

Amy K. Langston, PhD  
Curriculum Vitae  
amyklangston.com

**CURRENT POSITION**

2021-Present Director of Restoration and Research, Mojave Desert Land Trust, Joshua Tree, CA

**EDUCATION**

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|-----|--|------|
| PhD | Environmental Engineering, University of Florida                                       | 2018 |
| MS  | Biology, San Francisco State University  | 2008 |
| BS  | Ecology & Systematic Biology, California Polytechnic State University, San Luis Obispo | 2002 |

**PUBLICATIONS**

- Messerschmidt, T., **Langston, A.K.**, Kirwan, M.L. 2021. Asymmetric root distributions reveal press-pulse responses in retreating coastal forests. *Ecology* 102: e03468. DOI: 10.1002/ecy.3468.
- Langston, A.K.**, Coleman, D.J., Shawler, J.L., Jung, N.W., Smith, A.J., Williams, B.L., Wittingham, S., Chambers, R.M., Kirwan, M.L. 2021. The effect of marsh age on ecosystem function in a rapidly transgressing marsh. *Ecosystems* 1-13. DOI: 10.1007/s10021-021-00652-6.
- Langston, A.K.**, Alexander, C.R., Alber, M., Kirwan M.L. 2021. Beyond 2100: Long-term vulnerability of a salt marsh to sea level rise in Georgia, USA. *Estuarine, Coastal and Shelf Science* 249: 107093. DOI: 10.1016/j.ecss.2020.107093.
- Langston, A.K.** and Kaplan, DA. 2020. Modelling the effects of climate, predation, and dispersal on the poleward range expansion of black mangrove (*Avicennia germinans*). *Ecological Modelling* 434: 109245. DOI: 10.1016/j.ecolmodel.2020.109245.
- Langston, A.K.**, Durán Vinent, O., Herbert, E. R., Kirwan, M.L. 2020. Modeling long-term salt marsh response to sea level rise in the sediment-deficient Plum Island Estuary, MA. *Limnology and Oceanography* 65:2142-2157. DOI: 10.1002/lno.11444.
- Osland, M.J., Day, R.H., Hall, C.T., Feher, L.C., Armitage, A.R., Cebrian, J., Dunton, K.H., Hughes, A.R., Kaplan, D.A., **Langston, A.K.**, Macy, A., Weaver, C.A., Anderson, G.H., Cummins, K., Feller, I.C., Snyder, C.M. 2020. Temperature thresholds for black mangrove (*Avicennia germinans*) freeze damage, mortality, and recovery in North America: refining tipping points for range expansion in a warming climate. *Journal of Ecology* 108: 654-665. DOI: 10.1111/1365-2745.13285.
- Langston, A.K.**, Kaplan, D.A., Putz, F. 2017. A casualty of climate change? Loss of freshwater forest islands on Florida's Gulf Coast. *Global Change Biology* 23: 5383-5397. DOI: 10.1111/gcb.13805.
- Langston, A.K.**, Kaplan, D.A., Angelini, C. 2017. Predation restricts black mangrove (*Avicennia germinans*) colonization at its northern range limit along Florida's Gulf Coast. *Hydrobiologia* 803: 317-331. DOI: 10.1007/s10750-017-3197-0.
- In Preparation
- Langston, A.K.**, Gedan, K.B, Kirwan, M.L. *In preparation*. Vegetation reassembly in retreating coastal forests of the Chesapeake Bay.
- Townsend, T., **Langston, A.K.**, Kaplan, D.A. *In preparation*. Grazing by marsh periwinkle (*Littoraria irrorata*) facilitates mangrove encroachment in cordgrass (*Spartina alterniflora*) dominated salt marsh.

**GRANT AWARDS, DONATIONS, AND FELLOWSHIPS**

- 2021 Bureau of Land Management Plant Conservation and Restoration Management Grant (\$49,990)
- 2021 California Department of Fish & Wildlife, Environmental Enhancement Fund Grant (\$252,115)
- 2021 California State Parks, Off-Highway Vehicle Restoration Grant (\$217,608)
- 2021 Private donation to create the MDLT Prairie Falcon Conservation Program (\$55,770)
- 2017 Student Travel Grant Award, UF Wetlands Club
- 2016 Best Student Oral Presentation, National Conference on Ecosystem Restoration (\$100)
- 2016 Student Travel Grant Award, Society of Wetland Scientists (\$500)
- 2016 Student Travel Grant Award, UF Wetlands Club
- 2015 H.T. Odum Fellowship, Engineering School of Sustainable Infrastructure and Environment, University of Florida (\$1,500)
- 2015 Student Travel Grant Award, Society of Wetland Scientists (\$500)
- 2015 First Place Student Poster Competition, American Water Resources Association (\$400)
- 2013 Academic Scholarship, Engineering School of Sustainable Infrastructure and Environment, University of Florida (\$3,000)
- 2013 University of Florida Graduate School Fellowship (\$148,306)

