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Education

2013	School of Natural Resources and Environment, The University of Arizona	Tucson, AZ
	➢ Doctor of Philosophy Watershed Management	
	➢ Remote Sensing & Spatial Analysis Minor	
	➢ Dissertation "*Cordilleran forest scaling dynamics and disturbance regimes quantified by aerial lidar*"	
2006	School of Natural Resources and Environment, The University of Arizona	Tucson, AZ
	➢ Master of Science Watershed Management	
	➢ GIS Technical Certificate	
	➢ Thesis "*Fire Regime Condition Class Accuracy: A comparison to tree-ring fire histories*"	
2002	Ecology and Evolutionary Biology, The University of Arizona	Tucson, AZ
	➢ Bachelor of Science	

Professional Preparation

2019 –	BIO5 Institute, The University of Arizona	Tucson, AZ
	➢ *Research Assistant Professor of Geoinformatics*	
2016 – 2018	BIO5 Institute, The University of Arizona	Tucson, AZ
	➢ *Science Informatician,* CyVerse	
2015 – 2016	School of Natural Resources and Environment, The University of Arizona	Tucson, AZ
	➢ *Associate Research Scientist,* Remote Sensing & Ecohydrology	
2015	Department of Geology and Geophysics, University of Utah	Salt Lake City, UT
	➢ *Research Associate,* Remote Sensing & Ecohydrology	
2014 – 2015	Department of Geosciences, The University of Arizona	Tucson, AZ
	➢ *Postdoctoral Associate,* Santa Catalina-Jemez Critical Zone Observatory	
2012 – 2013	School of Natural Resources and Environment, THe University of Arizona	Tucson, AZ
	➢ *Graduate Research Assistant,* Remote Sensing	
2008 – 2012	Coronado National Forest, The United States Forest Service	Tucson, AZ
	➢ *Fire Management Specialist,* Supervisor's Office	
2008 – 2012	Laboratory of Tree Ring Research, The University of Arizona	Tucson, AZ
	➢ *Graduate Research Assistant,* Dendroecology, Fire History	
2006 – 2008	School of Natural Resources and Environment, The University of Arizona	Tucson, AZ
	➢ *Graduate Teaching Assistant,* Introduction to Wildland Fire	

2005 – 2006 Ecology and Evolutionary Biology, University of Arizona — Tucson, AZ
- ➢ *Graduate Teaching Assistant,* Introductory Biology

2005 – 2006 Rocky Mountain Tree Ring Research — Fort Collins, CO
- ➢ *Research technician,* Fire History

2002 – 2005 Saguaro National Park — Tucson, AZ
- ➢ *Forestry Technician,* Fire Crew and Fire Use Module

Awards

- ➢ Scholarly Achievement Award, School of Natural Resources and Environment 5/2014
- ➢ Kel M. Fox Award Outstanding Graduate in Watershed Management 9/2012
- ➢ President's award UA Grad. & Professional Student Council: Best graduate exhibit 12/2009
- ➢ School of Natural Resources and Environment Graduate Teaching Assistant of the Year 5/2009

Professional Societies

- ➢ American Geophysical Union (AGU), Ecological Society of America (ESA), Critical Zone Exploration Network (CZEN), Association for Fire Ecology (AFE), Earth Science Information Partners (ESIP).

