitigation Webinar Series sponsored by the Associate of State Wetland Managers. August 29, 2018 (invited guest lecturer). |

2017 – Present	Editorial Board of <i>Environmental Science: Current Research</i> Journal.
2016 – Present	Editorial Board of <i>Ecological Engineering</i> Journal.
1999 – Present	Ecological restoration advisor and volunteer for Friends of the Santa Clara River, primarily helping to establish and manage the Hedrick Ranch Nature Area (220 acres).
2011 – 2015	Member of San Joaquin Invasive Species Experts Panel of scientists for The Nature Conservancy, San Joaquin River and Parkway Conservation Trust and River Partners.
2011 – 2012	San Francisco Estuary Invasive <i>Spartina</i> Removal Technical Advisory Committee Member.
2011 – 2012	Bay Area Early Detection Network (BAEDN). Researched and developed a field guide for 73 target invasive plant species in the San Francisco Bay Area. In fall 2010, I my student research group to work on this project, consisting of six USF undergraduate students and one of my SFSU wetland students, who designed the layout for the guidebook.

National University of Singapore

2020 – Present	Assistant Director of the Bachelors of Environmental Studies Program. Coordinator of the Internship Program. Helped establish a first-year student-faculty mentorship program. Helped organize the Groves mangroves clean up for International Coastal Clean-up Day.
2020 – Present	Undergraduate Studies Committee Member. Helped develop new Geography curriculum, specifically two modules that I taught, for the new College of Humanities and Sciences.
2020 – Present	Developed and implemented protocol for field-based learning, including virtual/hybrid field trips into blended learning classrooms during the pandemic for the Geography Department.
2020 – Present	Worked closely with Geography Society to publish an article on community-based restoration in SE Asia during the pandemic. Helped organize first annual Tree Planting Day at the Singapore Botanical Gardens for Geography and BES students.
2020 – Present	NUS Tropical Environmental Change research group member and Ecology/Biogeography coordinator for this group.

University of San Francisco Service

2018 – 2019	Member of the Faculty Advisory Board on Internationalization (FABI), a university-service committee and part of the new Vice Provost office on Global and Experiential Education.
2018 – 2019	Selected participant in the one-year Ignatian Faculty Forum.
2017 – 2019	Mentored graduate students in oral presentations each year at the College of Arts and Sciences Creative Activity and Research Day (CARD).
2017 – 2018	Selected participant in one-year University-wide Community Engaged Learning and Teaching Fellowship.
2017 – 2018	Served on the Academic Program Review Committee for ENVS and MSEM.
2016 – 2017	Member of the Field Studies Faculty Learning Community for 2016-17 academic year.
2016 – 2019	Serve on the Environmental Studies Faculty Advisory Board.
2013 – 2020	Member of the Sustainability Task Force. Work closely with new Sustainability Coordinator with EcoRestoration Club events and Shark Film Night at USF.
2012 – 2020	Faculty Adviser, Helped Department of Environmental Science students to establish an Ecosystem Restoration Club (ERC).
Spring 2015	Search Committee Member, Department of Biology, Ecology Term Position.
Summer 2015	Search Committee Member, Facilities Department, Sustainability Coordinator.
June 2015	Academic advising of 10 new first-year students in Environmental Studies Program and Environmental Science Department through Advisortrac.
Summer 2014	CIT Summer Technology Intensive Training.
2011 – 2019	Academic advising - 30 undergraduate students in the Dept. of Environmental Science, 37 graduate master's projects, and four graduate thesis projects in MSEM.

Community Service and Outreach

- 2020 – Present Developed program and conducted annual monitoring in restored wetlands at the Singapore Botanic Gardens with 48 students in a long-term, longitudinal study. Trained 5 NUS research assistants and together we led in person and zoom blended learning trainings.
- 2019 – Present Science advisor for Roots to Reefs Community-based restoration project, Lombok, Indonesia. Worked with nonprofit SORCE to develop a community-based mangrove restoration program with graduate students. Helped bring novel funding to the community.
- 2015 – Present Outreach to hundreds of villagers on importance of critically endangered Asian swamp cypress and wildlife in several remote villages of Laos using film, conservation related activities, and citizen science. Organized monthly zoom meetings during the pandemic.
- 2013 – 2021 Scientific Advisory Board for *Sharkstewards.org*, a nonprofit organization

RESEARCH EXPERIENCE, PRINCIPAL INVESTIGATOR

Restoration of Critically Endangered Asian Swamp Cypress Trees of Laos, 2014 – Present,

Associate and Assistant Professor, USF and Senior Lecturer, NUS. Funded by grants from the National Geographic Conservation Trust, Chicago Board of Trade, MBZ Species Conservation Fund, and USF Faculty Development Funding.

