

Name William Wallace Covington

Address Regents' Professor and Executive Director
Ecological Restoration Institute
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Education

Ph.D., 1976, Yale University, Forest Ecology

Dissertation - Forest floor organic matter and nutrient content and leaf fall during secondary succession in northern hardwoods. Dissertation advisors: F.H. Bormann, D.B. Botkin, D.M. Smith, G.K. Voigt.

1981. Covington, W.W. Changes in forest floor organic matter and nutrient content following clear cutting in northern hardwoods. Ecology 62:41-48.

1980. Covington, W.W. and J.D. Aber. Leaf production during secondary succession. Ecology 61:200-204.

M.S., 1972 University of New Mexico, Ecology

Thesis - Altitudinal variation of chlorophyll concentration and reflectance of the bark of *Populus tremuloides*. Thesis advisors: James R. Gosz, L.D. Potter, D.E. Johnson.

1975. Covington, W.W. Altitudinal variation of chlorophyll concentration and reflectance of the bark of *Populus tremuloides*. Ecology 56:715-720.

B.A., honors, 1969, University of North Texas

Major - Biology, Minor - Chemistry. Undergraduate research advisor: V.D. Scholes.

Professional Experience

1997-Present Executive Director, The Ecological Restoration Institute, Northern Arizona University, Flagstaff, AZ

1995-Present Regents' Professor of Forest Ecology, Northern Arizona University

1987-1995 Professor of Forest Ecology, Northern Arizona University

1979-1987 Associate Professor of Forest Ecology, Northern Arizona University

1985 Land Management Planning Analyst, USDA Forest Service

1983-1984 Research Forester, Rocky Mountain Research Station, USDA Forest Service

1975-1979 Assistant Professor of Forest Ecology, Northern Arizona University

1972-1975 Graduate Research Specialist, Hubbard Brook Ecosystem Study, Yale University

1970-1972 Graduate Research Assistant, Tesuque Watershed Ecosystem Study, University of New Mexico

Current Research Interests

Ecological Restoration
Fire ecology and Management
Ecological Modeling
Ecosystem Management
Sustainable Forestry

Related Professional Activities and Recognition

Member representing the scientific community, USFS Planning Rule National Advisory Committee, 2012-present
Society for Ecological Restoration International, Theodore M. Sperry Award, 2009
Arizona Governor's Forest Health Advisory Council, 2004-present
New Mexico Forest and Watershed Health Committee, 2004-2006
Arizona Governor Hull's Forest Health/Fire Plan Advisory Committee, 2001-2004
Commission Member, National Commission on Science for Sustainable Forestry, 2000-2004
Chair, Science and Policy Working Group, Society for Ecological Restoration, 1997-2000
Lead author on interagency restoration ecology synthesis paper, 1998.
Invited testimony before Congressional Committees, 1994-2004.
Governor's Pride in Arizona Award for Environmental Leadership, 1999.
Chair, Research Working Group, Society for Ecological Restoration, 1994-1997.
Outstanding Teaching Scholar Award, Northern Arizona University 1982, 1989, 1997

Selected Recent Refereed Publications:

- Kalies, E. L., B. G. Dickson, C. L. Chambers, and W. W. Covington. 2012. Community occupancy responses of small mammals to restoration treatments in ponderosa pine forests, northern Arizona, USA. *Ecological Applications* 22:204–217. <http://dx.doi.org/10.1890/11-0758.1>
- Abella, S.R., E.C. Engel, J.D. Springer, and W.W. Covington. 2012. Relationships of exotic plant communities with native vegetation, environmental factors, disturbance, and landscape ecosystems of *Pinus ponderosa* forests, USA. *Forest Ecology and Management*, Volume 271, 1 May 2012, pages 65-74.
- Kalies, E.L., W.W. Covington, C.L. Chambers, and S.S. Rosenstock. 2010. Systematic Review No. 66: How do thinning and burning treatments in southwestern conifer forests in the United States affect wildlife density and population performance? Center for Evidence-Based Conservation.
<http://www.environmentalevidence.org/SR66.html>
- Diggins, Corinne, P.Z. Fulé, J.P. Kaye, and W.W. Covington. 2010. Future climate affects management strategies for maintaining forest restoration treatments. *International Journal of Wildland Fire*, 19, 903-913.
- Roccaforte, J.P., P.Z. Fulé, and W.W. Covington. 2010. Monitoring landscape-scale ponderosa pine restoration treatment implementation and effectiveness. *Restoration Ecology* 18(6):820-833.
- Kalies, E.L., B.G. Dickson, C.L. Chambers, and W.W. Covington. 2010. Small mammal community responses to ecological restoration treatments in southwestern ponderosa pine forests, northern Arizona. The Wildlife Society's Arizona and New Mexico 43rd Joint Annual Meeting, Flagstaff, Arizona. February 4-6, 2010.
- McGlone, C.M., J.D. Springer, and W.W. Covington. 2009. Cheatgrass encroachment on a ponderosa pine forest ecological restoration project in Northern Arizona, USA. *Ecological Restoration* 27(1):37-46.
- Roccaforte, J.P., P.Z. Fulé, and W.W. Covington. 2009. Assessing changes in canopy fuels and potential fire behavior following ponderosa pine restoration. *Fire Management Today* Vol. 69, No. 2, 47-50.
- Roccaforte, J.P., P.Z. Fulé, and W.W. Covington. 2008. Landscape-scale changes in canopy fuels and potential fire behavior following ponderosa pine restoration treatments. *International Journal of Wildland Fire* 17:293-303.
- Abella, S.R., and W.W. Covington. 2007. Forest floor treatments in Arizona ponderosa pine restoration ecosystems: no short-term effects on plant communities. *Western North American Naturalist* 67:120-132.

- Abella, S.R., J.D. Springer, and W.W. Covington. 2007. Seed banks of Arizona pinus ponderosa landscape: responses to environmental gradients and fire cues. *Canadian Journal of Forest Restoration* 37:552-567.
- Abella, S.R., W.W. Covington, P.Z. Fulé, L. Lentile, A. Sanchez-Meador, P. Morgan. 2007. Past, present, and future old growth in frequent-fire conifer forests of the western United States. *Ecology and Society* Vol. 12, No. 2, Article 16.
- Laughlin, D.C., M.M. Moore, J.D. Bakker, C.A. Casey, J.D. Springer, P.Z. Fulé, and W.W. Covington. 2007. Assessing targets for the restoration of herbaceous vegetation in ponderosa pine forests. *Restoration Ecology* (14)4:548-560.
- Abella, S.R., P.Z. Fulé, and W.W. Covington. 2006. Diameter caps for thinning southwestern ponderosa pine forests: viewpoints, effects, and tradeoffs. *Journal of Forestry*(104) 407-414.
- Fulé, P.Z., T.A. Heinlein, and W.W. Covington. 2006. Fire histories in ponderosa pine forests of Grand Canyon are well supported: reply to Baker. *International Journal of Wildland Fire* 15:439-445.
- Moore, M.M., C.A. Casey, J.D. Bakker, J.D. Springer, P.Z. Fulé, W.W. Covington, and D.C. Laughlin. 2006. Herbaceous response to restoration treatments in a ponderosa pine forest, 1992-2004. *Rangeland Ecology and Management* 59:135-144.
- Kaye, J.P., Hart, S.C., Fulé, P.Z., Covington, W.W., M.M Moore, and M.W. Kaye. 2005. Initial carbon, nitrogen, and phosphorus fluxes following ponderosa pine restoration treatments. *Ecological Applications* 15(5):1581-1593.
- Fulé, P.Z., D.C. Laughlin, and W.W. Covington. 2005. Pine-oak forest dynamics five years after ecological restoration treatments. *Forest Ecology and Management* 218:129-145.
- Heinlein, T.A., M.M. Moore, P.Z. Fulé, and W.W. Covington. 2005. Fire history of two ponderosa pine—mixed conifer sites: San Francisco Peaks, Arizona, USA. *International Journal of Wildland Fire* 14:307-320.
- Moore, M.M., D.W. Huffman, P.Z. Fulé, W. W. Covington, and J.E. Crouse. 2004. Comparison of historical and contemporary forest structure and composition on permanent plots in southwestern ponderosa pine forests. *Forest Science* 50(2):162-176.
- Fulé, P.Z., A.E. Cocke, T.A. Heinlein, and W.W. Covington. 2004. Effects of an intense prescribed forest fire: is it ecological restoration? *Restoration Ecology* 12(2):220-230.
- Gildar, C.N., P.Z. Fulé, and W.W. Covington. 2004. Plant community variability in ponderosa pine forest has implications for reference conditions. *Natural Areas Journal* 24(2):101-111.
- Fulé, P.Z., J.E. Crouse, A.E. Cocke, M.M. Moore, and W.W. Covington. 2004. Changes in Canopy Fuels and Potential Fire Behavior 1880-2040: Grand Canyon, Arizona. *Ecological Modelling* 175:231-248.
- Abella, S. and W.W. Covington. 2004. Monitoring an Arizona ponderosa pine restoration: sampling efficiency and multivariate analysis of understory vegetation. *Restoration Ecology*, 12(3): 359-367.
- Fulé, P.Z., A.E. Cocke, T.A. Heinlein, and W.W. Covington. 2004. Effects of an intense prescribed forest fire: is it ecological restoration? *Restoration Ecology* 12(2):220-230.
- Fulé, P.Z., J.E. Crouse, A.E. Cocke, M.M. Moore, and W.W. Covington. 2004. Changes in canopy fuels and potential fire behavior 1880-2040: Grand Canyon, Arizona. *Ecological Modelling* 175:231-248.