Peer-Reviewed Publications

31. Nagy, R.C., J.K. Balch, E.K. Bissell, M.E. Cattau, et. al. (2021) Harnessing the NEON data revolution to advance open environmental science with a diverse and data-capable community. Ecosphere 12(12):e03833. 10.1002/ecs2.3833
30. Rengers F.K., L.A. McGuire, J.W. Kean, D.M. Staley, et.al. (2021) Movement of sediment through a burned landscape: Sediment volume observations and model comparisons in the San Gabriel Mountains, California, USA - Journal of Geophysical Research: Earth Surface, 2021 https://doi.org/10.1029/2020JF006053
29. Guo, W., M.E. Carroll, A. Singh, et.al. (2021) UAS-Based Plant Phenotyping for Research and Breeding Applications. Plant Phenomics, vol. 2021, Article ID 9840192, 21 pages, 2021. https://doi.org/10.34133/2021/9840192
28. Sahneh, F., M.A. Balk, M. Kisley, et al. (2021) Ten simple rules to cultivate transdisciplinary collaboration in data science. PLoS Comput Biol 17(5): e1008879. https://doi.org/10.1371/journal.pcbi.1008879
27. Swetnam, T.L., S.R. Yool, S. Roy, D.A. Falk (2021) On the Use of Standardized Multi-Temporal Indices for Monitoring Disturbance and Ecosystem Moisture Stress across Multiple Earth Observation Systems in the Google Earth Engine. Remote Sens. 2021, 13, 1448. https://doi.org/10.3390/rs13081448
26. Gillan, J. K., Ponce-Campos, G. E., Swetnam, T. L., Gorlier, A., Heilman, P., & McClaran, M. P. (2021). Innovations to expand drone data collection and analysis for rangeland monitoring. Ecosphere, 12(7). https://esajournals.onlinelibrary.wiley.com/doi/10.1002/ecs2.3649
25. Martínez-Meyer, E., A. González-Bernal, J.A. Velasco, et al. (2020) Rangewide habitat suitability analysis for the Mexican wolf (*Canis lupus baileyi*) to identify recovery areas in its historical distribution. Divers Distrib. 2020; 00: 1– 13. https://doi.org/10.1111/ddi.13222
24. Nüst, D., D. Eddelbuettel, D. Bennett, et al. (2020). The Rockerverse: Packages and Applications for Containerization with R. R Journal 08-2020. https://doi.org/10.32614/RJ-2020-007
23. Ponsero A., R. Bartelme, G. de Oliveira Almeida, A. Bigelow, R. Tuteja, H. Ellingson, T. Swetnam, N. Merchant, M. Oxnam, E. Lyons. (2020) Ten simple rules for organizing a data science workshop. PLoS Comput Biol 16(10): e1008226. https://doi.org/10.1371/journal.pcbi.1008226

