CURRICULUM VITAE

Tyson Lee Swetnam

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APPOINTMENTS

Research Associate Professor 7/2023 - Present
BIO5 Institute, University of Arizona *Tucson, AZ*
- Joint Appointment, School of Natural Resources & Environment

Research Assistant Professor 1/2019 - 6/2023
BIO5 Institute, University of Arizona *Tucson, AZ*

Data Scientist III 9/2016 - 12/2018
BIO5 Institute, University of Arizona *Tucson, AZ*

Associate Research Scientist 7/2015 - 8/2016
School of Natural Resources & Environment, University of Arizona *Tucson, AZ*

Research Associate 1/2015 - 7/2015
Department of Geology & Geophysics, University of Utah *Tucson, AZ*

Postdoctoral Researcher 1/2014 - 12/2014
Department of Geosciences, University of Arizona *Tucson, AZ*

Graduate Research Assistant 6/2012 - 12/2013
School of Natural Resources & Environment, University of Arizona *Tucson, AZ*

Fire Management Specialist 6/2008 - 5/2012
Coronado National Forest Supervisor's Office, USDA Forest Service *Tucson, AZ*

EDUCATION

University of Arizona 2013
Doctor of Philosophy, School of Natural Resources & Environment *Tucson AZ*
- Remote Sensing & Spatial Analysis Minor
- Dissertation "*Cordilleran forest scaling dynamics & disturbance regimes quantified by aerial lidar*"

University of Arizona 2006
Master of Science, School of Natural Resources & Environment *Tucson AZ*
- GIS Technical Certificate
- Thesis "*Fire Regime Condition Class Accuracy: A comparison to tree-ring fire histories*"

University of Arizona 2002
Bachelor of Science, Department of Ecology & Evolutionary Biology *Tucson AZ*

PUBLICATIONS

35. Thessen, A., L. Cooper, T.L. Swetnam, et al. (2023) Using knowledge graphs to infer gene expression in plants. Frontiers in Artificial Intelligence, 6, 92. 10.3389/frai.2023.1201002

34. Gonzalez, E.M., A. Zarei, N. Hendler, et al. (2023). PhytoOracle: Scalable, modular phenomics data processing pipelines. Frontiers in Plant Science, 14, 1112973-1112973. 10.1002/essoar.10508789.1

33. Yang, D., B.D. Morrison, K.J. Davidson, et al. (2022). Remote sensing from unoccupied aerial systems: Opportunities to enhance Arctic plant ecology in a changing climate. Journal of Ecology, 00, 1–24. 10.1111/1365-2745.13976

32. Shuman, J.K., J.K. Balch, R.T. Barnes, et al. (2022) Reimagine fire science for the anthropocene, PNAS Nexus, Volume 1, Issue 3, July 2022, pgac115, 10.1093/pnasnexus/pgac115

31. Nagy, R.C., J.K. Balch, E.K. Bissell, 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, 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 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. 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. 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. 10.3390/rs13081448

26. Gillan, J. K., G.E. Ponce-Campos, T.L. Swetnam, et al. (2021). Innovations to expand drone data collection and analysis for rangeland monitoring. Ecosphere, 12(7). 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. 10.1111/ddi.13222

24. Nust, D., D. Eddelbuettel, D. Bennett, et al. (2020). The RockerVerse: Packages and Applications for Containerization with R. R Journal 08-2020. 10.32614/RJ-2020-007

23. Ponsero A., R. Bartelme, G. de Oliveira Almeida, et al. (2020) Ten simple rules for organizing a data science workshop. PLoS Comput Biol 16(10): e1008226. 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 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. 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 10.1016/j.rama.2019.02.009

19. Norman, L.M., J.B. Callegary, L. Lacher, et al. (2019) Modeling Riparian Restoration Impacts on the Hydrologic Cycle at the Babacomari Ranch, SE Arizona, USA. Water 11, 381. 10.3390/w11020381

18. Hancock, D., C. Stewart, M. Vaughn, et al. (2018) Jetstream—Early operations performance, adoption, and impacts. Concurrency and Computation: Practice and Experience 10.1002/cpe.4683

17. Perdrial, J., P.D. Brooks, T.L. Swetnam, et al. (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. 10.1007/s10533-018-0440-3

16. Swetnam, T.L., J.K. Gillan, T.T. Sankey, et al. (2018) Considerations for Achieving Cross-Platform Point Cloud Data Fusion across Different Dryland Ecosystem Structural States. Front. Plant Sci. 8:2144. 10.3389/fpls.2017.02144