- Gildar, C.N. , P.Z. Fulé, and W.W. Covington. 2004. Plant community variability in ponderosa pine forest has implications for reference conditions. *Natural Areas Journal* 24(2):101-111.
- Korb, J.E., N.C. Johnson and W.W. Covington. 2004. Slash pile burning effects on soil biotic and chemical properties and plant establishment: recommendations for amelioration. *Restoration Ecology* 12(1):52-62.
- Laughlin, D.C., J.D. Bakker, M.T. Stoddard, M.L. Daniels, J.D. Springer, C.N. Gildar, A.M. Green, and W.W. Covington. 2004. Toward reference conditions: effects of wildfire on flora of a remote old-growth ponderosa pine forest. *Forest Ecology and Management*. In press.
- Moore, M.M., D.W. Huffman, P.Z. Fulé, W.W. Covington, and J.E. Crouse. 2004. Comparison of historical and contemporary forest structure and composition on permanent plots in southwestern ponderosa pine forests. *Forest Science* 50(2):162-176.
- Covington, W.W. 2003. Restoring ecosystem health in frequent-fire forests of the American West. *Ecological Restoration* 21:1: 7-11
- Covington, W.W. 2003. The Evolutionary and Historical Context. Pages 26-47, Chapter 2, in Friederici, Peter (Editor), *Ecological Restoration of Southwestern Ponderosa Pine Forests*. Society for Ecological Restoration International.
- Elseroad, A.C., P.Z. Fulé, W.W. Covington. 2003. Forest Road Revegetation: effects of seeding and soil amendments. *Ecological Restoration* 21:3: 180-185.
- Fulé, P.Z., J.E. Crouse, T.A. Heinlein, M.M. Moore, W.W. Covington, and G. Verkamp. 2003. Mixed-severity fire regime in a high-elevation forest: Grand Canyon, Arizona. *Landscape Ecology* 18:465-486.
- Fulé, P.Z., T.A. Heinlein, W.W. Covington, and M.M. Moore. 2003. Assessing fire regimes on Grand Canyon landscapes with fire scar and fire record data. *International Journal of Wildland Fire* 12(2):129-145.
- Korb, J.E., W.W. Covington, and P.Z. Fulé. 2003. Sampling techniques influence understory plant trajectories following restoration—an example from ponderosa pine restoration. *Restoration Ecology* 11(4):504-515.
- Korb, J.E., N.C. Johnson and W.W. Covington. 2003. Arbuscular mycorrhizal propagule densities respond rapidly to ponderosa pine restoration treatments. *Journal of Applied Ecology* 40(1): 101-110.
- Waltz, A.E.M., P.Z. Fulé, W.W. Covington, and M.M. Moore. 2003. Diversity in ponderosa pine forest structure following ecological restoration treatments. *Forest Science* 49(6):885-900.
- Waltz, A.E.M. and W.W. Covington. 2003. Ecological restoration treatments increase butterfly richness and abundance: mechanisms of response. *Restoration Ecology* 12(1):85-96.
- Bailey, D.F. and W.W. Covington. 2002. Evaluating ponderosa pine regeneration rates following ecological restoration treatments in northern Arizona, USA. *Forest Ecology and Management*. 155:271-278.
- Fulé, P.Z., W.W. Covington, H.B. Smith, J.D. Springer, T.A. Heinlein, K.D. Huisinga, and M.M. Moore. 2002. Comparing ecological restoration alternatives: Grand Canyon, Arizona. *Forest Ecology and Management* 170: 19-41.
- Fulé, P.Z., .W. Covington, M.M. Moore, T.A. Heinlein, and A.E.M. Waltz. 2002. Natural variability in forests of Grand Canyon, USA. *Journal of Biogeography* 29:31-47.