22. Gedir, J.V., J.W. Cain, T.L. Swetnam, P.R. Krausman, & J.R. Mogart (2020) Extreme drought and adaptive resource selection by a desert mammal. *Ecosphere* *https://doi.org/10.1002/ecs2.3175*
21. Mitra, B., S.A. Papuga, M.R. Alexander, T.L. Swetnam, & N. Abramson (2019) Allometric relationships between primary size measures and sapwood area for six common tree species in snow-dependent ecosystems in the Southwest United States. *Journal of Forestry Research* 1-10. https://doi.org/10.1007/s11676-019-01048-y
20. Gillan, J., M.P. McClaran, T.L. Swetnam, & P. Heilman (2019) Estimating forage utilization with drone-based photogrammetric point clouds. *Journal of Rangeland Ecology & Management* https://doi.org/10.1016/j.rama.2019.02.009
19. Norman, L.M., J.B. Callegary, L. Lacher, N.R. Wilson, C. Fandel, B.T. Forbes, & T.L. Swetnam (2019) Modeling Riparian Restoration Impacts on the Hydrologic Cycle at the Babacomari Ranch, SE Arizona, USA. *Water* 11, 381. https://doi.org/10.3390/w11020381
18. Hancock, D., C. Stewart, M. Vaughn, J. Fischer, J.M. Lowe, G. Turner, T.L. Swetnam, T.K. Chafin, E. Afgan M.E. Pierce, & W. Snapp-Childs (2018) Jetstream—Early operations performance, adoption, and impacts. *Concurrency and Computation: Practice and Experience* https://doi.org/10.1002/cpe.4683
17. Perdrial, J., P.D. Brooks, T.L. Swetnam, K.A. Lohse, C. Rasmussen, M. Litvak, A.A. Harpold, X. Zapata-Rios, P. Broxton, B. Mitra, T. Meixner, K. Condon, D. Huckle, C. Stielstra, A. Vázquez-Ortega, R. Lybrand, M. Holleran, C. Orem, J.D. Pelletier, & J. Chorover (2018) A net ecosystem carbon budget for snow dominated forested headwater catchments: linking water and carbon fluxes to critical zone carbon storage. *Biogeochemistry* 138: 225. https://doi.org/10.1007/s10533-018-0440-3
16. Swetnam, T.L., J.K. Gillan, T.T. Sankey, M.P. McClaran, M.H. Nichols, P. Heilman, & J. McVay (2018) Considerations for Achieving Cross-Platform Point Cloud Data Fusion across Different Dryland Ecosystem Structural States. *Front. Plant Sci*. 8:2144. doi:10.3389/fpls.2017.02144
15. Pelletier J.D., G.A. Barron-Gafford, H. Guttierez-Jurado, E.L.S. Hinckley, E. Istanbulluoglu, L.A. McGuire, G.Y. Niu, M.J. Poulos, C. Rasmussen, P. Richardson, T.L. Swetnam, & G.E. Tucker (2018) Which way do you lean? Using slope aspect variations to understand Critical Zone processes and feedbacks. *Earth Surf. Process. Landforms*, doi:10.1002/esp.4306.
14. Evans, M.E.K., D.A. Falk, A. Arizpe, T.L. Swetnam, F. Babst, & K.E. Holsinger (2017) Fusing tree-ring and forest inventory data to infer influences on tree growth. *Ecosphere* 8(7):e01889. doi:10.1002/ecs2.1889
13. Swetnam, T.L., P.D. Brooks, H.R. Barnard, A.A. Harpold, & E.L. Gallo (2017) Topographically driven differences in energy and water constrain climatic control on forest carbon sequestration. *Ecosphere* 8(4):e01797. doi:10.1002/ecs2.1797
12. Pelletier, J.D., & T.L. Swetnam (2017) Asymmetry of weathering-limited hillslopes: the importance of diurnal covariation in solar insolation and temperature. *Earth Surf. Process. Landforms*, 42: 1408–1418. doi:10.1002/esp.4136.
11. Sankey, T.T., J. McVay, T.L. Swetnam, M.P. McClaran, P. Heilman & M. Nichols (2017) UAV hyperspectral and lidar data and their fusion for arid and semi-arid land vegetation monitoring. *Remote Sens Ecol Conserv.* doi:10.1002/rse2.44
10. Swetnam T.L.,C.D. O'Connor , & A.M. Lynch (2016) Tree morphologic plasticity explains deviation from metabolic scaling theory in semi-arid conifer forests, southwestern USA. *PLoS One* 11(7):e0157582. https://doi.org/10.1371/journal.pone.0157582
9. Swetnam, T.L., A.M. Lynch, D.A. Falk, D.P. Guertin, & S.R. Yool (2015) Discriminating disturbance from natural variation with LiDAR in semi-arid forests, Southwestern USA. *Ecosphere* 6(6):97. http://dx.doi.org/10.1890/ES14-00384.1
8. Harpold, A.A., J.A. Marshall, S.W. Lyon, T.B. Barnhart, B. Fisher, M. Donovan, K.M. Brubaker, C.J. Crosby, N.F. Glenn, C.L. Glennie, P.B. Kirchner, N. Lam, K.D. Mankoff, J.L. McCreight, N.P. Molotch, K.N. Musselman, J.D. Pelletier, T. Russo, H. Sangireddy, Y. Sjöberg, T.L. Swetnam & N. West (2015) Laser vision: lidar as a transformative tool to advance critical zone science. *Hydrology & Earth System Science* 19, 2881-2897. doi:10.5194/hess-19-2881-2015

