

Steward T.A. Pickett

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Education:

B.S., with Honors in Botany, University of Kentucky, Lexington, 1972

Ph.D., in Botany, University of Illinois, Urbana, Illinois, 1977

Professional Positions:

Teaching Assistant, University of Illinois, 1973-1977

Research Assistant, University of Illinois, 1977

Visiting Faculty, Organization for Tropical Studies, Costa Rica, 1977

Assistant through Associate Professor, Rutgers University, 1977-1986

Director, Hutcheson Memorial Forest Center, 1984-1986

Associate Scientist, Institute of Ecosystem Studies, 1987-1990.

Scientist, Institute of Ecosystem Studies, 1990-1997.

Senior Scientist, Institute of Ecosystem Studies, 1997-2004.

Distinguished Senior Scientist, Institute of Ecosystem Studies, 2004-.

Member, Rutgers Graduate Ecology Faculty, 1977-; Executive Council 1993-1995.

Adjunct Professor, University of Connecticut, Storrs, 1989-.

Affiliate Faculty, Department of Geography and Environmental Systems, University of Maryland Baltimore County, 2003-.

Martin Luther King, Jr. Visiting Faculty Fellowship, Department of Urban Studies and Planning, Massachusetts Institute of Technology, 2009-2010.

Selected Professional Honors:

Biographee, American Men and Women of Science; Who's Who in the East.

Fellow, American Association for Advancement of Science, elected 1992.

Fellow, American Academy of Arts and Sciences, elected 1993.

Conservation Innovator Award, CERC, Columbia University, May 2005.

Botanical Society of America, Centennial Award, 2006.

Research Interests and Activities:

- Urban Socio-Ecological Systems. In a world where more than 50 % of humanity lives in cities, suburbs, and exurban fringe areas – together labeled “urban” – it is becoming increasingly important to understand the ecological structures and relationships that exist in these rapidly changing areas. Pickett’s research is establishing new theoretical frameworks for understanding how the spatially complex mosaics of urban ecosystems are structured and how they change through time. Especially important is the understanding of urban resilience, which provides the mechanisms to achieve sustainability in urban areas broadly defined. Social processes, disturbances, and patch dynamics are key targets of Pickett’s urban research. In particular, new projects on the spatial ecology and adaptive potential in vacant lots, the ecological foundations of urban design, and comparative studies of urban sustainability are underway.

- Plant succession in abandoned agricultural fields. Such fields have been a model system for understanding the ecologically fundamental process of succession. In collaboration with Prof Scott Meiners, Cary Institute Visiting Scientist, Pickett continues to contribute to the more than 50 year data set of plant community change in experimental fields at the Hutcheson Memorial Forest (HMF) Center in New Jersey. This dataset is a national ecological treasure, and has yielded surprising results. Currently analyses are underway to determine new trends and interactions that are appearing as the fields convert to woodland structure, and new invasive species adapted to such habitats reach the Center. A book summarizing the first 50 years of succession at HMF is in preparation, coedited by Drs Meiners, M.L. Cadenasso, and P.J. Morin.

Selected Publications:

