

SCHOOL of FORESTRY

Monthly Newsletter

APRIL-MAY 2021



NAU FORESTRY PROGRAM

The NAU forestry program is a vibrant, diverse and active place of learning and research and a feeling of community. Here are just some of the activities this month of our internationally distinguished faculty and researchers.

NAU SCHOOL OF FORESTRY

The School of Forestry is a gateway to a fulfilling forestry career; it's also an invitation to create sustainable solutions for the natural world and outdoor enjoyment for years to come.



PUBLICATIONS THIS MONTH

Featured Faculty: Dave Auty, Wally Covington, Catrin Edgeley, Pete Fule, Richard Hofstetter, Tom Kolb, Andrew Sanchez Meador, Faith Walker, and Kristen Waring
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AWARDS & GRANTS

Faculty and students: Carol Chambers, Catrin Edgeley, Matthew Bowker, Anita Antoninka, Lydia Bailey, Jordyn Upton, Jacque Lyman, Jennifer Zahratka, and Kristen Waring
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PRESENTATIONS & OUTREACH

Carol Chambers, Matthew Bowker, Kristen Waring, Yeon-Su Kim, and Lydia Bailey
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For more information visit
nau.edu/forestry





PUBLICATIONS: [NAU Authors in Bold, * Undergraduate Student]

Leal-Sáenz A, **Waring KM**, Álvarez-Zagoya R, Hernandez-Diaz JC, López-Sánchez CA, Martínez Guerrero JH and C Wehenkel. 2021. Assessment of insect damage to cones and seeds of *Pinus strobiformis* in the Sierra Madre Occidental, Mexico. *Frontiers in Plant Science*. 12:628795. <https://doi.org/10.3389/fpls.2021.628795>

Stoddard, M.T., J.P. Roccaforte, A.J. Sánchez Meador, D.W. Huffman, P.Z. Fulé, A.E.M. Waltz, W.W. Covington. 2021. Ecological restoration guided by historical reference conditions can increase resilience to climate change of southwestern U.S. ponderosa pine forests. *Forest Ecology and Management* 493:119256. <https://doi.org/10.1016/j.foreco.2021.119256>

Shamsoshoara, A. F. Afghah, A. Razi, L. Zheng, **P. Z Fulé**, and E. Blasch. 2021. Aerial Imagery Pile burn detection using Deep Learning: the FLAME dataset. *Computer Networks* 193:108001. <https://doi.org/10.1016/j.comnet.2021.108001>

Carroll, M.S., **Edgeley, C.M.** and Nugent, C., 2021. Traditional use of field burning in Ireland: history, culture and contemporary practice in the uplands. *International Journal of Wildland Fire*. <https://www.publish.csiro.au/WF/WF20127>

Muñoz-Rojas, M., Machado de Lima, N., Chamizo, S., **Bowker, M.** 2021. Restoring post-fire ecosystems with biocrusts: living, photosynthetic soil surfaces. *Current Opinion in Environmental Science and Health*. <https://doi.org/10.1016/j.coesh.2021.100273>

Mead, J. I., J. S. Tweet, V. L. Santucci, B. Tobin, **C. L. Chambers**, S. C. Thomas, and M. C. Carpenter. 2021. Pleistocene/Holocene Cave Fossils from Grand Canyon National Park – Ice Age (Pleistocene) Flora, Fauna, Environments, and Climate of the Grand Canyon, Arizona. In Santucci, V. L. and J. S. Tweet, editors. *Grand Canyon National Park: Centennial Paleontological Resources Inventory – A Century of Fossil Discovery and Research*: Utah Geological Association Special Publication 1. p. 221-240. <https://utahgeology.org/publications/special-pubs>

Dahlen, J., **Auty, D.**, and Lowell, E.C. 2021. Modeling specific gravity and diameter inside bark of western hemlock and Sitka spruce growing in southeast Alaska. *Can J For Res*. <https://doi.org/10.1139/cjfr-2020-0345>

Poulos, H.M., A.M. Barton, G.W. Koch, **T.E. Kolb, A.E. Thode.** 2021. Wildfire severity and vegetation recovery drive post-fire evapotranspiration in a southwestern pine-oak forest, Arizona, USA. *Remote Sensing in Ecology and Conservation*. doi: 10.1002/rse2.210

Walker, F.M., C.J. Sobek, C.E. Platts-McPharlin, C.L. Chambers; Relatedness and genetic structure of big brown bat (*Eptesicus fuscus*) maternity colonies in an urban-wildland interface with periodic rabies virus outbreaks. *J Wildl Dis* 1 April 2021; 57 (2): 303–312 <https://doi.org/10.7589/JWD-D-20-00112>