15. Pelletier J.D., G.A. Barron-Gafford, et al. (2018) Which way do you lean? Using slope aspect variations to understand Critical Zone processes and feedbacks. Earth Surf. Process. Landforms, 10.1002/esp.4306

14. Evans, M.E.K., D.A. Falk, A. Arizpe, et al. (2017) Fusing tree-ring and forest inventory data to infer influences on tree growth. Ecosphere 8(7):e01889. 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. 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. 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. 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. 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. 10.1890/ES14-00384.1

8. Harpold, A.A., J.A. Marshall, S.W. Lyon, et al. (2015) Laser vision: lidar as a transformative tool to advance critical zone science. Hydrology & Earth System Science 19, 2881-2897. 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 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. 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. 10.1016/j.foreco.2014.03.016

4. *Harpold, A.A., Q. Guo, N. Molotch, et al. (2014) LiDAR-Derived Snowpack Datasets from Mixed Conifer Forests Across the Western US. Water Resources Research 50(3), 2749-2755. 10.1002/2013WR013935

3. *Pelletier, J.D., G.A. Barron-Gafford, D.D. Breshears, et al. (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. 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. 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. 10.1071/WF08001

*based on work done as a graduate student.

UNPUBLISHED & IN-REVIEW

PRE-PRINTS

Swetnam, T.L., et al. (2023) CyVerse: Cyberinfrastructure for Open Science. bioRxiv 2023.06.16.545223; doi: 10.1101/2023.06.16.545223

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. 10.31219/osf.io/yx7t9

INTERNAL REVIEWED

THESES, PROCEEDINGS, WORKING PAPERS, & TECHNICAL REPORTS

Almarzouq, B., et al. (2023) Opensciency - A core open science curriculum by and for the research community. Zenodo. 10.5281/zenodo.7662732

Martínez-Meyer, E., A. González-Bernal, J.A. Velasco, et al. (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, et al. (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. 10.1145/2949550.2949573

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. https://www.fs.usda.gov/treesearch/pubs/48047

*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. https://www.fs.usda.gov/treesearch/pubs/41787

*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.)

*based on work done as a graduate student.

RESEARCH GRANTS

CURRENT

"Wildland Urban Interface (WUI): Fire Fuel Mitigation" PI: T.L. Swetnam, Co-PIs: L. McGuire, A. Youberg, ABOR TRIF Sub-award of Northern Arizona University, PIs: A. Sanchez-Meador, A. Thode 11/18/2022 - 1/31/2026 $900,000 (UArizona scope: $122,228)

"Environmental Data Science Innovation & Inclusion Lab (ESIIL): Accelerating Discovery by Fostering an Open & Diverse Earth Data Revolution" PI: T.L. Swetnam NSF DBI-2153040 Sub-award of UC Boulder PI: J. Balch 8/1/22 - 7/31/27 $19,999,990 (UArizona scope: $1,457,000)

"Collaborative Research: High-Resolution Aerial Forest Mapping Infrastructure & Database to Support Forest & Disturbance Ecology Research" PI: T.L. Swetnam NSF DBI-2152673

Collaborative Research with UC Davis PI: D. Young, & UC Boulder PI: M. Koontz 9/1/22 - 8/31/25 $1,005,364 (UArizona scope: $45,844)

"AIIRA: AI Institute for Resilient Agriculture" PI: N. Merchant, Sr. Personnel: E. Skidmore, T.L. Swetnam, USDA NIFA 2021-67021-35329 Sub-award of Iowa State University PI: B. Ganapathysubramanian 9/1/21 - 8/31/26 $20,000,000 (UArizona scope: $1,300,222)

"Track D: Hidden Water & Extreme Events: HydroGEN, A Physically Rigorous Machine Learning Platform for Hydrologic Scenario Generation" PI: L. Condon, CoPIs: N. Merchant, R. Maxwell, P. Melchior NSF ITE-2134892 10/1/21 - 9/30/23 $5,000,000

"Collaborative Research: OpenDendro - Advanced Open-source Tools for Paleoenvironmental Reconstruction" PI: A. Bunn, CoPIs: K. Anchukaitis, E. Cook, T.L. Swetnam NSF AGS-2054516 6/1/21 - 5/31/24 $143,148

