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University of Kentucky  
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**Education:**

Ph.D. 1990. Forest Ecology, minor in Soil Science, Cornell University  
M.F.S. 1983. Forest Science, Yale School of Forestry & Environmental Studies  
B.A. 1979. Environmental Studies, Colby College

**Professional Positions:**

<b>Professor</b> , Department of Forestry, University of Kentucky	2006-present
<b>Associate Professor</b> , Department of Forestry, University of Kentucky	2000-2006
Appointment approximately: 73% research; 27% teaching	
<b>Sabbatical Leave</b> , Institute of Ecosystem Studies, Millbrook, NY	1/00-7/00
<b>Member</b> , UK Biology Program Graduate Faculty	2003-present
<b>Member</b> , UK Soil Science Graduate Faculty	1994-present
<b>Assistant Professor</b> , Department of Forestry, University of Kentucky	1993-2000
<b>Post-doctoral Associate</b> , Boyce Thompson Institute for Plant Research, Ithaca, NY	1990-1992
<b>Graduate Research Assistant</b> , Cornell University.	1989-1990
<b>Teaching Assistant</b> , Cornell University	1984-1989
<b>Research Technician</b> , Yale School of Forestry and Environmental Studies	1983-1984

**Professional Service:**

2006-2010: Editorial Board, *Ecology* and *Ecological Monographs*  
2004-2009: Editorial Board, *Soil Science Society of America Journal*  
2000-2009: Visiting Scientist, Institute of Ecosystem Studies

**Professional Awards:**

Soil Science Society of America, Editor's Citation of Excellence for Associate Editor, 2009  
Faculty Futures Award, 2005, University of Kentucky, College Agriculture  
Soil Science Society of America (SSSA), Best Paper Award (co-authored), 2003

**Selected Publications:**

Alexander\*, H.D. and M.A. Arthur. 2010. Implications of a predicted shift from upland oaks to red maple on forest hydrology and nutrient availability. *Canadian Journal of Forest Research*: 40: 716-726.  
Green\*, S.R., M.A. Arthur and B.A. Blankenship. 2010. Oak and red maple seedling survival and growth following periodic prescribed fire on xeric ridgetops on the Cumberland Plateau. *Forest Ecology and Management* 259: 2256-2266.

- Lovett, G.M., M.A. Arthur, K.C. Weathers and J.Griffin. 2010. Long-term changes in forest carbon and nitrogen cycling caused by an introduced pest/pathogen complex. *Ecosystems* 13: 1188-1200.
- McEwan\*, R.W., L.G. Arthur-Paratley, L.K. Rieske and M.A. Arthur. 2010. A multi-assay comparison of seed germination inhibition by *Lonicera maackii* and co-occurring native shrubs. *Flora* 205:475-483.
- Royse\*, J., M.A. Arthur, A. Schorgendorfer, and D.L. Loftis. 2010. Establishment and growth of oak (*Quercus alba*, *Quercus prinus*) seedlings in burned and fire-excluded upland forests on the Cumberland Plateau. *Forest Ecology and Management* 260: 502-510. Doi: 10.1016/j.foreco.2010.05.005.
- Weand\*, M.P., M.A. Arthur, G.M. Lovett, K.C. Weathers, R.L. McCulley. 2010. Soil Biology and Biochemistry 42: 2161-2173.
- Weand\*, M.P., M.A. Arthur, G.M. Lovett, F. Sikora and K.C. Weathers. 2010. The phosphorus status of northern hardwoods differs by species but is unaffected by nitrogen fertilization. *Biogeochemistry* 97:2-3. DOI 10.1007/s10533-009-9364-2.
- Alexander\*, H.D. and M.A. Arthur. 2009. Foliar morphology and chemistry of upland oaks, red maple, and sassafras seedlings in response to single and repeated prescribed fires. *Canadian Journal of Forest Research* 39: 740-754.
- Christensen, L.M., G.M. Lovett, K.C. Weathers and M.A. Arthur. 2009. The Influence of tree species, nitrogen fertilization and soil C:N ratio on gross soil nitrogen transformations. *Soil Sci. Soc. Am. J.* 73: 638-646.
- Fabio\* E.S., M.A. Arthur, C.C. Rhoades. 2009. Influence of moisture regime and tree species composition on nitrogen cycling dynamics in hardwood forests of Mammoth Cave National Park, Kentucky, USA. *Canadian Journal of Forest Research* 39: 330-341.
- McEwan\*, R.W., M. K. Birchfield\*\*, A. Schoergendorfer and M.A. Arthur. 2009. Leaf phenology and freeze tolerance of the invasive shrub Amur honeysuckle and potential native competitors. *Journal of the Torrey Botanical Society* 136:212-220.
- McEwan\*, R.W., L.K. Rieske, and M.A. Arthur. 2009. Potential interaction between invasive woody shrubs and the gypsy moth (*Lymantria dispar*), an invasive insect herbivore. *Biological Invasions* 11: 1053-1058.
- Alexander, H.D., M.A. Arthur, D.L. Loftis, S.R. Green. 2008. Survival and growth of upland oak and co-occurring competitor seedlings following single and repeated prescribed fires. *Forest Ecology and Management* 256: 1021-1030.
- Blum, J.D., A.A. Dasch, S.P. Hamburg, R.D. Yanai and M.A. Arthur. 2008. Use of foliar Ca/Sr discrimination and <sup>87</sup>Sr/<sup>86</sup>Sr ratios to determine soil Ca sources to sugar maple foliage in a northern hardwood forest. *Biogeochemistry* 87: 287-296.
- Hancock, J.E., M.A. Arthur, K.C. Weathers and G.M. Lovett. 2008. Aboveground net primary production and total belowground carbon allocation along a gradient of beech bark disease impact in the Catskill Mountains, New York. *Canadian Journal of Forest Research* 38: 1267-1274.
- Loucks, E., M.A. Arthur, J.E. Lyons and D.L. Loftis. 2008. Characterization of fuel before and after a single prescribed fire in an Appalachian hardwood forest. *Southern Journal of Applied Forestry* 32: 80-88.
- Templer, P.H., M.A. Arthur, G.M. Lovett, and K.C. Weathers. 2007. Plant and soil natural abundance  $\delta^{15}\text{N}$ : Indicators of relative rates of nitrogen cycling in temperate forest ecosystems. *Oecologia* 153: 399-406.