Singapore Botanic Gardens (SBG) Wetland Restoration Monitoring Program, 2020 – Present, Senior Lecturer, NUS. Worked closely with SBG conservation staff collaborators and NUS graduate students to develop a wetland restoration monitoring program as part of a long-term, longitudinal study at Keppel Wetlands and EcoLake wetlands. Developed a hybrid in person/online training program for NUS undergraduate students.

Riparian and Lake Restoration Monitoring of Kinabatangan River, 2015 – Present, Assistant and Associate Professor, USF. Funded by USF Arrupe Immersion Community-Engaged Learning Program.

Santa Clara River Riparian Restoration Field Experiment, 2012 – 2020 (funded from 2015 – 2020), Associate and Assistant Professor, USF. Funded by Ventura County Watershed Protection District.

Redwood Creek Riparian Revegetation Monitoring, 2011 – 2020, Associate and Assistant Professor, USF. Funded by USF working with National Park Service.

Dune Scrub Restoration Ecology Research on Lone Mountain, San Francisco, 2010 – 2020, Associate and Assistant Professor, USF.

Prey Nup Mangroves Restoration Ecology Research, Cambodia, May 2013 – 2015, Assistant Professor, USF.

San Joaquin River Invasives Project, Central Valley, CA, 2012 – 2015, Assistant Professor, USF. Worked on the experts' panel to review work completed by River Partners and The Nature Conservancy.

Riparian Competition Field Experiment, 2002 – 2012, Ecological researcher, UCSB funded by Santa Clara River Trustee Council, US Fish and Wildlife Service, and California Department of Fish and Game.

Upper Fresno River Watershed Assessment, 2008-2010, Ecological Researcher, WRA. Funded by a grant from the California Department of Water Resources (Calfed Watershed Program).

Ventura County Historical Ecology Study, 2007 – 2010, Ecological Researcher, UCSB. Funded by the California Coastal Conservancy.

Wetland Creation for Wildlife in Laos, 2007 – 2010, Ecological Researcher, UCSB. Funded by World Bank.

Invasive Plant Species Control Program, Laos, SE Asia, 2007 – 2009, Ecological Researcher, UCSB. Funded by World Bank.

Global Comparison of Methane Emissions and Carbon Sequestration from Tropical and Temperate Wetlands: Implications for Climate Change and Wetland Conservation, 2007 – 2009, Ecological Researcher, Ohio State University.

SELECTED PUBLICATIONS

Coffman, G.C. 2021. Discovering the Majestic Mai Hing Sam of Laos. *Arnoldia*. Volume 78(3): 18 – 27.

<https://arboretum.harvard.edu/stories/discovering-the-majestic-mai-hing-sam-of-laos/>

Coffman, G.C. 2021. From Roots to Reefs: Community-based ecosystem restoration around Southeast Asia during Covid-19. *Geosphere: The Space Between*. pp. 23 – 27.

Coffman, G.C. 2020. Engaging students in community-based habitat restoration in SE Asia during Coronavirus Pandemic (Feature article). *GEOBuzz*. Geography Teachers Association of Singapore. pp. 4 – 8.

Coffman, G.C. 2020. Hedrick Ranch Nature Area Management Plan 2020: 20 Years Update. 6 September, 2021. 48 pages plus appendices and electronic drone footage.

Coffman, G.C. 2020. Riparian Revegetation Experiment Final 5 Year Report for the Santa Clara River Upstream of Balcom Canyon Wash Habitat Restoration Project. Prepared for Marine Science Institute University of California, Santa Barbara. August 2020.

