Jaycie C. Fickle

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Google Scholar

Education

Ph. D Ecology, Evolution, and Organismal Biology — 2020 – present
University of Utah; Advisor: William. R. L. Anderegg

M.S. Biology — 2018 – 2020
California State University, Bakersfield; Advisor: Anna L. Jacobsen
Thesis: *Xylem structure and hydraulic function in the roots and stems of chaparral shrub species that occur at high and low elevation sites in the Sierra Nevada.*

B.S. Biology; Chemistry minor; Magna Cum Laude — 2014 – 2018
California State University, Bakersfield

Professional Interests

Plant ecophysiology, plant hydraulics, woody plant anatomy, plant structure-function, plant isotopes, field research, greenhouse and common garden research, photosynthesis, global change biology, Mediterranean-type ecosystems, tree and shrub physiology, forest dynamics, ecological modeling, environmental and climatic gradients, social and environmental justice, genetic-environmental interactions.

Research Experience

Student Research Assistant; Lab of Dr. William R. L. Anderegg — 2020 – present
Ecosystem Studies in a Changing Climate

NEON Research Associate — 2020 – present

Student Research Assistant; Lab of Dr. Anna L. Jacobsen — 2016 – 2020
Woody Plant Physiology and Anatomy

Professional Experience

Teaching Experience

Instructor: IN; Teaching Assistant: TA

Week-long plant physiology training course, **IN**, University of Utah — 2022
Fundamentals of Biology- Ecology and Evolution, **TA**, University of Utah — 2021

Global Environmental Issues, **TA**, University of Utah	2020
Principles of Ecology, **TA**, CSU, Bakersfield	2019
Organic Chemistry, **TA**, CSU, Bakersfield	2017

Guest Lectures

Drought and damages to xylem, University of Utah, Introduction to Plant Biology	2023
Indigenous peoples and the impact of climate change Global Environmental Issues - Social Justice Section	2022
Climate change discussion and Q&A, University of Utah, Biology in the 21st Century course	2021

Mentorship

Research assistant: RA; Summer Program for Undergraduate Research: SPUR

Anna Fowles, Undergraduate RA	2023 – present
Hailey Wells, Undergraduate Senior Thesis Research	2022 – present
Derek Kober, Undergraduate Senior Thesis Research	2022 – present
Tegan Lengyel, Lab manager	2022 – present
Lillie Congram. Undergraduate RA	2022 – present
Katya Podkovyroff Lewis, Undergraduate RA	2022 – present
Megan Duval, Undergraduate RA	2022 – 2023
Ainsley Nystrom, Undergraduate RA	2022 – present
Marco Castaneda Martinez, SPUR student	2022
Karrin Tennant, Undergraduate RA; Lab manager	2021 – 2022
April Radford, SPUR student	2021
J. Clista Galecki, Undergraduate RA, Undergrad Senior Thesis Research	2021 – present

Publications

10 total; manuscripts under review available upon request

Fickle, J.C, R.B. Pratt, and A.L. Jacobsen. 2023. Xylem structure and hydraulic function in roots and stems of chaparral shrub species from high and low elevation in the Sierra Nevada, California. *In Review.*

Ennajeh, M., M. Coleman, **J.C. Fickle**, V. Castro, R.B. Pratt, and A.L. Jacobsen. 2023. Xylem structure and function of two saltbush shrub species (*Atriplex*) from differing microhabitats. *In Review*.

Kerr, K.L., **J.C. Fickle,** W.R.L. Anderegg. 2022. Decoupling of functional traits from intraspecific patterns of growth and drought stress resistance. *Accepted to New Phytologist*.

Valdovinos-Ayala, J., C. Robles, **J.C. Fickle**, G. Perez-de-Lis, R. B. Pratt, and A.L. Jacobsen. 2022. Seasonal pattens of growth, vessel development, and hydraulic function in deciduous tree species. Annals of Botany 130: 355-365.

Baer, A.B., **J.C. Fickle**, J. Medina, C. Robles, R.B. Pratt, and A.L. Jacobsen. 2021. Xylem biomechanics, water storage, and density within roots and shoots of an angiosperm tree species. Journal of Experimental Botany 72: 7984-7997.

Percolla, M.I., **J.C. Fickle,** F.D. Rodriguez-Zaccaro, R.B. Pratt, and A.L. Jacobsen. 2021. Hydraulic function and conduit structure in the xylem of five oak species. International Association of Wood Anatomists Journal 42: 279-298.

Jacobsen, A.L., **J.C. Fickle**, V. Castro, A. Madsen, M. Ennajeh, and R.B. Pratt. 2020. Node frequency alters stem biomechanics and hydraulics in four deciduous woody species. Journal of Wood Science 66: 26. https://doi.org/10.1186/s10086-020-01873-4.

Pratt, R.B., V. Castro, **J.C. Fickle**, A. Madsen, and A.L. Jacobsen. 2020. Factors controlling drought resistance in grapevine (*Vitis vinifera*, chardonnay): application of a new microCT method to assess functional embolism resistance. American Journal of Botany 107: 1-10.

Pratt, R.B., V. Castro, **J.C. Fickle**, and A.L. Jacobsen. 2019. Embolism resistance of different aged stems of a California oak species (*Quercus douglasii*): optical and microCT methods differ from the benchtop-dehydration standard. Tree Physiology 40: 5-18.

Venturas, M.D., R.B. Pratt, A.L. Jacobsen, V. Castro, **J.C. Fickle**, and U.G. Hacke. 2019. Direct comparison of four methods to construct xylem vulnerability curves: differences among techniques are linked to vessel network characteristics. Plant, Cell, and Environment 42: 2422-2436.

