

CAROL P. HARDEN

Curriculum Vitae

Professor Emerita

Department of Geography, University of Tennessee, Knoxville, Tennessee 37996-9825

Current residence: Middlebury, VT 05753, USA

EDUCATION

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| Ph.D. Geography 1987 | University of Colorado, Boulder, CO. Dissertation: "Estimating Hillslope Soil Erosion in the Rio Ambato Watershed, Ecuadorian Andes: A Mesoscale Approach." Jack D. Ives, advisor. |
| M.A. Geography 1975 | University of Colorado, Boulder, CO. Thesis: "Landslides Near Aspen, Colorado." T. Nelson Caine, advisor |
| B.A. Environmental Studies/Ecology 1970 | Middlebury College, Middlebury, VT. Thesis: "An Investigation of Post-Pleistocene Climate Changes Based on Evidence in Snake Mountain Sphagnum Bog." Howard Woodin, advisor. |

EMPLOYMENT

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| 2021–present | Visiting Professor, Department of Geography, Middlebury College Affiliated Professor, Environmental Studies, Middlebury College |
| 2000–2014 | Professor, Department of Geography, University of Tennessee (retired Dec. 2014) |
| 2009–2012 | Interim Department Head, Department of Geography, University of Tennessee |
| 2006–2007 | Interim Department Head, Department of Geography, University of Tennessee |
| 1995–2000 | Head, Department of Geography, University of Tennessee. |
| 1993–2000 | Associate Professor, Department of Geography, University of Tennessee, Knoxville. |
| 1988–2000 | Adjunct Faculty Member, Ecology and Evolutionary Biology, Univ. Tennessee, Knoxville. |
| 1987–1993 | Assistant Professor, Geography Department, University of Tennessee, Knoxville. |
| 1986 | Professor, International Graduate Course in Applied Geomorphology, CEPEIGE (Pan American Center for Geographic Studies and Research), Quito, Ecuador (in Spanish). |
| 1984–1986 | Instructor, Department of Geography, University of Colorado. |
| 1979–1983 | Director of Development, Northwest Outward Bound School, Portland, Oregon. |
| 1972–1983 | Course Supervisor, Chief Instructor, and Instructor at Northwest and Colorado Outward Bound Schools. |
| 1977–1979 | Winter employment as avalanche control and mountain rescue specialist, Solitude, Utah. |
| 1969–1971 | Summer employment, Arctic Institute of North America, assisting medical and environmental research at 17,600 ft. on Mt. Logan. |

RESEARCH INTERESTS

Human-environment interactions, with emphasis on water and mountain regions; land-use and soil relationships in the Andes; runoff and infiltration processes in mountain regions; geomorphology of deglaciated and deglaciating landscapes.

HONORS AND AWARDS

AAG Lifetime Achievement Honors, American Association of Geographers, 2021
Fellow, American Association of Geographers, 2020
Mel Marcus Distinguished Career Award, Geomorphology Specialty Group, Association of American Geographers (2015)
College Marshall (2015) College of Arts & Sciences, University of Tennessee
Distinguished Career Award, Southeastern Division, Association of American Geographers (SEDAAG) 2013
Fellow, American Association for the Advancement of Science, 2010
Quest Scholar of the Week, University of Tennessee Office of Research, July 26, 2009
President (elected) of the Association of American Geographers: July 2009–2010
Appointment to Research & Exploration Committee of the National Geographic Society, 2009–2017
Vice President (elected) of the Association of American Geographers, 2008–2009
Outstanding Teaching Award, Department of Geography, University of Tennessee, 2008
Distinguished Career Award, Mountain Geography Specialty Group, AAG, 2005
Fulbright Fellowship (Ecuador), 2004
CUE Fellowship, Center for Undergraduate Excellence, University of Tennessee 2001-2002
Commencement Marshall, College of Arts and Sciences, December 1998
Angie Warren Perkins Award, 1997, University of Tennessee
Outstanding Teaching Award, Department of Geography, University of Tennessee, 1997
Liberal Arts Research/Creative Award, University of Tennessee, 1993-94
University of Tennessee Learning Research Center Practitioner Research on Teaching Award, 1994
Explorers Club: Fellow, 1984–1996
Outstanding Young Woman of America: 1978, 1982
Highest Honors in Environmental Studies, Phi Beta Kappa, and Mortar Board: Middlebury College, 1970

PUBLICATIONS

BOOKS (PEER REVIEWED)

James, L. A., Clague, J., and **Harden, C.P.** (Editors) 2022. *Geomorphology of Human Disturbances, Climate Change, and Natural Hazards*. Volume 9 of *Treatise on Geomorphology, Second Edition*. John F. Shroder (Editor-in-chief), Elsevier Publishing. (publication expected in January 2022).

James, L.A., **Harden, C.P.** and Clague, J. (Volume editors), 2013. Volume 13: *Geomorphology of Human Disturbances, Hazards, and Climate Change*. In: John F. Shroder (Editor-in-chief), *Treatise on Geomorphology*, San Diego: Academic Press.

2002. *Research Opportunities in Geography at the U.S. Geological Survey*, National Academy Press, Washington, D.C., 130 pp. Authorship is by Committee on Research Priorities in Geography at the U.S. Geological Survey, of which C. Harden was a member.

BOOK CHAPTERS (PEER REVIEWED)

James, L. A., Clague, J., and **Harden, C.P.** 2022. Geomorphology of human disturbances, climate change, and hazards. In: John F. Shroder (Editor-in-chief), James, L.A., Harden, C.P., and Clague, J.J. (Volume Editors). *Treatise on Geomorphology, Second Edition*, Vol. 9 *Geomorphology of Human Disturbances, Climate Change, and Natural Hazards, Second Edition*. Elsevier Publishing. (publication expected in January 2022).

Harden, C.P. and Byers, A., 2022. Anthropogenic geomorphic change in mountains. In: John F. Shroder (Editor-in-chief), James, L.A., Harden, C.P., and Clague, J.J. (Volume Editors). *Treatise on Geomorphology*, Vol 13, *Geomorphology of Human Disturbances, Climate Change, and Natural Hazards, Second Edition*. Elsevier Publishing.