- Binkley, D., D.M. Kashian, S.Boyden, M.W. Kaye, J.B. Bradford, M.A. Arthur, P.J. Fornwalt, M.G. Ryan. 2006. Patterns of growth dominance in forests of the Rocky Mountains, USA. *Forest Ecology and Management* 263:193-201.
- Blankenship, B.A. and M.A. Arthur. 2006. Stand structure over nine years in burned and fire-excluded oak stands on the Cumberland Plateau, Kentucky. *Forest Ecology and Management* 225: 134-145.
- Lovett, G.M., C.D. Canham, M.A. Arthur, K.C. Weathers and R.D. Fitzhugh. 2006. Forest ecosystem responses to exotic pests and pathogens in eastern North America. *BioScience* 56:395-405.
- Newman, G., M.A. Arthur, and R.N. Muller. 2006. Above- and belowground net primary production in a temperate mixed deciduous forest. *Ecosystems* 9:317-329.
- Chiang, J., M.A. Arthur and B.A. Blankenship. 2005. The effect of prescribed fire on gap fraction in an oak forest on the Cumberland Plateau. *Journal of the Torrey Botanical Society* 132: 432-441.
- Yanai, R.D., J.D. Blum, S.P. Hamburg, M.A. Arthur, C.A. Nezat, and T.G. Siccama. 2005. New Insights into Calcium Depletion in Northeastern Forests. *Journal of Forestry* 103:14-20.
- Yanai, R.D., R.P. Phillips, M.A. Arthur, T.G. Siccama, and E.N. Hane. 2005. Spatial and temporal variation in calcium and aluminum in northern hardwood forest floors. *Water, Air and Soil Pollution* 160:109-118.
- Lovett, G.M., K.C. Weathers, and M.A. Arthur. 2004. Nitrogen cycling in a northern hardwood forest: do species matter? *Biogeochemistry* 67: 289-308.
- Gilbert, N.L., S.L. Johnson, S.K. Gleeson, B.A. Blankenship and M.A. Arthur. 2003. Effects of prescribed fire on physiology and growth of *Acer rubrum* and *Quercus* spp. seedlings in an oak-pine forest on the Cumberland Plateau, KY. *Journal of the Torrey Botanical Society* 130: 253-264.
- Griffin, J.M., G.M. Lovett, M.A. Arthur and K.C. Weathers. 2003. The distribution and severity of beech bark disease in the Catskill Mountains, NY. *Canadian Journal of Forest Research* 33:1754-1760.
- Washburn, C.S.M. and M.A. Arthur. 2003. Tree species effects on soil nutrient availability in an oak-pine forest. *Canadian Journal of Forest Research* 33:2321-2330.
- Yanai, R.D., S.V. Stehman, M.A. Arthur, C.E. Prescott, A.J. Friedland, T.G. Siccama, and D. Binkley. 2003. Detecting change in forest floor carbon storage. *Soil Science Society of America Journal* 67:1583-1593. .
- Hamburg, S.P., R.D. Yanai, M.A. Arthur, J.D. Blum and T.G. Siccama. 2003. Biotic control of calcium cycling in northern hardwood forests: acid rain and aging forests. *Ecosystems* 6:399-406.
- Kuddes-Fischer, L.M. and M.A. Arthur. 2002. Response of understory vegetation and tree regeneration to a single prescribed fire in oak-pine forests. *Natural Areas Journal* 22:43-52.
- Lovett, G.M., K.C. Weathers, and M.A. Arthur. 2002. Control of N loss from forested watershed by soil C:N ratio and tree species composition. *Ecosystems* 5:712-718.
- Rieske, L.K., H.H. Housman, and M.A. Arthur. 2002. Effects of prescribed fire on canopy foliar chemistry and suitability for an insect herbivore. *Forest Ecology and Management* 160:177-187.
- S.P. Hamburg, and T.G. Siccama. 2001. Validating allometric estimates of aboveground living biomass and nutrient contents of a northern hardwood forest. *Canadian Journal of Forest Research* 31:11-17.