Lukic, I., Bedoya, C.L., Hofstetter, E.M., & **Hofstetter, R.W.** 2021. Pinyon engraver beetle acoustics: stridulation apparatus, sound production and behavioral response to vibroacoustic treatments in logs. *Insects*, 12(6), 496. <https://www.mdpi.com/2075-4450/12/6/496>



NEW AWARDS:

Carol Chambers The National Science Foundation awarded PI Michael Shafer and coPIs Paul Flikkema and Carol Chambers a Continuing Grant for support of an IIBR Instrumentation project: Coordinated innovations in radio telemetry (CIRT) for wildlife (2021-2023). Michael Shafer (PI), Associate Professor School of Informatics, Computing, and Cyber Systems and Paul Flikkema (co-PI), Professor, School of Informatics, Computing, and Cyber Systems

Catrin Edgeley \$400,000 Early Career Innovator Award from the National Center for Atmospheric Research (NCAR), sponsored by the National Science Foundation (NSF). The project will explore how weather and wildfire behavior influence household decision-making during evacuation using NCAR model visualizations from recent fire events as a memory recall tool.

Catrin Edgeley \$345,000 Joint Fire Science Program-funded grant to investigate human-caused wildfire ignitions in Arizona and New Mexico. Co-PIs from the Forest Stewards Guild will identify trends in where large human-caused wildfires occur across the Southwest, and Cat and a MS student funded by the grant will use interviews and surveys in both states to identify effective social interventions that can reduce the number of ignitions.

Matthew Bowker, Anita Antoninka, Lydia Bailey \$64,284 by the Bureau of Land Management (Nevada) to continue researching biocrust and rare plant restoration on Mojave Desert gypsum soils

Jordyn Upton (Faith Walker's undergraduate student researcher) received a runner-up prize at the regional American Association for Microbiology conference for her poster entitled "The Rabie-c's: Testing the capabilities of a molecular assay for non-invasive rabies virus surveillance" (Jordyn R. Upton, Crystal M. Hepp, and Faith M. Walker).

Jacque Lyman received this year's President's Prize. Jacque is a student genetics researcher working for **Faith Walker and Carol Chambers** on a variety of conservation genetics projects.

Jennifer Zahratka (Ph.D. student with **Carol Chambers**) was just selected for the São Paulo School of Advanced Science on Ecology of Human Sleep and Biological Rhythms to be held in São Paulo, Brazil in 2022. This complements the work she is doing with the New Mexico

meadow jumping mouse, a small, obligate hibernating rodent, listed Endangered under the Endangered Species Act.

https://espca.fapesp.br/school/sao_paulo_school_of_advanced_science_on_ecology_of_human_sleep_and_biological_rhythms/101/

Kristen Waring was spotlighted in SAF Member Spotlight April 16 (via social media: Facebook, Instagram, LinkedIn, Twitter)



PRESENTATIONS/OUTREACH:

Carol Chambers was an Invited Plenary Speaker for the Alaska Chapter of The Wildlife Society, "The Importance of Diversity" http://twosalaskameeting.com/2021_meeting/program/ for the Wildlife Damage Management Working Group of The Wildlife Society, "The Importance of Diversity" <https://conference.usu.edu/wildlife-damage-management/>

Kristen Waring gave a presentation to the northern Arizona chapter of SAF about the Adaptive Silviculture for Climate Change project that she is working on that arose from her sabbatical. Waring, KM. 2021. Connecting across borders: An approach to building forest resilience across western North America. Society of American Foresters Northern Arizona Chapter Meeting, April 27, 2021.

Lydia Bailey (Ph.D. candidate with **Matthew Bowker**) presented "Unbust the crust: Restoring unseen desert diversity" in the Wild Ideas presentation series for the Chelan-Douglas Land trust. <https://www.cdlandtrust.org/outings-events/events/wild-ideas-unbust-crust-restoring-unseen-desert-diversity>

Yeon-Su Kim was an Invited speaker at

Kim, Y.-S. 2021. Forests for Carbon, Water, Food, Energy and Livelihoods: Trade-offs and synergies, INTERNATIONAL CONFERENCE ON THE FUTURE OF WOOD SCIENCE & TECHNOLOGY EDUCATION 2021 (May 27, 2021), Universiti Putra Malaysia (UPM), Malaysia

Kim, Y.-S. 2021. Climate Change and REDD+, Online course: Environment, Development, and Governance in Indonesia: Theories, Issues and Trends, Sebijak Institute, Universitas Gadjah Mada, Indonesia. May 24, 2021.

Kim, Y.-S. 2021. After 30 years of Ecosystem Management in the US" Monthly Seminar Series, Korean Society of Forest Science. May 24, 2021