Grants and Scholarships

A. Herbert Gold and Marian W. Gold Scholarship**- $2,500**	2022
Travel Support for Student Research- **$160**	2019
CSUB CREST fellow- **$64,000**	2018 – 2020
Tejon Ranch Conservancy Research Scholarship**- $1,500**	2018
CSUB Student Research Scholars Program**- $2,000**	2017 – 2018

Honors and Awards

Western Association of Graduate Schools and ProQuest Distinguished Master's award In STEM Disciplines	2021 – 2022
Outstanding Graduate Student of the School, CSUB NSME	2021
Biology Graduate Student of the Year, CSUB	2021
CSUB Student Research Competition 1st Place graduate presentation	2020
CSUB Student Research Competition 1st Place graduate presentation	2019
CSUB Student Research Competition 1st Place undergraduate presentation	2017

Posters and Presentations

Professional Meetings and Conferences

Fickle, J.C., and W.R.L Anderegg. 2022. Accumulation of damages in xylem along a climatic gradient. Poster presentation. Multiscale Plant Vascular Biology Gordon Research Conference (Maine, USA).

Fickle, J.C. 2021. Xylem structure and hydraulic function in the roots and stems of chaparral shrub species that occur at high and low elevation sites in the southern Sierra Nevada mountains, California. Oral Presentation. Western Association of Graduate Schools Conference (Virtual).

Fickle, J.C. and A.L. Jacobsen. 2020. Xylem structure and hydraulic function in the roots and stems of chaparral species in the Sierra Nevada. Oral Presentation. CSU Systemwide Student Research Competition (Virtual).

Fickle, J.C., R.B. Pratt, and A.L. Jacobsen. 2019.Risk of Freeze-thaw induced vascular system damage in chaparral shrubs at low and high elevation. Oral presentation. California Botanical Society Graduate Symposium, (Cal Poly San Luis Obispo, USA).

Fickle, J.C., and A.L. Jacobsen. 2019. Risk of Freeze-thaw induced vascular system damage in chaparral shrubs at low and high elevation. Oral presentation. CSU Systemwide Student Research Competition (CSU Fullerton, USA).

Fickle, J.C. and A.L. Jacobsen. 2017. Vessel-to-vessel pit membrane area is correlated with hydraulic transport traits in *Populus trichocarpa*. Oral presentation. CSU Systemwide Student Research Competition (Cal Poly San Luis Obispo, USA).

Departmental Seminars and Invited Talks

Fickle, J.C. 2023. Do repeated droughts lead to an accumulation of xylem damages? Oral Presentation. Invited Talk (Autonomous University of Barcelona, Spain).

Fickle, J.C. 2022. Accumulation of damages in xylem along a climatic gradient. Oral Presentation. Departmental Seminar (University of Utah, USA).

Fickle, J.C. 2022. Accumulation of damages in xylem along a climatic gradient. Poster Presentation. Biology Science Retreat (University of Utah, USA).

Fickle, J.C. 2020. Xylem structure and hydraulic function in the roots and stems of chaparral shrub species that occur at high and low elevation sites in the southern Sierra Nevada mountains, California. Oral Presentation. Department Thesis Presentation (Virtual).

Fickle, J.C and A.L. Jacobsen. 2018. Hydraulic transport in the apical branches of poplar trees of varying tree height. Oral Talk and Poster Presentation. Schoolwide Research Competition (CSU Bakersfield, USA)

Professional Service

I got my Master's. Now what? Graduate Alumni Panel, CSUB	2023
University of Utah School of Biological Sciences Safety Committee	2022 – present
Graduate Student Advisory Committee, University of Utah, Department of Biology	2022– present
CSUB Grad Slam Judge	2022

CSUB Graduate Studies Summit Panelist	2022
STEM Ambassador Program	2022
Skype a Scientist, Volunteer Participant	2021 – present
CSUB Graduate Student Fellowship, President	2019 – 2020

Public outreach

Public poster session about the microbiome	2019
Public poster session about plastic pollution in our community	2018
Chemistry outreach for afterschool program elementary students	2017

Contributions to Diversity, Equity, and Inclusion in STEM

Committee for Representation, Engagement, Equity, and Social Justice, University of Utah, Department of Biology	2021 – 2022
Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) NDiSTEM Conference volunteer	2022

Manuscript reviews

1 total: New Phytologist

Professional Memberships

Southern California Botanical Society	2019-2020
California Native Plant Society	2019-2020
Bakersfield Cactus and Succulent Society	2018-2020

Skills

Statistical packages, software, and programming skills

R, Python, Minitab, Microsoft Office Suite, ImageJ, Axiovision, ArcGIS, QGIS, Sperry Model

Instrumentation

Li-Cor Environmental: LI-6400 XT/LI-6800 Portable Photosynthesis System, LI 3100C Leaf Area Meter.
PMS Instruments: Pressure chamber instrument Model 600, 600D, 670, 1000, 1505D, and 1505D-EXP.
Zeiss Microimaging: Axio Imager D2 light microscope, Zeiss Stereo Discover V.12 UV fluorescence dissecting scope.
Meter Group Inc. : SC-1 Leaf Porometer, TEROS 11 Soil moisture and temperature sensor, WP4C Dewpoint PotentiaMeter.
Costech Analytical Technologies, INC: ECS 4010- CHNS-O Elemental Combustion System.

Bruker Corporation: Model 2211 MicroCT system.

Methods

Plant hydraulic apparatus, centrifuge method, air-injection, active xylem staining, mortality surveys, light and UV microscopy, silicon injection vessel length method, plant elemental analysis, tree ring isotope methods, tree coring.