Harden, C.P., 2022. Impacts of vegetation clearance on channel change: Historical perspective. In: John F. Shroder (Editor-in-chief), James, L.A., Harden, C.P., and Clague, J.J. (Volume Editors). *Treatise on Geomorphology, Second Edition*, Vol. 9, *Geomorphology of Human Disturbances, Climate Change, and Natural Hazards*. Elsevier Publishing. [Updated version of 2013 chapter]

Harden, C. P. 2020. The dance of sustainability: A call to engage geographers in local- and global-scale research. In: F. Sarmiento and L. Frolich (Editors), *Geography, Transdisciplinarity and Sustainability*, Cheltenham, UK, Edward Elgar Publishing Ltd., pp. 79-92.

Harden, C.P. 2016. Another Himalayan dilemma. In K. Mainali and S. Sicroff (eds.), *Jack D. Ives: Festschrift for a Mountain Advocate* (pp. 98-115). Lalitpur, Nepal: Himalayan Association for the Advancement of Science.

Harden, C.P., 2013. Impacts of vegetation clearance on channel change: Historical perspective. In: John F. Shroder (Editor-in-chief), James, L.A., Harden, C.P., and Clague, J.J. (Volume Editors). *Treatise on Geomorphology*, Vol 13, *Geomorphology of Human Disturbances, Climate Change, and Natural Hazards*, San Diego: Academic Press; 2013. p. 14-27.

James, L.A., **Harden, C.P.**, and Clague, J.J., 2013. Geomorphology of human disturbances, climate change, and hazards. In: John F. Shroder (Editor-in-chief), James, L.A., Harden, C.P., and Clague, J.J. (Volume Editors). *Treatise on Geomorphology*, Vol 13, *Geomorphology of Human Disturbances, Climate Change, and Natural Hazards*, San Diego: Academic Press; 2013.

Price, L.W., and **Harden, C.P.**, 2013. Mountain soils. In M.F. Price, A.C. Byers, D.A. Friend, T. Kohler, and L.W. Price (eds.) *Mountain Geography: Physical and Human Dimensions* (pp. 167–182). Berkeley, CA: University of California Press.

Harden, C.P. and Hyman, G., 2007. Agriculture and soil erosion. pp. 289–304 in T. Orme, T. Veblen and K. Young (eds.) *The Physical Geography of South America*. Oxford: Oxford University Press.

ARTICLES

He, C., **Harden, C.P.**, and Liu, Y. 2020. Comparison of water resources management between China and the United States. *Geography and Sustainability*, <https://doi.org/10.1016/j.geosus.2020.04.002>

- Martin, D.J., **Harden, C.P.**, Tran, L., and Pavlowsky, R.T. 2018. Investigating patterns of in-channel wood deposition locations in a low-gradient, variably confined river system. *Progress in Physical Geography* 42(2):139-161.
- McKnight, J., **Harden, C.P.**, and Schaeffer, S. 2017. Soil CO₂ flux trends with differences in soil moisture among four types of land use in an Ecuador páramo landscape. *Physical Geography* 38 (1): 51-61.
- Martin, D.J., Pavlowsky, R.T., and **Harden, C.P.** 2016. Reach-scale characterization of fluvial wood in a mid-gradient, confined-meander river system. *Geomorphology* 262, 91-100.
- Harden, C.P.** 2016 Infiltration. *International Encyclopedia of Geography*, Wiley-Blackwell and the Association of American Geographers.
- Harden, C.P.** 2016. Hillslopes. *International Encyclopedia of Geography*, Wiley-Blackwell and the Association of American Geographers
- Bremer, L., Farley, K., Chadwick, O., and **Harden, C.P.** 2016. Changes in carbon storage with land management promoted by payment for ecosystem services. *Environmental Conservation* 43(4): 397-406.
- Tran, L.T., O'Neill, R.V., Bruins, R., Smith, E.R., and **Harden, C.P.** 2015. Linking land use/land cover with climatic and geomorphologic factors in regional mean annual streamflow models with geospatial regression approach. *Progress in Physical Geography* DOI: 10.1177/0309133314562441
- Keck, B., Marion, A., Martin, D., Kaufman, J., **Harden, C.**, Schwartz, and Strange R. 2014. Functional traits correlated with environmental traits in a temperate biodiversity hotspot. *PLOS ONE* 9 (3): e93237.
- Harden, C.P.** 2014. The human-landscape system: challenges for geomorphologists. *Physical Geography* 35(1): 76–89.
- Davis, L. and **Harden, C.P.** 2014. Factors contributing to bank stability in channelized, alluvial streams. *River Research and Applications*, 30, 71 –80.
- Chin, A., Galvin, K., Gerlak, A., **Harden, C.**, and E. Wohl, E. 2014. The future of human-landscape interactions: Drawing on the past, anticipating the future. *Environmental Management* 53:1–3, DOI 10.1007/s00267-013-0203-9
- Harden, C.P.**, Chin, A., English, M., Fu, R., Galvin, K., Gerlak, A., McDowell, P., McNamara, D, Peterson, J., Poff, N.L., Rosa, E., Solecki, W., and Wohl, E. 2013. Understanding human-landscape interactions in the "Anthropocene." *Environmental Management* 53(1): 4–13, DOI 10.1007/s00267-013-0082-0.
- Harden, C.P.** 2013. Geomorphology in context: Dispatches from the field. *Geomorphology* 200: 34–41. <http://dx.doi.org/10.1016/j.geomorph.2013.03.025>. (Special issue also published as a hardback book).
- Harden, C.P.**, Hartsig, J., Lee, J., Farley, K., and Bremer, L. 2013. Effects of land-use change on water in Andean páramo grassland soils. *Annals of American Geographers* 103(2): 375–384.
- Farley, K.A., Bremer, L.L., and **Harden, C.P.**, and Hartsig, J. 2013. Changes in carbon storage under alternative land uses in biodiverse Andean grasslands: implications for payment for ecosystem services. *Conservation Letters* 6: 21–27, doi: 10.1111/j.1755-263X.2012.00267.x.
- Tran, L., O'Neill, R., Smith, E., Bruins, R., and **Harden, C.P.** 2013. Application of hierarchy theory to cross-scale hydrologic modeling of nutrient loads. *Water Resources Management* 27:1601–1617.
- Davis, L., and **Harden, C.P.** 2013. Connections between reach-scale and system-wide adjustment processes

in channelized alluvial streams. *River Research and Applications*. DOI: 10.1002/rra.2621

Harden, C.P. 2012. Framing and re-framing questions of human-environment interaction. *Annals of the Association of American Geographers* 102(4): 737–747.