**SELECTED CONFERENCE PRESENTATIONS & POSTERS**

- Langston, A.K., Coleman, D.J., Shawler, J.L., Schieder, N.W., Smith, A.J., Williams, B.L., Wittingham, S., Kirwan, M.L. 2020. The effect of marsh age on ecosystem function in a rapidly transgressing marsh. American Geophysical Union Fall Meeting, December 1-17, Virtual. (Talk)
- Langston, A., Herbert, E., Duran Vinent, O., Kirwan, M. 2019. Buying time: elevation capital extends life of marshes in the sediment-deficient Plum Island Estuary, MA. Coastal & Estuarine Research Federation Biennial Meeting, November 3-7, Mobile, AL. (Talk)
- Langston, A., Herbert, E., Duran Vinent, O., Kirwan, M. 2018. Modeling Long-term Salt Marsh Response to Sea Level Rise and Human Impacts in the Sediment-deficient Plum Island Estuary, MA. American Geophysical Union Fall Meeting, December 10-14, Washington, DC. (Poster)
- Langston, A. and D. Kaplan. 2018. Modeling the Effects of Climate Change and Predation on Northward Expansion of Black Mangroves (*Avicennia germinans*) into Temperate Salt Marsh. UF Water Institute Symposium, February 6-7, Gainesville, FL. (Poster)
- Langston, A. and D. Kaplan. 2017. Propagule density threshold for overcoming predation pressure in areas of black mangrove (*Avicennia germinans*) expansion. Society of Wetland Scientists, June 5-8, Puerto Rico. (Talk)
- Langston, A., T. Ankersen, and D. Kaplan. 2017. Natural Resource Adaptation Action Areas: Incorporating sea level rise adaptation into rural coastal community comprehensive planning. UF Levin College of Law 23rd Annual Public Interest Environmental Conference, February 9-11, Gainesville, FL. (Talk)
- Langston, A., D. Kaplan, and C. Angelini. 2017. Biotic and abiotic controls on the northern range expansion of black mangroves (*Avicennia germinans*). UF/IFAS Nature Coast Biological Station Big Bend Science Symposium, February 1-3, Cedar Key, FL. (Talk)
- Langston, A., T. Ankersen, and D. Kaplan. 2017. Preparing For the Future: Integrating Science into Rural Coastal Community Comprehensive Planning. UF/IFAS Nature Coast Biological Station Big Bend Science Symposium, February 1-3, Cedar Key, FL. (Poster)
- Langston, A. and D. Kaplan. 2016. Planning for the future: climate change-induced reassembly trajectories along the Big Bend coast of Florida. Society of Ecological Restoration, Southeast Chapter Annual Symposium October 18-21, Quincy, FL. (Talk)
- Langston, A. and D. Kaplan. 2016. Top-down ecological controls limit climate change induced expansion of black mangroves (*Avicennia germinans*). Ecological Society of America Annual Meeting, August 7-12, Fort Lauderdale, FL. (Talk)
- Langston, A. and D. Kaplan. 2016. Investigating top-down and bottom-up influences on black mangrove (*Avicennia germinans*) encroachment in forested freshwater islands along the Big Bend coast of Florida. 4th Mangrove & Macrofauna Meeting, July 18-22, St. Augustine, FL. (Poster and Lightning Talk)
- Langston, A. and D. Kaplan. 2016. Patterns of coastal forest decline and expansion along the Big Bend coast of Florida. Society of Wetland Scientists Annual Meeting, May 31-June 4, Corpus Christi, TX. (Talk)