"CyVerse: Cyberinfrastructure for the Life Sciences" PI: E. Lyons, CoPIs: N. Merchant, T.L. Swetnam, D. Micklos, J. Fonner NSF DBI-1743442 8/1/18 - 7/31/24 $15,199,324

"Towards Distributed and Scalable Personalized Cyber-Training" PI: T.L. Swetnam. OAC-1829701 9/1/18 - 8/31/23 $60,631

"High Intensity Phenotyping Sites: A Multi-Scale Multi-Modal Sensing & Sense-Making Cyber-Ecosystem for Genomes to Fields" PI: A. Singh USDA NIFA 2020-68013-30934 6/1/20 - 5/31/23 $497,481

PRIOR & COMPLETED

"FACTS: A Scalable Cyber Ecosystem for Acquisition, Curation, & Analysis of MultiSpectral UAV Image Data" USDA NIFA 2019-67021-29938 9/1/19 - 8/31/22 $499,927

"Assessing the Climate Change Mitigation Potential of Diverse Vegetation Types in the Pinaleño Mountains, Arizona" PI: F. Babst, CoPI: T.L. Swetnam ABOR TRIF AIR 11/1/21 - 8/31/22 $72,000

"TRIPODS+X:VIS: Data Science Pathways for a Vibrant TRIPODS Commons at Scale" PI: N. Merchant, CoPIs: M. Sahneh, M. Kobourov, M. Papes NSF DMS-1839307 10/1/18 - 7/31/22 $199,859

"Collaborative Research: Converging Genomics, Phenomics, & Environments Using Interpretable Machine Learning Models" PI: B. Heidorn, CoPI: T.L. Swetnam NSF DBI-1940062 10/1/19 - 7/31/22 $483,022

"NSF Convergence Accelerator - Track D: Hidden Water & Hydrologic Extremes: A Groundwater Data Platform for Machine Learning & Water Management" PI: L. Condon, CoPI: N. Merchant NSF ITE-2040542 $1,000,000

"Jemez River Corridor Forest Inventory" PI: T.L. Swetnam Nature Conservancy 7/30/19 - 12/31/2020 $19,500

"LTAR-NEON Collaboration to Quantify Rangeland Vegetation Production" PI: M. McClaran USDA NIFA 2022-13610-012-07S $449,025

"CESU Lower Gila River Vegetation Mapping" PI: W. van der Leeuwen Bureau of Land Management 7/7/16 - 3/26/20 $250,000

"Remote Sensing Support & Consultation for Evaluation of Wolf Habitat Suitability in Mexico & Southwestern United States" PI: T.L. Swetnam Arizona Game & Fish Department 8/1/16 - 8/31/17 $10,000

"Sediment Transport Analysis & Assessment of Vegetation Characteristics in the Santa Cruz River" PI: D.P. Guertin, CoPI: T.L. Swetnam Pima County Regional Flood Control District 9/1/12 - 8/31/13 $17,186

"Multi-scale controls on wildland fire in mountains of Western North America" PI: D. Falk USDA NIFA ARZT-1392420-M12-183 7/1/08 - 12/31/12

"Analysis of aerial lidar in the Santa Cruz River & Cienega Creek" PI: T.L. Swetnam Pima County Ecological Monitoring Program 1/1/13 - 9/30/13 $2,500

"Reference Conditions for Fire Regime Condition Class" PI: P.M. Brown, CoPI: T.L. Swetnam Bureau of Land Management National Interagency Fuels Team 8/31/04 - 7/30/06 $81,000

AWARDS & HONORARIUM

Research Advancement Award, $78,000 1/2022
Arizona Board of Regents (ABOR) Technology Research Initiative Fund (TRIF)

Equipment Improvement Award, $53,000 7/2019
ABOR TRIF Water, Environmental, & Energy Solutions (WEES)

NSF EarthCube Travel Award, $1,500 7/2014
Arizona Geological Society, NSF ICER #1340233

Scholarly Achievement Award 5/2014
School of Natural Resources & Environment, University of Arizona

Kel M. Fox Award Outstanding Graduate in Watershed Management, $500 9/2012
School of Natural Resources & Environment, University of Arizona

President's award: Best Graduate Exhibit 12/2009
UA Graduate & Professional Student Council

Graduate Teaching Assistant of the Year 5/2009
School of Natural Resources & Environment, University of Arizona

CONFERENCE PROCEEDINGS & PRESENTATIONS

* invited

*Swetnam, T.L. (2023) "Cyber cowboys: wrangling big data on the open science frontier" Texas A&M Institute for Data Science Spring Seminar, College Station, TX Apr 3