7. Rasmussen, C., J.D. Pelletier, P.A. Troch, T.L. Swetnam & J. Chorover (2015) Quantifying topographic, vegetation, and disturbance effects on the transfer of energy and mass to the critical zone. *Vadose Zone* doi:10.2136/vzj2014.07.0102
6. Swetnam, T.L., D.A. Falk, A.M. Lynch & S.R. Yool (2014) Estimating individual tree mid-and understory rank-size distributions from airborne laser scanning in semi-arid forests. *Forest Ecology and Management* 330, 271-282. doi:10.1016/j.foreco.2014.07.011
5. Swetnam, T.L. & D.A. Falk (2014) Allometric scaling rules to limit commission error in aerial LiDAR forest inventories. *Forest Ecology and Management* 323, 158-167. doi: 10.1016/j.foreco.2014.03.016
4. Harpold, A.A., Q. Guo, N. Molotch, P.D. Brooks, R. Bales, J.C. Fernandez-Diaz, K.N. Musselman, and T.L. Swetnam, P. Kirchner, M. Meadows, J. Flanagan & R. Lucas (2014) LiDAR-Derived Snowpack Datasets from Mixed Conifer Forests Across the Western US. *Water Resources Research* 50(3), 2749-2755. doi:10.1002/2013WR013935
3. Pelletier, J.D., G.A. Barron-Gafford, D.D. Breshears, P.D. Brooks, J. Chorover, M. Durcik, C.J. Harman, T.E. Huxman, K.A. Lohse, R. Lybrand, T. Meixner, J.C. McIntosh, S.A. Papuga, C. Rasmussen, M. Schaap, T.L. Swetnam & P.A. Troch (2013) Coevolution of nonlinear trends in vegetation, soils, and topography with elevation and slope aspect: A case study in the sky islands of southern Arizona. *Journal of Geophysical Research: Earth Surface* 1-18. doi:10.1002/jgrf.20046
2. Swetnam, T.L., D.A. Falk, A. Hessl & C. Farris (2011) Reconstructing landscape pattern of historic fires and fire regimes. In The Landscape Ecology of Fire, editors D MacKenzie, DA Falk, C Miller. pp. 165-192. Springer Netherlands, 2011. doi:10.1007/978-94-007-0301-8_7
1. Swetnam, T.L. & P.M. Brown (2010) Comparing Fire Regime Condition Class (FRCC) Vegetation Models to Tree Ring Data. *International Journal of Wildland Fire* 19, 1-13. http://dx.doi.org/10.1071/WF08001

Pre-prints

Bartelme, R.P., et al. (2020) Do Androids Dream of Electric Sorghum?: Predicting Phenotypes from Multi-scale Genomic and Environmental Data Using Neural Networks and Knowledge Graphs. OSF Preprints, 18 Aug. 2020. Web. https://doi.org/10.31219/osf.io/yx7t9

Theses, Proceedings, Working Papers, & Technical Reports

Martínez-Meyer E., A. González-Bernal, J.A. Velasco, T.L. Swetnam, Z.Y. González-Saucedo, J. Servín, C.A. López González, N.E. Lara Díaz, C. Aguilar Miguel, C. Chávez García, and J.K. Oakleaf (2017) Mexican wolf habitat suitability analysis in historical range in the Southwestern US and Mexico. U.S. Fish and Wildlife Service, Region 2, Albuquerque, New Mexico, USA.

Swetnam, T.L., J.D. Pelletier, C. Rasmussen, N.R. Callahan, N. Merchant, E. Lyons, M. Rynge, Y. Liu, V. Nandigam & C. Crosby (2016) Scaling GIS analysis tasks from the desktop to the cloud utilizing contemporary distributed computing and data management approaches: A case study of project-based learning and cyberinfrastructure concepts. In Proceedings of the XSEDE16 Conference on Diversity, Big Data, and Science at Scale, p. 21. ACM, 2016.

Swetnam, T.L. & D.A. Falk (2015) Carbon Cycling in Southwestern Forests: Reservoirs, Fluxes, and the Effects of Fire and Management. ERI Working Paper #35. Flagstaff, AZ: Ecological Restoration Institute and Southwest Fire Science Consortium, Northern Arizona University. 15 p.

Swetnam, TL (2013) Cordilleran forest scaling dynamics and disturbance regimes quantified by aerial LiDAR. (Doctoral Dissertation, University of Arizona) 277 p.

Swetnam, T.L., D.P. Guertin, E. Canfield, & A. Kimoto (2013) Riparian vegetation characterization of the Lower Santa Cruz River and Ciénega Creek through remotely sensed multi-sensor data fusion. Addendum to the 'Historical Conditions of the Effluent-Dependent Santa Cruz River' Pima County.

O'Connor C.D., D.A. Falk, A.M. Lynch, C.P. Wilcox, T.W. Swetnam, & T.L. Swetnam (2013) Growth and Demography of Pinaleño High Elevation Forests. RJVA 07-JV-11221615317. Rocky Mountain Research Station, Ft. Collins, CO.

Swetnam, T.L., & B. Powell (2010) Example of the use of LiDAR for monitoring vegetation characteristics: An example from the Ciénega Creek Nature Preserve. Supplement to the Pima County Ecological Monitoring Program: Phase II Monitoring Plan Summary.

Swetnam, T.L. (2006) Fire Regime Condition Class Accuracy: A comparison to tree-ring fire histories. (M.S. Thesis, University of Arizona. 111 p.)