Farley K.A., Anderson W.G., Bremer L.L., and **Harden C.P.** 2011. Compensation for ecosystem services: an evaluation of efforts to achieve conservation and development in Ecuadorian páramo grasslands. *Environmental Conservation* 38(4): 393–405.

Harden, C.P., Chartrand, K., and Henry, E., 2010. Temporal variability of bank erosion in East Tennessee headwater streams. *Southeastern Geographer* 50(4): 484–502.

Harden, C.P., Foster, W., Morris, C., Chartrand, K., and Henry, E. 2009. Rates and processes of streambank erosion in tributaries of the Little River, Tennessee. *Physical Geography* 30(1): 1-16.

Harden, C.P. 2007. Two soil toposequences in a tropical glacial trough, southern Ecuador. *Zeitschrift für Geomorphologie* 51, Suppl. 2, 139-152.

Harden, C.P. 2007. Response to comment from W. Buytaert, B. De Bièvre, R. Celleri, F. Cisneros, G. Wyseure, and S. Deckers on “Human impacts on headwater fluvial systems in the northern and central Andes” *Geomorphology* 79: 249–263.

Grable, J.L. and **Harden, C.P.** 2006. Geomorphic response of an Appalachian Valley and Ridge stream to urbanization. *Earth Surface Processes and Landforms* 31: 1707-1720.

Harden, C.P. 2006. Human impacts on headwater fluvial systems in the northern and central Andes. *Geomorphology* 79(3-4): 249-263.

Harden, C.P. 2004. Fluvial response to land use change in the Southern Appalachian region: A century of investigation. *Physical Geography* 25(5): 398-417.

Harden, C.P. and Kemp, D., Jr. 2004. Persistent effects of land use change on a stream channel: Upper North Potato Creek in the Copper Basin, Tennessee. pp. 3C-10 – 3C-15 in *Proceedings of the Fourteenth Annual Tennessee Water Resources Symposium*, March 31-April 2, 2004, Montgomery Bell State Park, Burns, Tennessee.

Harden, C.P. and Scruggs, P.D. 2003. Hillslope hydrology in three mountain environments. *Geomorphology* 55: 5–24.

Harden, C.P. and Milam, R. 2003. Partnering for student stream monitoring yields more than data. pp. 3C-10 – 3C-14 in *Proceedings of the Thirteenth Annual Tennessee Water Resources Symposium*, April 9-11, 2003, Montgomery Bell State Park, Burns, Tennessee.

Harden, C.P. and Mathews, L. 2002. Hillslope runoff and soil erosion following reforestation in the Copper Basin, Tennessee, USA. *Australian Geographical Studies* 40(2):130–142.

Harden, C.P. 2002. The long lag time between reforestation and hydrologic recovery in the Copper Basin. in *Proceedings of the Twelfth Annual Tennessee Water Resources Symposium*, April 3–5, 2003, Montgomery Bell State Park, Burns, Tennessee.

Harden, C.P. 2001. Sediment movement and catastrophic events: The 1993 Rockslide at La Josefina, Ecuador.” *Physical Geography* 22(4): 305-320.

Harden, C.P., 2001. Soil erosion and sustainable mountain development: Experiments, observations, and recommendations from the Ecuadorian Andes. *Mountain Research and Development* 21(1): 77-83.

- Harden, C.P.** and Mathews, L. 2000. Rainfall response of degraded soil following reforestation in the Copper Basin, Tennessee, USA. *Environmental Management* 26(2): 163-174.
- Harden, C.P.** 1999. Conexiones Sobre la Tierra: Recomendaciones de Manejo de un Análisis de la Erosión de la Suelo en los Andes Ecuatorianos. In F. Sarmiento and J. Hidalgo, eds., *Desarrollo Sustentable de Montañas: Entendiendo las Interfaces Ecológicas para la Gestión de Paisajes Culturales en los Andes*. Memorias del III International Simposio de la Asociación de Montañas Andinas. Quito, Ecuador: Corporation Editora Nacional, pp. 117-122.
- Mathews, L. and **Harden, C.P.** 1999. 150 years of environmental denudation and reclamation in the Copper Basin, Tennessee. *Southeastern Geographer* 39(1): 1-21.
- Wallin, T. and **Harden, C.P.** 1996. Quantifying trail-related soil erosion at two sites in the humid tropics: Jatun Sacha, Ecuador, and La Selva, Costa Rica." *Ambio* XXV(7): 517-522.
- Harden, C.P.** 1996. Interrelationships between land abandonment and land degradation: A case from the Ecuadorian Andes. *Mountain Research and Development* 16(3): 274-280.
- Harden, C.P.** 1996. Runoff connectivity zones: Preliminary results of a field-based study in a tributary catchment of Second Creek, Knoxville, Tennessee. In R. Wadlington, M. Eiffe and M. Sale (eds.), *Proceedings of the Sixth Tennessee Water Resources Symposium*, Feb. 12-14, 1996, Nashville, Tennessee, pp. 6-9.
- Baird, D. and **Harden, C.P.** 1994. Meteorological conditions and wedge failures in the Hartford Area of I-40 in East Tennessee. *Southeastern Geographer* XXXIV(1): 54-66.
- Harden, C.P.** 1993. Erosión del suelo en los Andes. *Paisajes Geográficos* XII(27): 92-104.
- Harden, C.P.** 1993. Upland erosion and sediment yield in a large Andean drainage basin. *Physical Geography* 14(3): 254-271.
- Harden, C.P.** 1993. Land-use, soil erosion and reservoir sedimentation in an Andean drainage basin in Ecuador. *Mountain Research and Development* 13(2): 177-184.
- Harden, C.P.** 1992. Incorporating the effects of road and trail networks in watershed-scale hydrologic and soil erosion models. *Physical Geography* 13(4): 368-385.
- Harden, C.P.** 1992. A new look at soil erosion processes on highland Ecuadorian hillslopes. In D. Walling (ed.) *Erosion, Debris Flows, and Environment in Mountain Regions*, International Association of Hydrologic Sciences, IAHS Press, Wallingford, Oxfordshire, England, pp. 77-85.
- Harden, C.P.** and Pulsipher, L. 1992. Come a nasty gale: The response to Hurricane Hugo on the island of Montserrat, West Indies. *Focus*, Summer 1992.
- Harden, C.P.**, Clark, G.M., Smoot, J. and Smith, L. 1991. Availability of GIS-Based or compatible data for modeling agricultural nonpoint source pollution of surface waters in Tennessee. In: M. Sale and P. Presley (eds.) *Proceedings of the Fourth Annual Tennessee Water Resources Symposium*, Sept. 24-26, 1991, Knoxville, pp. 53-56.
- Philips, C.G., Smoot, J., and **Harden, C.P.** 1991. Mathematical representation of an agricultural watershed for analysis of nonpoint-source pollution using HSPF. In: M. Sale and P. Presley (eds.) *Proceedings of the Fourth Annual Tennessee Water Resources Symposium*, Sept. 24-26, 1991, Knoxville, pp. 105-108.
- Harden, C.P.** 1991. Andean soil erosion: A comparison of soil erosion conditions in two Andean watersheds. *National Geographic Research & Exploration* 7(2): 216-231.