*Swetnam, T.L. (2023) "Working with cloud-optimized, and analysis-ready data formats on the cloud" Planet Labs UArizona Kick-Off, UArizona, Tucson AZ Feb 14

*Swetnam, T.L. (2023) "A not-so-gentle introduction to Cloud Computing for Forest Resiliency Science" NSF Macrosystems Forest Resiliency Working Group, CU Boulder, Feb 13

*Swetnam, T.L. (2023) "Foundational Open Science Skills" Plant and Animal Genome 30, San Diego, CA Jan 14

*Swetnam, T.L., C. Lizarraga (2022) "Introduction to Cloud Native & Analysis Ready Data Formats" Arizona Geospatial Information Council Meeting, Prescott AZ Sept 2

*Swetnam, T.L. (2022) “Arizona Society for Range Management: Cloud Native Science” V-V Ranch, Arizona. August 4

*Swetnam, T.L. (2022) "CyVerse DataCite Overview" Data Cite User Group, Virtual. May 4

*Swetnam, T.L., & E. Skidmore (2022) “CyVerse: Cyberinfrastructure for Data Driven Discovery. Open Source Science for ESO Mission Processing Study” Jet Propulsion Laboratory, NASA. Virtual, Mar 4

*Swetnam, T.L., (2022) “CyVerse: Cyberinfrastructure for Data Driven Discovery” CyberInfrastructure 4 Major Facilities (CI4MFs) 2022, Redondo Beach, CA Mar 1

Webley, P.W., D.V. Sullivan, D. Durden & T.L. Swetnam (2021) “TH45E: Autonomous Scientific Observations: Building Reproducible Research Today & Into the Future” American Geophysical Union (AGU) Town Hall. Virtual, New Orleans, LA, 8 Dec.

*Swetnam, T.L., (2021) “The Airborne Environmental Observations Laboratory for Unoccupied Systems (AEOLUS)” Research Insights in Semi-Arid Ecosystems (RISE), Tucson AZ, 17 Oct

*Swetnam, T.L., (2021) “Developing Foundational Open Science Skills (CyVerse Skills Tutorial)” Northern Arizona University School of Information, Computing, & Cyber Systems. Apr 5. Virtual.

Webley, P.W., R.P. Dahlgren, T.L. Swetnam & D. Durden (2020) “TH058: Methods & Processes Using Small Unmanned Aircraft Systems: Sharing & Reusing Lessons Learned Across Scientific Disciplines” AGU Fall Meeting 2020.

Swetnam, T.L., D. LeBauer, C.F. Vardeman & D. Durden (2020) “NH028-0007 Wrestling the four V’s of small unoccupied aerial systems data in the cloud & on national cyberinfrastructure” AGU Fall Meeting 2020.

*Swetnam, T.L., (2020) NVIDIA GPU Cloud “Panel: Simplifying HPC Workflows with containers” Dec 3. Virtual

Thessen, A.E., R. Bartelme, M. Behrisch, et al. (2020) “Predicting phenotype from multi-scale genomic & environment data using neural networks & knowledge graphs” ESA Annual Meeting (August 3-6)

*Swetnam, T.L., (2020) “CyVerse Learning Institute’s foundational open science skills workshop” Bioinformatics Open Source Conference (BOSC). Virtual. July 20.

Skidmore, E., T.E., R. Walls, T.L. Swetnam, N. Merchant & E. Lyons (2020) “CyVerse: Informatics Cyberinfrastructure for the Earth Sciences” Earth Science Information Partners 2020 Summer meeting, Virtual. Jul 2

Thessen, A.E., M. Behrisch, E.J. Cain, et al. (2020) “Predicting Phenotype from Multi-Scale Genomic & Environment Data using Neural Networks & Knowledge Graphs: An Introduction to the NSF

GenoPhenoEnvo Project” Plant & Animal Genome XXVIII Conference Jan 11-15

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

Holifield-Collins C., S.M. Skirvin, G. Armendariz, et al. (2019) “GC23G-1430 Is a Picture Worth a Thousand Measurements? A Comparison of Drone Systems & Data Processing Methods for Rangeland Vegetation Monitoring” AGU Fall Meeting 2019

Swetnam, T.L., (2019) "All the Things; Capitalizing on Big Data from Devices, Drones, & Cubesats" Arizona Geospatial Information Council Symposia Oct 1 2019, Prescott AZ