- Arthur, M.A. and R.D. Yanai. 2000. Distinguishing the effects of environmental stress and forest succession on changes in the forest floor. *Korean Journal of Ecology* 23:83-88.
- McEwan, R.W., R.N. Muller, M.A. Arthur and H.H. Housman. 2000. Temporal and ecological patterns of flowering dogwood mortality in the mixed mesophytic forest of eastern Kentucky. *Journal of the Torrey Botanical Society*. 127:221-229. .
- Yanai, R.D., M.A. Arthur, T.G. Siccama and C.A. Federer. 2000. Challenges of measuring forest floor organic matter dynamics: Repeated measures from a chronosequence. *Forest Ecology and Management* 138:273-283.
- Arthur, M.A., T.G. Siccama, and R.D. Yanai. 1999. Calcium and magnesium in wood of northern hardwood forest species: relations to site characteristics. *Canadian Journal of Forest Research* 29:339-346.
- Arthur, M.A. and Y. Wang. 1999. Soil nutrients and microbial biomass following weed control treatments in a Christmas tree plantation. *Soil Science Society of America Journal* 63:629-637.
- Blankenship, B.A. and M.A. Arthur. 1999. Prescribed fire affects eastern white pine recruitment and survival on eastern Kentucky ridgetops. *Southern Journal of Applied Forestry* 23:144-150.
- Taylor, L.A., M.A. Arthur and R.D. Yanai. 1999. Forest floor microbial biomass across a northern hardwood forest successional sequence. *Soil Biology and Biochemistry* 31: 431-439.
- Yanai, R.D., T.G. Siccama, M.A. Arthur, and C.A. Federer. 1999. Accumulation and depletion of base cations in forest floors in the northeastern US. *Ecology* 80:2774-2787.
- Arthur, M.A., G.B. Coltharp, and D.L. Brown. 1998. Effects of best management practices on forest streamwater quality in eastern Kentucky. *Journal of the American Water Resources Association* 34:481-495.
- Arthur, M.A., R.D. Paratley and B.A. Blankenship. 1998. Single and repeated fire affect survival and regeneration of woody species in an oak-pine forest. *Journal of the Torrey Botanical Society* 125:225-236.
- Arthur, M.A., R.N. Muller and S. Costello. 1997. Species composition in a central hardwood forest in Kentucky eleven years after clearcutting. *American Midland Naturalist* 137:274-281.
- Siccama, T.G., Hamburg, S.P., Arthur, M.A., Yanai, R.D., Bormann, F.H., and Likens, G.E. 1994. Corrections to the allometric equations and plant tissue chemistry for the Hubbard Brook Experimental Forest. *Ecology* 75:246-248.
- Arthur, M.A. and Fahey, T.J. 1993. Controls on soil solution chemistry in an Engelmann spruce, subalpine fir forest in north-central Colorado. *Soil Science Society of America Journal* 57:1122-1130.
- Arthur, M.A., Tritton, L.M. and Fahey, T.J. 1993. Dead bole mass and nutrients remaining 23 years after clearfelling of a northern hardwood forest. *Canadian Journal of Forest Research* 23:1298-1305.
- Arthur, M.A. and Fahey, T.J. 1993. Throughfall chemistry in an Engelmann spruce, subalpine fir forest in north-central Colorado. *Canadian Journal of Forest Research* 23:738-742.
- Arthur, M.A. and Fahey, T.J. 1992. Biomass and nutrients in an Engelmann spruce - subalpine fir forest in north-central Colorado: pools, annual production and internal cycling. *Canadian Journal of Forest Research* 22:315-325.
- Arthur, M.A. and Fahey, T.J. 1990. Mass and nutrient content of decaying boles in an Engelmann spruce/subalpine fir forest, Rocky Mountain National Park, Colorado. *Canadian Journal of Forest Research* 20:730-737.