Harden, C.P. 1990. Evaluation of tropical soil erosion at the catchment/basin scale. In R. Ziemer (ed.) *Research Needs and Applications to Reduce Erosion and Sedimentation in Tropical Steeplands*, International Association of Hydrologic Sciences, Wallingford, U.K.

Harden, C.P. 1988. Mesoscale estimation of soil erosion in the Rio Ambato drainage, Ecuadorian Sierra. *Mountain Research and Development* 8(4): 331-341.

Harden, C.P. 1988. Estimación de la erosión anual del suelo en la cuenca del río Ambato, Ecuador. In *Memoria de la Conferencia Usos Sostenidos de Tierras en Laderas*, Tomo I, Development Strategies for Fragile Lands, Washington, D.C., 43-61.

Harden, C.P. 1986. Soil erosion and land capability evaluation in the upper Pastaza drainage, Eastern Ecuadorian Andes. *Mountain Research and Development* 6(1): 88-89.

Harden, C.P. 1976. Landslides near Aspen, Colorado. *Occasional Paper No. 20*, University of Colorado, Institute of Arctic and Alpine Research.

BOOK REVIEWS

Harden, C.P., 2012. Review of *Ducktown Smoke: The fight over one of the South's greatest environmental disasters*, by Duncan Maysilles (UNC Press, 2011). *Journal of Historical Geography* 38: 204.

Harden, C.P., 2010. Review of *Amazonian Dark Earths: Wim Sombroek's Vision*, William Woods et al. (eds.) *Vadose Zone Journal*, 2010, vol. 9.

Harden, C.P., 2007. Review of *Desastres de Origen Natural en Colombia: 1979-2004*, Michel Hermelin, ed. *Mountain Research and Development* 27(4): 380-381.

Harden, C.P., 2006. Review of *International Perspectives on Natural Disasters: Occurrence, Mitigation, and Consequences* (Stoltman, Lidstone, and DeChano eds.). *Journal of Geography*.

Harden, C.P., 2004. The 1993 landslide dam at La Josefina in Southern Ecuador: a review of *Sin Plazo Para La Esperanza*. *Engineering Geology* 74:157-161.

Harden, C.P., 2003. Review of *The Physical Geography of North America* (ed. A. Orme, Oxford University Press, 2002, 551pp.) for *Annals of the Association of American Geographers* 93(3):751-753.

Harden, C.P., 2002. Review of *Land Degradation for Australian Geographical Studies*.

Harden, C.P., 1994. Review of *Hydrology and Water Management in the Humid Tropics* (ed. M. Bonell, M. Hufschmidt and J. Gladwell, Cambridge University Press, 1993) in *Geomorphology* 11: 175-176.

Harden, C.P., 1994. Review of *Water Resources Management: In Search of an Environmental Ethic* (David Feldman, Baltimore: John Hopkins University Press). *Forum for Applied Research and Public Policy* 9(1): 133-134.

Harden, C.P., 1991. Review of *Water Resources Management in Latin America and the Caribbean* (T.R. Lee. Boulder: Westview Press) in *The Professional Geographer* 43(4): 545.

Harden, C.P., 1989. Review of *Ecodesarrollo y Zonas Marginales* (edited by I. Sachs, J.P. Ceron, and D. They and published as *Agricultura y Sociedad*, 45, 1987) *Mountain Research and Development* 9(4): 423-424.

OTHER PUBLICATIONS

- Harden, C.P.** 2021. Geography, exploration, and metaphor. *The Geographical Bulletin*, 62(1), 30-31.
- Harden, C.P.**, 2020. In tribute to Antony R. Orme (1932-2020). *Physical Geography*
- Harden, C.P.**, 2014. Physical geography: Interactions with and implications for humanity. *Physical Geography* 35(1).
- Harden, C.P.**, Farley, K., Bremer, L., and Hartsig, J. 2014. Introducción. Páramo, uso de suelo, y servicios ambientales. Fundación Cordillera Tropical.
- Harden, C.P.**, Farley, K., Bremer, L., Hartsig, J., Lee, J., and McKnight, J. 2014. Uso de suelo y agua en los páramos. Páramo, uso de suelo, y servicios ambientales.
<http://www.cordilleratropical.org/es/actividades/investigacion/investigacion.html>
- Clark, C., **Harden, C.P.**, Park, W., Schwartz, J., Ellis, C., McKnight, J., Betterton, E., Tracy, H., and VanCor, K. 2013. *The Water-Energy Nexus in East Tennessee*. A white paper for The Howard H. Baker, Jr. Center for Public Policy, University of Tennessee, Knoxville, TN. <http://bakercenter.utk.edu/category/white-paper-2-13-the-water-energy-nexus-in-east-tennessee/>
- Harden, C.P.** 2013. Editorial—Physical geography: Crossing from the past to the future. *Physical Geography* 34(1): 1. <http://dx.doi.org/10.1080/02723646.2013.798531>.
- Harden, C.P.**, 2012. Editorial—Physical geography and sustainability. *Physical Geography* 33(1): 1–2.
- Harden, C.P.**, Chin, A., English, M., Galvin, K., Gerlak, A., McDowell, P., McNamara, D., Peterson, J., Rosa, E., Wohl, E. 2010. A grand challenge for SBE: unlocking a new cycle of research for human-landscape interactions. White paper, National Science Foundation, NSF-SBE 2020.
- Harden, C.P.** Presidential columns, *Newsletter of the Association of American Geographers*
- | | |
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| July 2009 | Geographers, Go Public |
| August/Sept. 2009 | Hidden Treasures of the AAG |
| October 2009 | Sustainability and Dancing* |
| November 2009 | Geographers and Journalists |
| December 2009 | Our Dichotomies, Ourselves |
| January 2010 | Geographic Research and the National Academies |
| February 2010 | Geography at the Edge |
| March 2010 | A Tipping Point for Geography |
| April 2010 | Strategic Directions for the Geographical Sciences |
| May 2010 | Geographers Speak, People Listen |
| June 2010 | Geography is Vital |
- * Reprinted in *Journal of Sustainability Education*, 2012
- Orme, A. and **Harden, C.P.** 2008. Editorial—Physical geography as an expression of change. *Physical Geography* 29(1): 1–2.
- Harden, C.P.** 2004. Fluvial terraces. *IAG Encyclopedia of Geomorphology*, edited by A. Goudie, Routledge, London.
- Harden, C.P.** 1997. Effects of land abandonment on soil erosion and sediment loss in mountain areas. *McGraw-Hill Yearbook of Science & Technology*, McGraw-Hill, New York (non-academic).
- Harden, C.P.** 1998. Geomorphology. *Geotimes*: 43(2): 41-42.