Swetnam, T.L., D.S. LeBauer & N. Merchant (2019) "Looking toward an Institute to support both users & creators of geospatial software" Geospatial Software Institute Workshop 3, 15 Jul

*Swetnam, T.L., (2019) "The ability & audacity to scale your science with free & open cyberinfrastructure" Santa Fe Institute, Jul 5, Santa Fe NM

Devisetty U.K., T.L. Swetnam, I. McEwen, J. Wregglesworth & N. Merchant (2019) "Get a Grip on Your Data Science Tools with CyVerse VICE (Visual Interactive Computing Environment)" Plant & Animal Genome XXVII Conference Jan 12-16

Brooks P.D., H.R. Barnard, J.A. Biederman, et al. (2018) "H21A-06 Multi-disciplinary Insights into the Effects of Vegetation Change on Hydrologic Partitioning" AGU Fall Meeting, Washington DC, Dec 11

*Swetnam, T.L., (2018) "The problem of pattern & scale in semi-arid ecosystem ecology: Does big data help or hurt?" Research Insights in Semi-Arid Ecosystems (RISE), Tucson AZ, 10 Oct

Swetnam, T.L., B. Hickson, B. Joyce & R. Walls (2018) "Ensuring best practices for reproducibility of long tail data in intensive geospatial scientific research." Geospatial Software Institute Workshop 2, 17 July

*Swetnam, T.L., (2018) "Vertical Scaling of Remote Sensing" Invited Talk Battelle Inc. NEON, Boulder CO, 12 July.

Swetnam, T.L., (2018) "The Ecosystem Moisture Stress Index" Madrean Conference, Tucson AZ, 17 May.

Swetnam, T.L., (2018) "Unleashing your inner data scientist: The ability & audacity to scale your science with free & open cyberinfrastructure" TRIPODS-X Workshop, Tucson AZ 26 Feb

Swetnam T.L., (2018) "Portable, scalable, high throughput geospatial analyses with Singularity containers on cloud & high performance computing" Phenome, Tucson AZ, 15 Feb

Swetnam, T.L., (2018) "Cyberinfrastructure for scientific reproducibility in data-intensive geospatial research & education". Geospatial Software Institute Workshop 1, 29 Jan

Swetnam, T.L, R. Walls & N. Merchant (2017) "CyVerse Data Commons: Lessons learned in cyberinfrastructure management & data hosting from the Life Sciences" AGU Fall Meeting 2017, San Francisco CA

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

Swetnam, T.L., (2017) "A Gentle Introduction to Forestry Science Workflows in the Era of Cloud Computing" Society of American Foresters Southwestern Section MeetingNorthern Arizona Chapter April 27-29, 2017 Flagstaff, AZ

*Swetnam, T.L., (2017) "CyVerse: Transforming science through data driven discovery" Northern Arizona University. School of Forestry. Flagstaff AZ Apr 5

*Swetnam, T.L., (2017) "Cyber-Cowboys on the Range" Invited seminar, Santa Rita Experimental Range Florida Station, Green Valley AZ, 18 Mar.

2023

https://cyverse.org/cyverse-and-ua-host-chatgpt-workshops "CyVerse and the University of Arizona Host ChatGPT Workshops"

https://uaatwork.arizona.edu/lqp/new-license-gives-campus-access-steady-stream-web-geo-data "New license gives campus access to a steady stream of web-geo data"

https://www.planet.com/pulse/university-of-arizona-explores-our-earth-with-new-campus-wide-planet-license/ "University of Arizona Explores Our Earth with New Campus-Wide Planet License"

https://cyverse.org/cyverses-compute-power-accelerates-doctoral-researchers-science "CyVerse's Compute Power Accelerates Doctoral Researcher's Science"

2022

https://cyverse.org/new-abor-grant-will-utilize-cyverse-technology-and-expertise-to-mitigate-wildfire-risk "New ABOR Grant Will Use CyVerse's Technology and Expertise to Mitigate Wildfire Risk"

https://cyverse.org/esiil-center "New Center Brings Environmental Data Science Home"

https://www.ucdavis.edu/climate/blog/monitoring-forest-threats-new-open-forest-observatory - "Monitoring Forest Threats with New Open Forest Observatory"
https://news.ucar.edu/132859/wildfire-experts-provide-guidance-new-research-directions - "Wildfire experts provide guidance for new research directions"

https://cyverse.org/deep_learning_workshop "A Deep Dive into Deep Learning Techniques: A Firstofitskind Hands-on Workshop"