- Covington, W.W., P.Z. Fulé, S.C. Hart, and R.P. Weaver. 2001. Modeling ecological restoration effects on ponderosa pine forest structure . *Restoration Ecology* 9(4):421-431.
- Fulé, P.Z., A.E.M. Waltz, W.W. Covington, and T.A. Heinlein. 2001. Measuring forest restoration effectiveness in hazardous fuels reduction. *Journal of Forestry* 99(11):24-29
- Fulé, P.Z., J.D. Springer, D.W. Huffman, and W.W. Covington. 2001. Response of a Rare Endemic, *Penstemon clutei*, to Burning and Reduced Belowground Competition. Pages 139-152 in Maschinski, J., and L. Holter (technical coordinators), *Southwestern Rare and Endangered Plants: Proceedings of the Third Conference*. Proc. RMRS-P-23. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- Fulé, P.Z., C. McHugh, T.A. Heinlein, and W.W. Covington. 2001. Potential fire behavior is reduced following forest restoration treatments. Pages 28-35 in Vance, G.K., C.B. Edminster , W.W. Covington, and J.A. Blake (compilers), *Ponderosa Pine Ecosystems Restoration and Conservation: Steps Toward Stewardship*. Proc. RMRS-P-22. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- Meyer, C.L., T.D. Sisk, W.W. Covington. 2001. Microclimatic changes induced by ecological restoration of ponderosa pine forests in northern Arizona. *Restoration Ecology* 9:443-452.
- Covington, W.W., P.Z. Fulé, T.M. Alcoze, and R.K. Vance. 2000. Learning by doing: ecological restoration education at Northern Arizona University. *Journal of Forestry* 98(10):30-34.
- Fulé, P.Z., A. García-Arévalo, and W.W. Covington. 2000. Effects of an intense wildfire in a Mexican oak-pine forest. *Forest Science* 46(1): 52-61.
- Fulé, P.Z., T.A. Heinlein, W.W. Covington, and M.M. Moore. 2000. Continuing fire regimes in remote forests of Grand Canyon National Park. *Proceedings: Wilderness Science in a Time of Change*. USDA Forest Service Proceedings RMRS-P-15-VOL-5: 242-248.

Presentations

- Kalies, E.L., C.L. Chambers, and W.W. Covington. 2009. The impacts of ecological restoration treatments on wildlife populations in southwestern conifer forests: a meta analysis. Presented by E.L. Kalies at The Ecological Society of America's Annual Meeting, Albuquerque, New Mexico. August 2-8, 2009.