Harden, C.P. 1995. Contributor to An Alpine Dialogue, edited by W. Mayer, *Summit Spring*, 1995, pp. 45-50.

Harden, C.P., Jumper, S., Schiller, A. and McKeown-Ice, R. 1992. *Geography and Rivers: The Tennessee and the Lower Mississippi*. 125 pp. Photocopied as a text and resource for Tennessee Geographic Alliance, Knoxville, Tennessee.

Harden, C.P. 1991. Runoff and Erosion Thresholds on Trails and Adjacent Lands. Abstract published in *Proceedings of the 17th Annual Meeting on Scientific Research in the National Parks of the Uplands Section of Southeastern Region*, May 16-17, 1991 Gatlinburg, Tennessee.

Horn, S.P. and **Harden, C.P.** 1988. Geography 131: Geography of the Natural Environment (I) Lab Manual. Department of Geography, University of Tennessee. Laboratory exercises for introductory physical geography topics of weather and climate, water, and vegetation.

Harden, C.P. 1988–2013. Geography 132: Geography of the Natural Environment (II) Lab Manual. Department of Geography, University of Tennessee. Laboratory exercises for introductory physical geography topics of landforms, soils and physiographic regions. [Revised annually 1988–2014]

PUBLICATIONS IN PROGRESS

He, C., Zhang, B., Wang, X., **Harden, C.P.** Understanding and managing trade-offs of large-scale vegetation restoration. In review (2021) *Science Bulletin*.

Harden, C.P., and Fernandez, A. Chapter 15: Mountain waterscapes: geographies of interactions, transformations, and meanings. In Sarmiento, F., A. Gunya, and I. Alcántara-Ayala, *Mountain Palimpsest: A Primer of Mountain Geographies*. Springer. Accepted for publication in spring 2022.

GRANTS AND CONTRACTS

- 2013–2014 UT Tennessee Water Resources Research Center (Institute for Secure and Sustainable Environment, C. Cox) Support for D. Martin as graduate research assistant for TVA Datamining Project, 2013–2014 academic year.
- 2013 TVA Datamining project of Water Resources Organized Research Unit (through Tennessee Water Resources Research Center). C. Cox, PI/PD. Support for Jason Kaufman as graduate research assistant.
- 2013 Li-Cor system for measuring carbon dioxide flux. Award from Institute for Sustainable and Secure Environment (ISSE), University of Tennessee.
- 2012 The Howard Baker Center for Public Policy (University of Tennessee) Developing a Water-Energy Nexus White Paper for East Tennessee. \$8584 (Harden's portion). In collaboration with Drs. C. Clark and J. Schwartz.
- 2012–2013 TVA Datamining project of Water Resources Organized Research Unit (through Tennessee Water Resources Research Center) \$28,350 (Harden's portion).
- 2012–2013 USGS-EPA Interagency Agreement G11AP20135. Continuation of Development of Water Quality Model for Regional Loadings (with T. Gangaware and L. Tran).
- 2012 Blount County Soil Conservation District (for EPA) Little River Targeted Watershed: Monitoring and Completion. \$3779.

- 2011 EPA Interagency Agreement IA 95796201-0 (with T. Gangaware and L. Tran) Development of Water Quality Model for Regional Loadings \$113,399 (year 1).
- 2011–2013 Tennessee Department Environment and Conservation (with J. Schwartz) Developing relationships between suspended sediment transport metrics and biological impairment for East Tennessee streams: towards a water quality standard for suspended sediment. \$45,000.
- 2010 Tennessee Department Environment and Conservation (with J. Schwartz) Toward an in-stream sediment standard for East Tennessee streams. \$90,415.
- 2010 National Science Foundation, Geography and Regional Science, and Geomorphology and Land-Use Change (with A. Chin, M. English, M. Lemos, and E. Wohl). Landscapes in the Anthropocene: Exploring the Human Connections. \$54,508.
- 2009–2013 National Science Foundation, Geography and Regional Science, (with F. Farley, San Diego State University and J. Lee, University of Tennessee) Collaborative Research: The effects of land-use change on the production of ecosystem services in páramo grasslands. \$350,000.
- 2009–2010 Tennessee Department of Environment and Conservation. Improving Adaptive Sediment TMDL Implementation: Linking channel form and embedded sediment characteristics to benthic habitat status. \$50,199.
- 2006–2013 Blount County Soil Conservation District (for EPA) Field monitoring and data development for Little River tributaries. \$20,095.
- 2006–2008 (Horn, Orvis and Champion, PIs) GK-12 Grant from National Science Foundation. \$1.9M. (Harden is not a PI, but one of 8 participating faculty members.)
- 2005 TVA (via UT Water Resources Res. Center). Interpretation of air photos of Beaver Creek. \$6K.
- 2004 Fulbright Scholar Program (2004-05) Field-based study of soils and glacial landforms in the Llaviucu valley, Southern Ecuadorian Andes.
- 2004–2006 National Science Foundation – Doctoral Dissertation Research: Geomorphic response in anthropogenically disturbed tributaries of the Lower Hatchie River, West Tennessee. Doctoral student M. A. Boulton (now Davis). \$5731.
- 2003 Tennessee Department of Environment and Conservation (TDEC) (Harden, PI/PD) Water quality monitoring of Fort Loudoun Lake Streams. \$ 19,444 (\$9890 TDEC, \$9554 match).
- 2003 AAG (Association of American Geographers) Valley and channel slopes for headwater rivers of the río Paute, Ecuador. \$1000.
- 2002 Tennessee Department of Environment and Conservation (TDEC) (Harden, PI/PD) A geomorphic study of sediment sources and sedimentation rates in the Hatchie River watershed, Tennessee. \$47,000 (\$23,000 TDEC, \$24,000 match).
- 2002 AAAS (American Association for the Advancement of Science) and NSF. Women’s International Science Collaboration Award. \$4000.
- 2002 U.S. Geological Survey and Water Resources Research Center. Water quality monitoring in two 303d listed East Tennessee streams. \$30,029 (\$9,498 federal match).
- 2001 U.S. National Forest Service, Cherokee National Forest. Land use history of subwatersheds of the upper Conasauga watershed (with K. Orvis) \$ 8000 (\$2000 federal match).