2021

https://cyverse.org/foundational-friendships-lead-to-open-ecological-science "Foundational Friendships Lead to Open Ecological Science"

https://cyverse.org/from-landforms-to-landslides-students-investigate-earth-surface-processes-with-cyverse "From Landforms to Landslides, Students Investigate Earth Surface Processes with CyVerse"

https://bio5.org/news/study-shows-impacts-deforestation-and-forest-burning-biodiversity-amazon "Study Shows Impacts of Deforestation And Forest Burning On Biodiversity In The Amazon" BIO5 Institute News

https://bio5.org/news/hydrogen-project-awarded-5m-model-national-water-resources-using-machine-learning-1 "HydroGEN Project Awarded $5M To Model National Water Resources Using Machine Learning" BIO5 Institute News

https://bio5.org/news/cyverse-welcomes-new-project-leader-eric-lyons "CyVerse Welcomes New Project Leader Eric Lyons" BIO5 Institute News

https://www.nvidia.cn/on-demand/session/iscdigital2021-iscd2102/ &

https://www.youtube.com/watch?v=hanqTQui498 "Leveraging AI and NVIDIA GPUs to Advance Research in Crop Production"

https://resources.nvidia.com/en-us-ngc/ngc-uofa-success-story?lx=699wyX "NVIDIA University of Arizona Success Story"

https://resources.nvidia.com/en-us-ngc/ngc-simplying-and-accelerating-hpc-workflows?lx=699wyX "NVIDIA GPU Cloud Simplifying and Accelerating HPC Workflows"

2020

https://cyverse.org/new-cyverse-node-brings-easier-collaboration-to-austrian-scientists "New CyVerse Node Brings Easier Collaboration to Austrian Scientists"

https://www.youtube.com/watch?v=da2gKRdMeXY "This 30-Ton Robot Could Help Scientists Produce the Crops of the Future" Wall Street Journal

2019

https://www.xsede.org/-/ecss-program-accelerates-xsede-user-s-career-in-geoinformatics "ECSS Program Accelerates XSEDE User's Career in Geoinformatics"

2018

https://cyverse.org/Observing-Ecology-with-CyVerse-Atmosphere "Observing Ecology with CyVerse Atmosphere"

https://borderlore.org/the-culture-of-wildfire-perceptions-practices-policies/ "The Culture of Wildfire: Perceptions, Practices, Policies"

https://cyverse.org/CyVerse-Hosts-2018-Earth-Science-Information-Partners "CyVerse Hosts 2018 Earth Science Information Partners"

https://bio5.org/news/summer-interns-work-drone-datasets-rna-analyses-0 - "Summer Interns Work With Drone Datasets, RNA Analyses"BIO5 Institute News

2017

https://www.azpm.org/s/49986-mountain-forests-capture-carbon-from-atmopshere/ "Carbon Capture from Trees? It's All Downhill From Here, Study Says" Arizona Public Media

https://bio5.org/news/how-mountains-hold-carbon-and-do-good-job-it-2 "How Mountains Hold Carbon (And Do A Good Job of It)" BIO5 Institute News

https://sciencenode.org/feature/riding-the-jetstream-to-the-treetops.php "Riding the Jetstream to the treetops" Science Node

PROFESSIONAL SERVICE (EXTERNAL)

Professional Society Memberships

United States

- American Geophysical Union (AGU)
- Association for Fire Ecology (AFE)
- Critical Zone Exploration Network (CZEN)
- Ecological Society of America (ESA)

Journal Reviewer

International

- Canadian Journal of Forest Research

- Ecological Applications
- International Journal of Wildland Fire
- Journal of Environmental Informatics
- PLOS One
- Remote Sensing
- Remote Sensing of Environment
- Science of The Total Environment

Grant Panelist

United States

- USDA National Institute of Food & Agriculture (NIFA)
- NSF Computer Information & Science Engineering (CISE)
- NSF Division of Biological Infrastructure (DBI)

Working Groups

The Carpentries 2017-Present
Instructor & Lesson Maintainer

Earth Science Information Partners (ESIP) 2019-Present
CyVerse Representative

NASA Transform Open Science (TOPS) 5/2022
Subject Matter Expert, Open Source Tools & Data