- Langston, A., T. Ankersen, and D. Kaplan. 2016. Natural Resource Adaptation Action Areas: A planning framework for restoration. National Conference on Ecosystem Restoration, April 18-22, Coral Springs, FL. (Talk) \*Awarded Best Student Oral Presentation
- Langston, A. and D. Kaplan. 2016. Investigating top-down and bottom-up influences on black mangrove (*Avicennia germinans*) encroachment in forested freshwater islands along the Big Bend coast of Florida. UF/IFAS Nature Coast Biological Station Big Bend Science Symposium, January 28-29, Cedar Key, FL. (Talk)
- Langston, A. and D. Kaplan. 2015. A casualty of climate change: long-term vegetation trends in a patchy coastal wetland. Society of Wetland Scientists Annual Meeting, May 31-June 4, Providence, RI. (Talk)
- Langston, A. and D. Kaplan. 2015. A Casualty of Climate Change: Long-term Vegetation Trends in a Patchy Coastal Wetland. American Water Resources Association: Annual Southwest Florida Water Resources Conference, February 6, Fort Myers, FL. (Poster) \*Awarded 1<sup>st</sup> Place in Student Poster Competition
- Langston, A., D. Kaplan, T. Ankersen, N. Barshel, S. Fida, and G. Davidson. 2014. Using blue infrastructure, adaptation science, and education-based tourism to drive a sustainable economy in a rural coastal community. National Oceanic and Atmospheric Administration Coastal Services Center Social Coast Forum, February 18-20, Charleston, SC. (Talk)

## RESEARCH PROJECTS

- 2022-Present MDLT project: developing a spatial model to identify and prioritize climate refugia for conservation within the 25-million-acre California Desert Conservation Area
- 2022-Present MDLT project: post-fire restoration study testing strategies to promote Joshua tree recruitment and control non-native plant species following a 2020 wildfire in a Joshua tree woodland
- 2021-Present MDLT project: restoration project to restore 5 perennial spring sites in Kern County, CA damaged by off-highway vehicle activity and implement a long-term monitoring program that contributes to regional hydrology, vegetation, and avifauna datasets
- 2020-Present Postdoctoral research: evaluated vegetation turnover in developing ghost forests around Chesapeake Bay using field data
- 2020-2021 Postdoctoral research: investigated adaptive responses of red cedar (*Juniperus virginiana*) to press-pulse disturbances (sea level rise and coastal storms) using field data
- 2019-2021 Postdoctoral research: evaluated the effects of salt marsh migration on ecosystem function when marsh replaces coastal forests using field and GIS data
- 2018-2020 Postdoctoral research: modeled long-term responses of salt marshes in MA and GA to sea level rise using a landscape-scale, spatially explicit salt marsh accretion model
- 2017-2018 PhD research: modeled black mangrove range expansion under scenarios of climatic, biotic, and dispersal controls using a stage-based population model
- 2017 Mentor project with UF undergrad: investigated effects of snail grazing on red and black mangrove encroachment into salt marsh using field and greenhouse experimentation
- 2015-2017 PhD research: examined predation pressure on poleward range expansion of black mangroves using field experimentation
- 2014-2019 Mangrove Migration Network: investigated effects of changing temperature regime on mangrove migration along southeastern US (collaboration with USGS)
- 2014-2017 PhD research: investigated coastal freshwater forest reassembly trajectories in response to sea level rise using field data and regional environmental data
- 2013-2014 SLR Adaptation in Yankeetown, FL: prepared a Sea Level Rise Adaptation Action Plan, organized a citizen science bioblitz, established a 17-acre Natural Resource Adaptation Action Area (collaboration with UF Levin College of Law Conservation Clinic)
- 2004-2008 Master's thesis: "Population dynamics of *Cameraria sempervirensella* (Lepidoptera: Gracillariidae) in the Sierra Nevada"
- 2003-2005 CALFED Integrated Regional Wetland Monitoring Pilot Project in San Francisco Bay-Delta (collaboration with SFSU, University of San Francisco, UC Berkeley)
- 2002-2003 Environmental Monitoring and Assessment Program (EMAP) for San Francisco Bay Area wetlands (collaboration with SFSU and San Francisco Estuary Institute)

## **WORK EXPERIENCE (NON-TEACHING)**

- 2018-2021 Postdoctoral Research Associate, Virginia Institute of Marine Science, William & Mary, Gloucester Point, VA
- 2013-2018 Graduate Research Assistant, University of Florida, Gainesville, FL
- 2011-2013 Senior wetland scientist, URS Corporation, Oakland, CA
- 2005-2010 Wetland ecologist and botanist, WRA, Inc., San Rafael, CA
- 2003-2004 Seasonal biological technician, National Park Service, Pt. Reyes National Seashore, CA
- 2001-2002 Seasonal biological technician, U.S. Forest Service, Modoc National Forest, CA

## **TEACHING EXPERIENCE**

### **University of Florida, Gainesville, FL**

- Ecological Engineering Lecture (Graduate Teaching Assistant, Spring Terms 2016-2017)
- Ecological Engineering Lab (Graduate Teaching Assistant, Spring 2015)
- Applied Ecology (Graduate Teaching Assistant, Spring 2014)