Wu, X., M. Ruhsam, Y. Wen, P. I. Thomas, J. Worth, X. Lin, X. Li, M. Wang, L. Chen, V. Lamxay, N. Le Canh, and **G. Coffman**. 2019. The last primary forests of the Tertiary relict *Glyptostrobus pensilis* harbor the highest genetic diversity. *Forestry*. 00:1–17 doi:10.1093/forestry/cpz063

- Coffman, G.C.** 2019 (and 2007). Giant reed (*Arundo donax*): Streams and water resources. In, S.W. Trimble, (ed). Encyclopedia of Environmental Management. Managing Water Resources and Hydrological Systems, Volume 4, CRC Press. Taylor & Francis.
- Markley, J., B. Piontek and **G. Coffman**. 2019. Herbivory and soil properties as ecological constraints to willow growth in a restored riparian ecosystem in Coastal California. *Journal of Environmental Science: Current Research* 2:3-11
- Hunter, R., J. Callaway, A. Rayburn, and **G.C. Coffman**. 2016. Tarping and inundation as potential control mechanisms for seed banks of Red Sesbania (*Sesbania punicea*). *Invasive Plant Science and Management* 9:261-271.
- Orr, B. K., Z. E. Diggory, **G. C. Coffman**, W. A. Sears, T. L. Dudley, and A. G. Merrill. 2011. Riparian vegetation classification and mapping: Important tools for large-scale river corridor restoration in a semi-arid landscape. Pages 212-232 in J. W. Willoughby, B. K. Orr, K. A. Schierenbeck and N. Jensen, editor. *Proceedings of the CNPS Conservation Conference: Strategies and Solutions*. 17-19 January 2009. CNPS, Sacramento, California.
- Coffman, G. C.** & R. F. Ambrose. 2011. *Santa Clara River Riparian Revegetation and Monitoring Handbook*. Santa Clara River Trustee Council, US Fish and Wildlife Service, and California Department of Fish and Game. July 15, 2011.
- Beller, E.E., R.M. Grossinger, M.N. Salomon, S. Dark, E. Stein, B. Orr, P. Downs, T. Longcore, **G.C. Coffman**, A.A. Whipple, R.A. Askevold, B. Stanford, & J. Beagle. 2011. *Historical ecology of the lower Santa Clara River, Ventura River and Oxnard Plain: An analysis of terrestrial, riverine, and coastal habitats*. Prepared for the State Coastal Conservancy. *A Report of SFEI's Historical Ecology Program*. SFEI Publication #641, San Francisco Estuary Institute, Oakland, CA. August 2011. 273pp.
- Coffman, G.C.**, R.F. Ambrose, and P.W. Rundel. 2010. Wildfire promotes giant reed (*Arundo donax*) invasion in riparian ecosystems. *Biological Invasions*. 12:2723-2734.
- Coffman, G.C.** March 2007. Factors influencing invasion of giant reed (*Arundo donax*) in Riparian Ecosystems of Mediterranean-type climate Regions. Dissertation. UCLA
- Coffman, G.C.**, T. Dudley, P.W. Rundel, and R.F. Ambrose. 2005. Are we creating the ideal conditions for *Arundo donax* invasion in California? In G. Skurka, (ed.). *Proceedings of the California Invasive Plant Council Symposium*. 9:9
- Coffman, G.C.**, R.F. Ambrose, and P.W. Rundel. 2004. Invasion of *Arundo donax* in river ecosystems of mediterranean climates: Causes, impacts and management strategies. *Proceedings of the 10th Medecos International Conference, Rhodes, Greece*. Millpress Science Publishers, Netherlands and In, C. Piroosko, (ed.). *Proceedings of the California Invasive Plant Council Symposium*. 8:15
- Coffman, G.C.**, and R. Knight. 2004. Giant reed eradication project would provide economic benefits to impoverished communities (South Africa). *Ecological Restoration*. 22(2):146-7
- Coffman, G.C.** 2004. Invasion of *Arundo donax* in riparian ecosystems of Mediterranean-type climates:
- Coffman, G.C.** & J. Zentner. 1999. Shifts in distribution of rough cocklebur (*Xanthium strumarium*) after a riparian restoration (Green Valley Creek, California). *Ecological Restoration* 17(4):241
- Coffman, G.C.** 1998. Natural and restored salt marsh soil seed banks in San Francisco Bay. M.A. Thesis, SFSU.
- Coffman, G.** 1998. The soil seed bank of restored and historic salt marshes in San Francisco Bay, California: A comparative study. *Proceedings of the VII International Congress of Ecology*, held July 19-25, 1998 in Florence, Italy, A. Farina, J. Kennedy and V. Bossu, Editors, Florence, Italy.
- Gibb, D.M. and **G.C. Coffman**. 1993. Soil saturation determination for wetland mitigation monitoring using "rusty rods" - a case study. *Georgia Water Resources Conference Proceedings*. University of Georgia, Athens, Georgia.