### *Book Chapters*

- Lovett, G.M., Weathers, K.C. and Arthur, M.A. 2001. Is nitrate in stream water an indicator of forest ecosystem health in the Catskills? *In*: M.S. Adams, ed., *Catskill Ecosystem Health*, Purple Mountain Press, Fleischmanns, NY, pp. 22-30.
- Arthur, M.A. 1992. Vegetation. *In* *Biogeochemistry of a Subalpine Ecosystem: Loch Vale Watershed*. Edited by J. Baron, Ecological Studies Series 90, Springer-Verlag, NY.
- Baron, J., Walthall, P.M., Mast, M.A., and Arthur, M.A. 1992. Soils. *In* *Biogeochemistry of a Subalpine Ecosystem: Loch Vale Watershed*. Edited by J. Baron, Ecological Studies Series 90, Springer-Verlag, NY.

### **Graduate Students:**

#### Current students

- Heather Clark, MS. Topic: Plant community response to Amur honeysuckle removal in Bluegrass urban remnant forests
- Megan Poulette, Ph.D. Topic: Spatial patterning of the effects of savanna trees and exotic species on soil nutrient and C cycling and soil biota

#### Former students

- Matthew Weand, Ph.D. 2010. Topic: Interactions between N and P cycling and microbial communities in northern hardwood forests
- Heather Alexander, Ph.D. 2009. Topic: Oak regeneration failure: Impacts on N cycling and effects of prescribed fire
- Jake Royse, M.S. 2008. Effects of prescribed fire on oak seedling recruitment and establishment
- Marty Acker, M.S. 2006. Base cation concentration and content in litterfall and woody debris across a northern hardwood forest chronosequence
- Eric Fabio, M.S. 2006. Role of forest type and moisture regime in N cycling at Mammoth Cave National Park
- Tara Littlefield, M.S. 2006. Factors controlling soil organic matter and C cycling in reforested surface mines and regenerating clearcuts in eastern Kentucky
- Stephanie Green, M.S. 2005. The effects of prescribed fire on stand structure, canopy cover and seedling populations in oak dominated forests on the Cumberland Plateau, KY.
- David Lyon, M.S. 2004. Persistent effects of eastern redcedar on calcareous glade soils and plant community.
- Elizabeth Loucks, M.S. 2004. The effects of landscape scale prescribed fire on fuel loading and tree health in an Appalachian hardwood forest, Kentucky.
- Jyh-min Chiang, M.S. 2002. Prescribed fire effects on understory light environment and seedling performance of oak and red maple in eastern Kentucky.
- Greg S. Newman, M.S. 2002. Carbon allocation and interannual variation in net primary production in a temperate mixed deciduous forest
- Linda Kuddes-Fischer, M.S. 1999. Response of understory vegetation and tree regeneration to a single prescribed fire in an oak-pine ecosystem.
- Washburn, Carol S.M., M.S. 1999. Tree species effects on soil nutrient availability and the response to fire in an oak-pine forest.
- Blankenship, Beth, M.S. 1997. Response of eastern white pine, soil nutrients and microbial biomass to prescribed fire in the Red River Gorge.

- Taylor, Laurie, M.S. 1996. An assessment of microbial biomass across a northern hardwood forest successional sequence.
- Wang, Yating, M.S. 1996. Effects of four weed management strategies on soil microbial biomass and nutrients in a Christmas tree plantation.

*Non-thesis M.S. degrees directed:*

- Greg Abernathy. 1999.
- Heather Housman. 2001.
- Amy Thompson. 2000.