- 2001 University of Tennessee Center for Undergraduate Excellence Award \$3000 to develop and equip service learning in Geog. 436 (Water Resources) and Geography 433 (Land-Surface System).
- 2001 University of Tennessee Research initiatives: (1) Initiative for the Study of Global Environmental Change (with K. Orvis, S. Horn, H. Grissino-Mayer, C. Mora, S. Driese, L. Cooper, and J. Grebmeier) \$500,000 (5 years).
- 2001 University of Tennessee Research initiatives: (2) The Southeast Water Policy Initiative (with D. Feldman, R. Freeland, R. Jones) \$105,000 (3 years).
- 2000 University of Tennessee Professional Development Award: Glaciation, deglaciation, and geomorphic dynamics in the high-elevation tropics \$4000.
- 1997 University of Tennessee Professional Development: Travel to international symposium and international conference in Italy \$2,400.
- 1997 Environmental Protection Agency: research collaborator, Use of Multi-Scale Biophysical Models for Ecological Assessments (approx. \$1M grant to M. Huston, L. Gross, T. Hallam).
- 1997 U.S. Forest Service: (with F. McCormick) Forest Hydrology Research in the Luquillo Forest, Puerto Rico. \$29,000.
- 1996 National Science Foundation: (with S. Horn, K. Orvis) Research Experience for Undergraduates. \$5000.
- 1996 University of Tennessee, SARIF (Scholarly Activities Research Incentive Fund) Summer Graduate Research Assistantship for G. Grable to assist with new research using magnetic susceptibility of sediments to trace stream sediment sources. \$ 3,000.
- 1995 National Science Foundation: (with S. Horn, K. Orvis) Equipment for Environmental Research in Geography. \$ 21,076.
- 1995 National Science Foundation: (with D. Royall) Doctoral Dissertation Research: Lake-catchment based evaluation of medium-term sediment yield and sediment dynamics from the Blue Ridge Mountains, Virginia. \$10,136.
- 1995 U.S. Department of the Interior, National Park Service, Agreement No. CA-5460-5-9003. Development of a comprehensive water budget/balance model for Cumberland Island \$5,100.
- 1994 University of Tennessee, SARIF (Scholarly Activities Research Incentive Fund) Summer Graduate Research Assistantship for T. Wallin to assist with manuscript preparation and repair and recalibration of field equipment. \$ 3,000.
- 1994 Tennessee Geographic Alliance, Support for pre-collegiate teacher as field research assistant in Ecuador. \$1,400.
- 1994 The Stewart McCroskey Memorial Fund, Department of Geography, Followup Research on Physical Effects of Hurricane Hugo on Montserrat and Puerto Rico \$850.
- 1993 National Geographic Society Research and Exploration Fund, Trails, Soil Erosion and Ecotourism in the Tropical Rainforest. \$11,123.
- 1992 (with J. Smoot, L. Moore) State of Tennessee, State Planning Office). Technology transfer of results obtained from previous research on integrating GIS and nonpoint source modeling for evaluating changes in water quality in Tennessee \$20,010.

- 1992 University of Tennessee Professional Development: Travel to international symposium in China \$2,400.
- 1991–1992 U.S.G.S. Water Resources Division with matching funds from Tenn. Dept. Health and Environment, and University of Tennessee. Integrating GIS and Non-Point Source Modeling for Evaluating Changes in Water Quality in Tennessee. \$90,000.
- 1991 The American Philosophical Society. Runoff Thresholds on Ecuadorian Footpaths. \$3,355.
- 1990–1991 Co-Principal Investigator, U.S.G.S. Water Resources Division with matching funds from Tennessee Governor's Planning Office, Tenn. Dept. Health and Environment, and University of Tennessee. Integrating GIS and Non-Point Source Modeling for Evaluating Changes in Water Quality in Tennessee. \$69,000.
- 1990 University of Tennessee Professional Development: Travel to international symposium in Fiji \$1,800.
- 1989 National Geographic Society: Soil Erosion Assessment in the Paute Drainage, Ecuador. \$13,000.
- 1989 University of Tennessee Faculty Professional Development Grant: Soil Erosion Assessment in the Paute Drainage, Ecuador. \$4,500

PROFESSIONAL AFFILIATIONS

American Association of Geographers (AAG) (Geomorphology, Water Resources, Mountain Geography specialty groups)
American Association for the Advancement of Science (AAAS)
American Geophysical Union (AGU)

PRESENTATIONS AT PROFESSIONAL MEETINGS AND INVITED TALKS

2019

Harden, C.P. Environment and Natural Resources: Challenges and Future Opportunities. Invited scholar/participant in Sino-American Symposium on Future Quality of Life. Western Michigan University, May 4-5, 2019.

Harden, C.P. Impacts of physical geography: Perspectives from geomorphology and human-environment interactions. Panel presentation at AAG annual meeting, Washington, DC, April 4, 2019.

2018

Harden, C.P. More disasters or a more sustainable future? Challenges and opportunities of climate change. Invited presentation for Geography Department Colloquium, Western Michigan University, Kalamazoo, MI, March 16, 2018.

2016

Harden, C.P. Reaching beyond the society. Invited presentation for panel "Geographical Societies, Knowledge Transfer, and the Image of Geography" at International Geographical Congress, Beijing, China, August 21-25, 2016.

2015

Harden, C.P. John Muir: Themes of physical geography, mountains, and conservations. Oral panel presentation at Annual Meeting of Association of American Geographers, April 2015, Chicago, IL

2014

Harden, C.P. Trade-offs among ecosystem services in an Andean páramo grassland. Invited colloquium presentation, Department of Geography, Syracuse University, Syracuse, New York. March 22, 2014.