- Pickett, S.T.A. 1976. Succession: An evolutionary interpretation. *The American Naturalist* 110:107-119.
- Pickett, S.T.A., and J.N. Thompson. 1978. Patch dynamics and the design of nature reserves. *Biological Conservation* 13:27-37.
- Pickett, S.T.A., and P.S. White, eds. 1985. *The Ecology of Natural Disturbance and Patch Dynamics*. Academic Press, New York. Paperback edition, 1986.
- Pickett, S.T.A. 1980. Non-equilibrium coexistence of plants. *Bulletin of the Torrey Botanical Club* 107: 238-248.
- Pickett, S.T.A. 1989. Space-for-time substitution as an alternative to long-term studies. pp 110-135 In G.E. Likens, ed. *Long-term Studies in Ecology: Approaches and Alternatives*. Springer-Verlag, New York.
- Kolasa, J. and S.T.A. Pickett. 1989. Ecological systems and the concept of biological organization. *Proceedings of the National Academy of Science USA*. 86:8837-8841.
- Pickett, S.T.A. and M.J. McDonnell. 1989. Changing perspectives in community dynamics: A theory of successional forces. *Trends in Ecology and Evolution* 4:241-245.
- Pickett, S.T.A., J. Kolasa, J.J. Armesto, and S.L. Collins. 1989. The ecological concept of disturbance and its expression at different hierarchical levels. *Oikos* 54:129-156.
- McDonnell, M.J. and S.T.A. Pickett. 1990. Ecosystem structure and function along urban-rural gradients: An unexploited opportunity for ecology. *Ecology* 71:1232-1237.
- Pickett, S.T.A., V.T. Parker, and P. Fiedler. 1992. The new paradigm in ecology: Implications for conservation biology above the species level, pp. 65-88. In P. Fiedler, and S. Jain, eds. *Conservation Biology: The Theory and Practice of Nature Conservation, Preservation and Management*. Chapman and Hall, New York.
- McDonnell, M.J. and S.T.A. Pickett, eds. 1993. *Humans as Components of Ecosystems: The Ecology of Subtle Human Effects and Populated Areas*. Springer-Verlag, New York.
- Pickett, S.T.A. and V.T. Parker. 1994. Avoiding the old pitfalls: Opportunities in a new discipline. *Restoration Ecology* 2:75-79.
- Pickett, S.T.A. and M.L. Cadenasso. 1995. Landscape ecology: Spatial heterogeneity in ecological systems. *Science* 269:331-334.
- McDonnell, M.J., S.T.A. Pickett, P. Groffman, P. Bohlen, R.V. Pouyat, W.C. Zipperer, R.W. Parmelee, M. Carreiro, and K. Medley. 1997. Ecosystem processes along an urban-to-rural gradient. *Urban Ecosystems* 1:21-36.
- Pickett, S.T.A., W.R. Burch, Jr., and S.E. Dalton. 1997. Guest editorial: Integrated urban ecosystem research: Themes, needs, and applications. *Urban Ecosystems* 1(4):183-184.
- Pickett, S.T.A., W.R. Burch, Jr., S.E. Dalton, T.W. Foresman, J.M. Grove, and R. Rowntree. 1997. A conceptual framework for the study of human ecosystems in urban areas. *Urban Ecosystems* 1:185-199.
- Pickett, S.T.A., R.S. Ostfeld, M. Shachak, and G.E. Likens, eds. 1997. *The Ecological Basis for Conservation -- Heterogeneity, Ecosystems, and Biodiversity*. New York: Chapman and Hall. 466 pp.

- Dale, V.H., A.E. Lugo, J.A. MacMahon, and S.T.A. Pickett. 1998. Ecosystem management in the context of large and infrequent disturbances. *Ecosystems* 1(6):546-557.
- Jax, K., C.G. Jones, and S.T.A. Pickett. 1998. The self-identity of ecological units. *Oikos* 82:263-264.
- Pickett, S.T.A. 1999. The culture of synthesis: Habits of mind in novel ecological integration. *Oikos* 87:479-487.
- Pickett, S.T.A., W.R. Burch, Jr., and J.M. Grove. 1999. Interdisciplinary research: Maintaining the constructive impulse in a culture of criticism. *Ecosystems* 22:302-307.
- Cadenasso, M.L., and S.T.A. Pickett. 2000. Linking forest edge structure to edge function: Mediation of herbivore damage. *Journal of Ecology* 88:31-44.
- Grimm, N.B., J.M. Grove, S.T.A. Pickett, and C.L. Redman. 2000. Integrated approaches to long-term studies of urban ecological systems. *BioScience* 50(7):571-584.
- Peterson, C.J. and S.T.A. Pickett. 2000. Patch type influences on components of forest regeneration in a western Pennsylvania (USA) catastrophic windthrow. *Oikos* 90:489-500.
- Cadenasso, M.L., and S.T.A. Pickett. 2001. Effect of edge structure on the flux of species into forest interiors: An experimental approach. *Conservation Biology* 15(1):91-97.
- Meiners, S. J., S.T.A. Pickett, and M.L. Cadenasso. 2001. Effects of plant invasions on the species richness of abandoned agricultural land. *Ecography* 24:633-644.
- Pickett, S.T.A., M.L. Cadenasso, and C.G. Jones. 2001. Generation of heterogeneity by organisms: creation, maintenance, and transformation. pp 33-52 in M.L. Hutchings, E.A. John, and A.J.A. Stewart, eds. *Ecological Consequences of Habitat Heterogeneity, the Annual Symposium of the British Ecological Society*. Blackwell, London.
- Pickett, S.T.A., M.L. Cadenasso, J.M. Grove, C.H. Nilon, R.V. Pouyat, W.C. Zipperer, and R. Costanza. 2001. Urban Ecological Systems: Linking terrestrial ecological, physical, and socioeconomic components of metropolitan areas. *Annual Review of Ecology and Systematics* 32:127-157.
- Weathers, K.C., M.L. Cadenasso, and S.T.A. Pickett. 2001. Forest edges as nutrient and pollutant concentrators: Potential synergisms between fragmentation, forest canopies, and the atmosphere. *Conservation Biology* 15(6):1506-1514.
- Baxter, J.W., S.T.A. Pickett, J. Dighton, and M.M. Carreiro. 2002. Nitrogen and phosphorus availability in oak forest stands exposed to contrasting anthropogenic impacts. *Soil Biology and Biochemistry* 34:623-633.
- Meiners, S.J., S.T.A. Pickett, and M.L. Cadenasso. 2002. Exotic plant invasions over 40 years of old field succession: community patterns and associations. *Ecography* 25:215-223.
- Pickett, S.T.A., and M.L. Cadenasso. 2002. Ecosystem as a multidimensional concept: meaning, model and metaphor. *Ecosystems* 5:1-10.
- Bartha, S., S.J. Meiners, S.T.A. Pickett, and M.L. Cadenasso. 2003. Plant colonization windows in a mesic old field succession. *Applied Vegetation Science* 6:205-212.
- Cadenasso, M.L., S.T.A. Pickett, K.C. Weathers, S.S. Bell, T.L. Benning, M.M. Carreiro, and T.E. Dawson. 2003. An interdisciplinary and synthetic approach to ecological boundaries. *BioScience* 53(8): 717-722.
- Cadenasso, M.L., S.T.A. Pickett, K.C. Weathers, and C.G. Jones. 2003. A framework for a theory of ecological boundaries. *BioScience* 53(8): 750-758.
- Meiners, S.J., M.L. Cadenasso, and S.T.A. Pickett. 2004. Beyond biodiversity: individualistic controls of invasion in a self-assembled community. *Ecology Letters* 7:1-6.
- Pickett, S.T.A., M.L. Cadenasso, and J.M. Gove. 2004. Resilient Cities: meaning, metaphor, and models for integrating the ecological, socio-economic, and planning realms. *Landscape and Urban Planning* 69(4):369-384.
- Pickett, S.T.A., M.L. Cadenasso, and J.M. Grove. 2005. Biocomplexity in coupled natural-human systems: A multidimensional framework. *Ecosystems* 8:225-232.
- Felson, A.J. and S.T.A. Pickett. 2005. Designed Experiments: New Approaches to Studying Urban Ecosystems. *Frontiers in Ecology and Environment* 3:549-556.