### **Holy Names University, Oakland, CA**

- Fundamentals of Physiology (Adjunct Instructor, Spring & Fall 2005)

### **San Francisco State University, San Francisco, CA**

- Plant Taxonomy (Graduate Teaching Assistant, Spring 2005)
- Introductory Biology II Lab (Graduate Teaching Assistant, Fall 2003 & 2004, Spring 2004)
- Human Biology Lab (Graduate Teaching Assistant, Spring 2003)
- General Microbiology Lab (Graduate Teaching Assistant, Fall 2002, Spring 2003)

### **California Polytechnic State University, San Luis Obispo, CA**

- Introductory Statistics (Undergraduate Teaching Assistant, Fall 2000, Spring 2001)
- Statistics: Survey and Sampling Techniques (Undergraduate Teaching Assistant, Fall 2001)

## **PROFESSIONAL & ACADEMIC SERVICE**

- 2021 Guest Lecturer, Natural Resource Ecology & Habitat Management undergraduate course at Cal Poly, San Luis Obispo; lecture titled “Ecology in Action: Restoration and Conservation in the Mojave Desert”
- 2021 Co-chair of conference session, “Transgression and other climate-driven shifts in coastal landscapes”, Coastal & Estuarine Research Federation Biennial Meeting, November 2
- 2017-2020 Peer reviewer for Ecological Engineering, Ecological Modelling, Environmental Research Letters, Estuaries and Coasts, Estuarine, Coastal and Shelf Science, Journal of Ecology, Marine Ecological Progress Series, Mississippi-Alabama Sea Grant Consortium, Torrey Botanical Society
- 2017 Mentor to undergraduate intern, UF/IFAS Nature Coast Biological Station summer internship program
- 2017 Member of the Editorial Board, UF *Journal of Undergraduate Research*
- 2016-2017 Member, UF Women in Science and Engineering (WiSE) Club
- 2016 Event Panelist, UF Engineering School of Sustainable Infrastructure and Environment (ESSIE) Mentoring Program for Undergraduates
- 2014-2015 Member, UF Engineering Graduate Student Council
- 2014 Student Interviewer, UF College of Engineering Search for Associate Dean for Academic Affairs

## **COMMUNITY INVOLVEMENT**

- 2021 Organized a tour for scientists from USFWS, USGS and conservation partners highlighting restoration plans at Palisades Ranch, Oro Grande, CA.
- 2021 Assisted with MDLT volunteer events (trash removal and desert tortoise monitoring), Joshua Tree, CA.
- 2019 Presenter at Coastal SEES Charettes discussing model results for the Plum Island Estuary, (May 6, Newburyport, MA) and Georgia Coastal Ecosystems marsh (October 28, Brunswick, GA).
- 2017 Volunteer for WiSE Girls Spring Science Camp for 6<sup>th</sup> and 7<sup>th</sup> grade girls, Gainesville, FL.

- 2017 Speaker for Friends of the Withlacoochee Gulf Preserve Talk Series: Effects of Climate Change and Crabs on Mangrove Colonization Along the Nature Coast. March 17, Yankeetown, FL.
- 2016 Field Trip Leader for Florida Fish & Wildlife Conservation Commission Climate Change Workshop, Withlacoochee Gulf Preserve, Yankeetown, FL.
- 2015 Speaker for Alachua Conservation Trust Fall Speaker Series: A Casualty of Climate Change: Long-Term Vegetation Trends in a Patchy Coastal Wetland. October 15, Gainesville, FL.
- 2014 Organizer for citizen-science bioblitz at the Withlacoochee Gulf Preserve, March 15-16, Yankeetown, FL.

**MEDIA COVERAGE**

- 2020 Everything's Changing Podcast interview (January 21, 2021)
- 2017 New Republic magazine feature "States of Denial" (October 5, 2017)
- 2016 UF Explore Magazine feature "Big Bend Laboratory" (Summer 2017)
- 2015-2016 Florida Museum of Natural History featured exhibit "Our Changing Climate: Sea Level Rise"

**RELATED PROFESSIONAL TRAINING**

- 2017 NEON Data Institute: Remote Sensing with Reproducible Workflows workshop, Boulder, CO (Attendee)
- 2017 MARSFest 2017: Introduction to the Multi Agent Research and Simulation (MARS) Platform for Large Scale Agent Simulation, Gainesville, FL (Attendee)

**RELATED PROFESSIONAL SKILLS**

Proficient in R, MATLAB, ArcGIS, PC-ORD  
Experience using Python, Jupyter Notebooks, GitHub, MARS, NETLOGO