Harden, C.P. Mountain Geography: Who needs to know? Oral presentation at Annual Meeting of Association of American Geographers, April 7–12, 2014, Tampa, FL.

2013

Harden, C.P. An Andean Enigma: What practices promote ecosystem services? Invited colloquium presentation, Department of Geography, Appalachian State University, Boone, NC, October 10, 2013.

Harden, C.P., McKnight, J., Lee, J., Hartsig, J., and Farley, K. Differences in soil water-retention capacity associated with conversion from grassland to pine woodland in Andean páramos. Annual Meeting of Association of American Geographers, April 9–13, 2013, Los Angeles, CA.

Bremer, L., Farley, K.A., **Harden, C.P.,** Tradeoffs in carbon storage and plant diversity with land-use changes promoted by payment for ecosystem services (PES) programs in Ecuadorian páramo grasslands. Annual Meeting of Association of American Geographers, April 9–13, 2013, Los Angeles, CA.

McKnight, J., **Harden, C.P.,** Clark, C., Park, B., VanCor, K., Ellis, C., Betterton, E., and Tracy, H.M., Water management and power production in East Tennessee: An assessment of water-energy interactions and policy. Annual Meeting of Association of American Geographers, April 9–13, 2013, Los Angeles, CA.

Lynch, G.T. and **Harden, C.P.,** Linking stream sediment metrics and aquatic macroinvertebrate status in East Tennessee streams (poster). Annual Meeting of Association of American Geographers, April 9–13, 2013, Los Angeles, CA.

Wooockman, R., Schwartz, J., and **Harden, C.P.** Use of continuous turbidity monitoring data to identify biological impairment due to suspended sediment in East Tennessee streams. American Society of Civil Engineers, 2013 World Environmental & Water Resources Congress, Cincinnati, Ohio, May 19–23, 2013.

2012

Harden, C.P. Case study: Effects of land-use change on provision of ecosystem services in high-altitude grasslands (páramos) in the Ecuadorian Andes. Invited presentation at Mountain Research Initiative Synthesis Workshop: Qualities, Vulnerabilities and Management of Ecosystem Services in Mountain Regions. Möschberg, Grosshöchstetten, Switzerland, 9–13 November 2012.

Harden, C.P., 2013. Geomorphology in context: Dispatches from the field. Invited plenary speaker. Binghamton Geomorphology Symposium, “The Field Tradition in Geomorphology.” Jackson Hole, WY, 21–23 September 2012.

Harden, C.P., Hartsig, J., Lee, J., Farley, K.A., and Bremer, L.L. Land-use Change in 3-D: Roots and Soil-Water Relations in Andean Páramos. Presented at Annual Meeting of Association of American Geographers, February 24–28, 2012, New York, NY.

Harden, C.P. An Andean Enigma: What Practices Promote Environmental Services? Invited speaker, Department of Geosciences, Florida Atlantic University, March 30, 2012.

Harden, C.P., Human Impacts on Soil and Water Resources in the Ecuadorian Andes. Invited Colloquium speaker, Department of Geosciences Tennessee Technological University, April 5, 2012.

Schwartz, J., **Harden, C.P.,** Wooockman, R., Mefford, J., and Terrell, H. Investigation and Status of Continuous Turbidity Monitoring at TMI Sites in East Tennessee Streams. Paper presented at Tennessee AWRA meeting, April 2012.

Schwartz, J., Clark, S., McKay, L., Moir-McClain, T., Jacobs, B., Yoder, D., Ludwig, A., **Harden, C.,** He, Q.,

and Logan, J. A new interdisciplinary minor in watershed science, engineering and policy at the University of Tennessee-Knoxville. Poster presented at Tennessee AWRA meeting, April 2012.

Bremer, LL, Farley, KA, **Harden, CP**, and Hartsig, J. Tradeoffs in biodiversity and ecosystem services under land-use changes promoted by compensation for ecosystem services (CES) programs targeting highland Andean grasslands (páramos) in Ecuador. Poster presentation at 2nd Emerging Issues Conference of the Ecological Society of America, February 27–March 1, 2012, Shepherdstown, WV.

2011

Harden, CP, Watersheds as water/sediment systems: Watershed research of UT geographers. Invited presentation at first annual Watershed Symposium, University of Tennessee, November 14, 2011.

Harden, CP, An Andean Enigma: What Practices Promote Environmental Services? Invited plenary speaker. Annual meeting of the Great Plains-Rocky Mountain Division of the Association of American Geographers, Denver, Colorado, October 2011.

Harden, CP, Hartsig, J., Farley, K., and Bremer, L., Efectos del Cambio de Uso de Suelo sobre la Producción de Servicios Ambientales en los Páramos. Introducción. Presented at Taller “Efectos del Cambio de Uso de Suelo sobre la Producción de Servicios Ambientales en los Páramos,” Quito, Ecuador, July 14, 2011.

Harden, CP, Hidrología de los Suelos del Páramo. Presented at Taller “Efectos del Cambio de Uso de Suelo sobre la Producción de Servicios Ambientales en los Páramos,” Quito, Ecuador, July 14, 2011.

Hartsig, J. and **Harden, CP**. Effects of Changes in Land Use and Land Management on Hydrologic Properties of Grassland Páramo Soils in the Ecuadorian Andes. Annual meeting of the Association of American Geographers, Seattle, WA, April 13-16, 2011.

Harden, CP. 2011. Framing and Re-framing questions of Human-Environment Interactions. Presidential Plenary talk. Annual meeting, Association of American Geographers, Seattle, WA, April 14, 2011.

Harden, CP. Invited talk. Framing and Re-framing Questions of Human-Environment Interactions, version 1. Department of Geography, Kansas State University, Feb. 4, 2011.

Terrell, J.H., and **Harden, CP**. Potential Use of Substrate Metrics in Tracking TMDL Targets: Relationships Between Fine Particles on the Channel Bed and Benthic Habitat Status in Streams of the Ridge and Valley Ecoregion. Annual meeting of the Tennessee Chapter of American Water Resources Association, Montgomery Bell State Park, Tennessee, April 13-15, 2011.