Select Conference Proceedings

Swetnam, T.L., (2020) The Airborne Environmental Observations Laboratory for Unoccupied Systems (AEOLUS) Plant and Animal Genome XXVIII Conference (January 11-15 2020)

Swetnam, T.L., R. Walls, U.K. Devisetty, N. Merchant (2018) CyVerse: a ten-year perspective on cyberinfrastructure development, collaboration, and community building. American Geophysical Union Fall Meeting.

Swetnam, D.A. Falk, S.R. Yool (2018) The Ecosystem Moisture Stress Index. The Madrean Conference, Tucson AZ, 17 May.

Swetnam, T.L., R. Walls, N. Merchant (2017) CyVerse Data Commons: lessons learned in cyberinfrastructure management and data hosting from the Life Sciences. American Geophysical Union (AGU) Abstract IN12B-07. New Orleans, LA, 12 Dec.

Swetnam, T.L., R. Walls, B. Joyce, U. Devisetty (2017) Analyzing and managing ecological data with CyVerse. Ecological Society of America. Portland, OR, 10 Aug.

Professional Service

- Journal Reviewer: Canadian Journal of Forest Research, Ecological Applications, Ecosphere, International Journal of Wildland Fire, Journal of Environmental Informatics, PLOS One, Remote Sensing, Remote Sensing of Environment.
- NEON Lidar Technical Working Group 2018-Present
- NEON Data Institute 2018, Quantitative Undergraduate Biology Education and Synthesis (QUBES)
- The Carpentries Instructor and Lessons Maintainer 2017-Present
- Earth Science Information Partners (ESIP) member via CyVerse
- Standing committee member on NSF EarthCube project

Teaching and Student Mentorship

Undergraduate/Graduate Courses Taught

- Introductory Biology Lab (ECOL 181/182), fall, spring, and summer semester 8/2005 – 7/2006
- Introduction to Wildland Fire (RNR 355/455), fall semester. 8/2006 – 12/2008

Guest Lectures

- Ecological Forecasting, GEOG 595E, The University of Arizona 9/2019
- Artificial Intelligence for Health Medicine SIE578, The University of Arizona 2/2019
- NEON Data Institute on Reproducible Workflows, Boulder CO 7/2018

- Open Source GIS GIST604B, The University of Arizona 11/2018
- Resource Mapping RNR422/522, The University of Arizona 8/2015 - 5/2017
- Remote Sensing GEOG330, The University of Arizona 10/2017

Technical Workshops

- CyVerse Foundations of Open Source Science 2019 - Present
- CyVerse Container Camp, The University of Arizona 2018 - Present
- NEON Science with CyVerse, Boulder CO 2/2019
- Geospatial Carpentry, The University of Arizona 2018 - Present
- Software Carpentry, The University of Arizona 2017 - Present

Students, Committee Member, Post-doctoral Researchers

- Post-doctoral Researcher: R. Bartelme (2020), M. Culshaw-Maurer (2021)
- Graduate: L. Carpenter (Masters-GIST, 2012), J. Kennedy (Masters-GIST, 2014), A. Ruff (Masters-GIST, 2017), A. Brischke (MS, School of Natural Resources and Environment, 2015), S. Hendryx (MS, Geography, 2017), J. Gillan (PhD, School of Natural Resources and Environment, 2019), P.L. Narayan (MS, Computer Science, 2018), D. Slovikosky (MS, Computer Science, 2018), B. LaSala (MS, Mining and Geological Engineering, 2020), J. Lindsay (MS, Computer Science, 2021)
- Undergraduate: J. Mack (NASA Space-Grant intern, 2010), D. Wilcox (NASA Space-Grant intern, 2014), N. Callahan (Computer Science, 2016), K. Pope (NSF UWIN, 2017), C. Prigge (Computer Science, 2021), V. Mehta (Computer Science 2020), J. van der Leeuw (Computer Science Mathematics, 2021), A. Bande (Data Science, Statistics, 2022), Sarah Jackson (Computer Science, Mathematics, 2023), Korre Henry (Computer Science, 2021).
- High School: D.S. Lee (BASIS Oro Valley High School, 2018), E. Joshi (BASIS Oro Valley High School, 2020), S. Ramkumar (Hamilton High School, 2021) .