- Grove, J.M., M. Cadenasso, W.R. Burch, Jr., S.T.A. Pickett, J. P. M. O'Neil-Dunne, K. Schwarz, M. Wilson, A. R. Troy and C. Boone. 2006. Data and Methods Comparing Social Structure and Vegetation Structure of Urban Neighborhoods in Baltimore, Maryland. *Society & Natural Resources* 19:117-136.
- Cadenasso, M.L. S.T.A. Pickett, and J.M. Grove. 2006. Dimensions of Ecosystem Complexity: Heterogeneity, Connectivity, and History. *Ecological Complexity* 3: 1-12.
- Grove, J. M., A. R. Troy, J. P. M. O'Neil-Dunne, W. R. Burch, Jr., M. L. Cadenasso, and S. T. A. Pickett. 2006. Characterization of households and its implications for the vegetation of urban ecosystems. *Ecosystems* 9: 578-597.
- Cadenasso, M.L., S.T.A. Pickett, and K. Schwarz. 2007. Spatial heterogeneity in urban ecosystems: Reconceptualizing land cover and a framework for classification. *Frontiers in Ecology and Evolution* 5: 80-88.
- Pickett, S.T.A., K.T. Belt, M.F. Galvin, P.M. Groffman, J.M. Grove, D.C. Outen, R.V. Pouyat, W.P. Stack, and M.L. Cadenasso. 2007. Watersheds in Baltimore, Maryland: Understanding and application of integrated ecological and social processes. *Journal of Contemporary Watershed Research and Application*. 136:44-55.
- Pickett, S.T.A., J. Kolasa, and C.G. Jones. 2007. *Ecological Understanding: The Nature of Theory and the Theory of Nature, 2nd Edition*. Academic Press, San Diego.
- Cadenasso, M.L., S.T.A. Pickett, M.J. McDonnell and P.V. Pouyat. 2007. Forest vegetation along an urban-rural gradient in the New York City metropolitan area: patterns and relationships to ecosystem processes. *Transactions of the Linnaean Society of New York* 10: 79-99.
- McGrath, B., V. Marshall, M.L. Cadenasso, J.M. Grove, S.T.A. Pickett, R. Plunz, and J. Towers, editors. 2007. *Designing Urban Patch Dynamics*. Columbia University Graduate School of Architecture, Planning and Preservation, Columbia University, New York.
- Pickett, S.T.A. and M.L. Cadenasso. 2008. Linking ecological and built components of urban mosaics: An open cycle of ecological design. *Journal of Ecology* 96: 8-12.
- Pickett, S.T.A., M.L. Cadenasso, J.M. Grove, P.M. Groffman, L.E. Band, C.G. Boone, G.S. Brush, W.R. Burch, Jr., J. Hom, J.C. Jenkins, N. Law, C.H. Nilon, R.V. Pouyat, K. Szlavecz, P.S. Warren, and M.A. Wilson. 2008. Beyond urban legends: An emerging framework of urban ecology as illustrated by the Baltimore Ecosystem Study. *BioScience* 58(2): 139-150.
- Cadenasso, M.L. and S.T.A. Pickett. 2008. Urban principles for ecological landscape design and management: Scientific fundamentals. *Cities and the Environment* 1(2): article 4, 16 pp. <http://escholarship.bc.edu/cate/vol1/iss2/4>
- Pickett, S.T.A., M.L. Cadenasso, and S.J. Meiners. 2008. Ever since Clements: From succession to vegetation dynamics and understanding to intervention. *Applied Vegetation Science* 12:9-21.
- Pickett, S.T.A., M.L. Cadenasso, M.J. McDonnell, and W.R. Burch, Jr. 2009. Frameworks for urban ecosystem studies: Gradients, patch dynamics and the human ecosystem in the New York metropolitan area and Baltimore, USA. Pp 25-50 In M.J. McDonnell, A.K. Hahs, and J. Breuste, eds. *Ecology of Cities and Towns: A Comparative Approach*. Cambridge University Press, New York.
- Pickett, S.T.A. and M.L. Cadenasso. 2009. Altered resources, disturbance, and heterogeneity: A framework for comparing urban and non-urban soils. *Urban Ecosystems* 12(1): 23-44.
- Pickett, S.T.A. and J.M. Grove. 2009. Urban Ecosystems: What Would Tansley Do? *Urban Ecosystems* 12: 1-8. DOI: 10.1007/s11252-008-0079-2
- Pickett, S.T.A. 2010. The Wild and the City, pp 153-159, In, *State of the Wild: A Global Portrait 2010*, K.H. Redford and E. Fearn, eds. Island Press, Washington, DC
- Pickett, S.T.A., M.L. Cadenasso, J.M. Grove, Christopher G. Boone, Peter M. Groffman, Elena Irwin, Sujay S. Kaushal, Victoria Marshall, Brian P. McGrath, C.H. Nilon, R.V. Pouyat, Katalin Szlavecz, Austin Troy, Paige Warren. 2011. *Urban Ecological Systems*:

Scientific Foundations and a Decade of Progress. *Journal of Environmental Management*. 92:331-362. doi:10.1016/j.jenvman.2010.08.22

- Foxcroft, L.C., S.T.A. Pickett, and M.L. Cadenasso. 2011. Expanding the conceptual frameworks for plant invasion ecology. *Perspectives in Plant Ecology, Evolution and Systematics*. 13: 89-100.
- Chapin, F.S, III, S.T.A. Pickett, M.E. Power, R.B. Jackson, D.M. Carter, and C. Duke. 2011. Earth stewardship: A strategy for social-ecological transformation to reverse planetary degradation. *Journal of Environmental Studies and Science* 1:44-53. DOI: 10.1007/s13412-011-0010-7
- Pickett, S.T.A., G.L. Buckley, S.S. Kaushal, and Y. Williams. 2011. Social-Ecological Science in the Humane Metropolis. *Urban Ecosystems*. 14 (3) 319-339. DOI 10.1007/s11252-011-0166-7
- Peters, D. P. C., A. E. Lugo, F. S. Chapin, III, S. T. A. Pickett, M. Duniway, A. V. Rocha, F. J. Swanson, C. Laney, and J. Jones. 2011. Cross-system comparisons elucidate disturbance complexities and generalities. *Ecosphere* 2(7):art81. doi:10.1890/ES11-00115.1
- McGrath, B. and S.T.A. Pickett. 2011. The Metacity: A conceptual framework for integrating ecology and urban design. Special Issue: Challenges in City Design: Realize the Value of Cities. Website: http://www.mdpi.com/si/challenges/city_design/ Guest Editor: Prof. Dr. Kongjian Yu. *Challenges* 2011, 2, 55-72 doi:10.3390/challe2040055
- Pickett, S.T.A., G.S. Brush, A.J. Felson, B.P. McGrath, J.M. Grove, C.H. Nilon, K. Szlavecz, C.S. Swan, P.S. Warren. 2012. The Baltimore Ecosystem Study: Understanding and Working with Urban Biodiversity. *Citygreen*. Issue 4: 68-77. <http://www.cuge.com.sg/research/images/cugeresearch/CG4/article%2006.pdf>
- McDonnell, M.J., A.K. Hahs, and S.T.A. Pickett. 2012. Exposing an urban ecology straw man: Critique of Ramalho and Hobbs. *Trends in Ecology & Evolution* DOI: 10.1016/j.tree.2012.01.009 (Published online Feb 8 2012)
- Pickett, S. T. A., S. J. Meiners, and M. L. Cadenasso. 2011. Domain and propositins of succession theory. Pages 185-216 in S. M. Scheiner and M. R. Willig, editors. *Theory of ecology*. University of Chicago Press, Chicago.