NSF CI-Compass 2019-Present
Cloud Infrastructure Working Group Member

NSF Macrosystems: Forest Resilience 2023-Present
Working Group Member, NSF Award DEB 2017889 *Boulder, CO*

NSF National Ecological Observatory Network (NEON) 2018-2022
Lidar Technical Working Group Member

NSF NEON Science Summit 5/2019
Working Group Member, NSF Award DBI 1906144

NSF EarthCube 2017-2019
Standing Committee Member

PROFESSIONAL SERVICE (UNIVERSITY OF ARIZONA)

Arizona Board of Regents Technology & Research Initiative Fund (TRIF) 2022-Present
Grant Review Panelist

BIO5 Institute Promotion Standing Committee 2022-Present
Panelist

BIO5 Institute KEYS Summer Internship Program 2019-Present
Student Mentor

Data Science Institute Resource & Training 2019-Present
Steering Committee Member

Research Bazaar Arizona 2018-Present
Steering Commitee Member

TEACHING & MENTORSHIP

Technical Workshops

CyVerse: Introduction to LLMs & ChatGPT 2023-Present
Data Science Institute, University of Arizona *Tucson, AZ*

The Carpentries 2018-Present
Data Carpentry & Software Carpentry Core *Tucson, AZ*

CyVerse: Foundational of Open Science Skills 2019-Present
Cyberinfrastructure, reproducible research, data science *Tucson, AZ & Virtual*

CyVerse: Container Camp 2018-Present
reproducible research, Docker, Kubernetes, Singularity *Tucson, AZ & Virtual*

CyVerse: Technical Overview 11/2019
Technical University of Graz *Graz, Austria*

CyVerse: Technical Overview 2/2019
Battelle Inc. NEON Science *Boulder, Colorado*

CyVerse: AstroContainers 5/2018
Event Horizon Telescope (EHT) PIRE, NSF Award OISE 1743747 *Tucson, AZ*

Macrosystems Forest Resilience 2023-Present
Cyberinfrastructure, Working Group, NSF Award DEB 2017889 *Boulder, Colorado*

Research Insights in Semi-Arid Ecosystems (RISE) Conference 2020-2022
NEON Airborne Observation Platform Data Analyses *Tucson, AZ & Virtual*

Sensing the Earth II 11/2022
Tribal College Faculty Data Science Experience, ESIIL *Haskell Indian Nations University, Kansas*

Translational AI Center (TrAC) Training 4/2022
Machine Learning in Python *Iowa State University & Virtual*

University Credit

Introduction to Wildland Fire Fall 2006-2008
RNR 355/455 *University of Arizona*

Introductory Biology (Lab) Fall, Spring, Summer 2005-2006
ECOL 181L/182L *University of Arizona*

Guest Lectures

Introduction to Wildland Fire Spring 2023
RNR 355/455 *University of Arizona*

Open Source GIS 11/2018-Present
GIST604B *University of Arizona*

KEYS High School Intern Program 6/2019-Present
BIO5 Institute *University of Arizona*

Fire in Ecosystem Management 1/2018-Present
M-580 National Advanced Fire & Resource Institute (NAFRI) *Tucson, AZ*

Ecological Forecasting 9/2019
GEOG 595E *University of Arizona*

Artificial Intelligence for Health Medicine 2/2019
SIE578 *University of Arizona*

Data Institute on Reproducible Workflows 7/2018
NEON AOP Summer Workshop *Boulder, CO*

Resource Mapping 8/2015 - 5/2017
RNR422/522 *University of Arizona*

Remote Sensing 10/2017
GEOG330 *University of Arizona*

STUDENT ADVISING, MENTORING, SUPERVISORY

Postdoctoral Researchers: R. Bartelme (2020-2021), M. Culshaw-Maurer (2021-2022)

Graduate Mentoring & or Supervisor: 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 Advising: 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), K. Henry (Computer Science, 2021), A. Bande (Data Science, Statistics, 2022), S. Jackson (Computer Science, Mathematics, 2023), I. Ale (Computer Science, 2023), E. Hagyard (Software Engineering, 2023), Ayanle Noor (KEYS, Computer Science, 2023)

High School Mentoring: D.S. Lee (BASIS Oro Valley High School, 2018), E. Joshi (KEYS, BASIS Oro Valley High School, 2020), S. Ramkumar (KEYS, Hamilton High School, 2021), E. LeRoy (KEYS, University High School, 2022), E. Dorland (KEYS, City High School)