2010

Harden, CP, Farley, K., Hartsig, J., Bremer, L., Lee, J., Terrell, J.H. Effects of Land Use and Land Management on Near-Surface Soil Moisture in Andean Páramos. SEDAAG meeting, Birmingham, AL, Nov. 2010.

Harden, CP, People and Páramos: Global Environmental Issues at the Top of the Andes. **Invited** talk, 2010 Distinguished Geography Lecturer, Department of Geography, Illinois State University, Bloomington, IL. Dec. 2010.

Harden, CP, Farley, K., Hartsig, J., Bremer, L. and Lee, J., Effects of Land-use Change on the Production of Ecosystem Services in an Ecuadorian Páramo Grassland. Global Land Project, October, 2010, Tempe, Arizona.

Harden, CP, Farley, K., Hartsig, J., Metcalf, G., Lee, J., and Bremer, L. “Páramos, Pines, and Polylophus: effects of vegetation change on soil moisture in the tropical Andes.” Presented by Harden at 2010 AAG Annual Meeting, Washington, DC, April 14-18.

Chin, A., English, M., **Harden, CP**, Lemos, M., and Wohl, E., “Exploring social-ecological-geomorphological systems: toward integrated human landscapes.” Presented by A. Chin at 2010 AAG Annual Meeting, Washington, DC, April 14-18.

Farley, K., Anderson, W., Bremer, L., **Harden, CP**, and Hartsig, J. Compensation for ecosystem services: an evaluation of efforts to achieve conservation and development in Ecuadorian páramos. Presented by K. Farley at 2010 AAG Annual Meeting, Washington, DC, April 14-18.

Hartsig, J., Lee, J., **Harden, CP**, Metcalf, G., Farley, K., and Bremer, L. "The Effects on Soil-Water Relationships by Shifting Land Management Practices in the Ecuadorian Páramos." Poster presented by Hartsig at 2010 AAG Annual Meeting, Washington, DC, April 14-18.

Terrell, J.H., and **Harden, CP**. Relationships Between Substrate Characteristics and Benthic Habitat Status in Streams of East Tennessee." Poster presented by Terrell at 2010 AAG Annual Meeting, Washington, DC, April 14-18.

Harden, CP. Human Impact on the Environment. Invited presentation at NSF-sponsored workshop, "Landscapes of the Anthropocene: Exploring the Human Connections." Eugene, OR, March 4, 2010.

Harden, CP. Ecosystem Services and Geography: Land, water, and people in the Andes. Invited presentation (banquet speech) at 41st Annual Geography Convention, South Dakota State University, Brookings, SD, March 26, 2010.

2009

Harden, CP, Farley, K., Hartsig, J., Bremer, L., Lee, J., and Metcalf, G. Millennium Ecosystem Conference, Athens GA Nov. 9-12, 2009. "Water-Ecosystem Services in Andean Páramo Grasslands." **Invited** poster presentation.

Harden, CP, Ecosystem Services and Geography: Land, water, and people in the Andes. **Invited** presentation to Honors Banquet, Annual meeting of Southeastern Division of Association of American Geographers, Knoxville, TN, Nov. 23, 2009.

Harden, CP, Chartrand, K.J., and Henry, E., Bank erosion dynamics of southern Appalachian headwater streams. Presented at Southeastern Division AAG meeting, Nov. 23, 2009, Knoxville, TN.

Harden, CP, Ecosystem Services and Geography: Land, water, and people in the Andes. **Invited** presentation at annual meeting of Middle States Division of Association of American Geographers, New Paltz, NY, Nov. 7, 2009.

Harden, CP, and Richardson, D., Trajectories in Geography 2000-2009 and Beyond. **Invited** presentation to annual meeting of West Lakes Division of Association of American Geographers. St. Paul, MN, Oct. 30, 2009.

Harden, CP, Geography, Good Intentions, and Environmental Trade-offs: An Andean Example. **Invited** colloquium presentation, March 13, 2009, Geography Department, University of Colorado Boulder, Colorado

Harden, CP, Chartrand, K., and Henry, E. Multiple processes of stream bank change in tributaries of the Little River, Tennessee. AAG annual meeting, March 2009, Las Vegas, NV.

Harden, CP, Chartrand, K., and Henry, E., Measuring Streambank Erosion: Lessons and Insights. Tennessee Chapter, AWRA meeting, Montgomery Bell State Park, April 16, 2009.

Harden, CP, Invited, 2009 Ellen Churchill Semple Day Featured Speaker, University of Kentucky, Lexington, KY, April 17, 2009. Two talks: (1) Geography, Good Intentions, and Environmental Trade-offs: An Andean Example and (2) Environmental Determinism and the Bathwater.

Harden, CP. An Ecosystem services puzzle: Water, Carbon, Trees, and People in Andean páramo grasslands. **Invited** talk, Delaware Valley Geographic Association. Philadelphia, PA, May 1, 2009.

2008

Harden, CP, Johnson, K., and Henry, E., The Case of the Disintegrating Streambanks, East Tennessee. Paper presented at NESTVAL (New England St. Lawrence Valley Division of the AAG), Oct. 31, 2008, Plymouth, NH.

Harden, CP. Geography, Good Intentions, and Environmental Management in the Ecuadorian Andes. **Invited** colloquium presentation, Sept. 12, 2008, Department of Geography, University of Georgia.

Harden, CP. Geography, Good Intentions, and Environmental Management: Is Planting Trees a Good Choice for Carbon Sequestration to Combat Global Warming? **Invited** colloquium presentation, Dec. 4, 2008, Department of Geography, Minnesota State University.

Harden, CP. Geography, Environmental Determinism and the Bathwater. **Invited Plenary talk**, Southwest Division of the AAG annual meeting, San Marcos, TN, Oct. 24, 2008.

2007

Harden, CP, Johnson, K., and Henry, E., Intriguing first measurements of erosion pins on stream banks of tributaries of the Little River, Tennessee. Paper presented at Southeastern Division of AAG meeting, Charleston, SC, Nov. 18-20, 2007.

Harden, CP, Morris, C., Wambersie, A., and Johnson, K., Longitudinal flow patterns in six tributaries of the Little River, TN; SAMAB, October 2007 (October 22-24, Johnson City, TN).

Harden, CP, Hydrologic and geomorphic connectivity in the Little River watershed, Tennessee, USA. American Geophysical Union 2007 Joint Assembly, Acapulco, Mexico, May 2007. Abstract published in EOS Trans. AGU 88(23).

2006

Harden, CP. Human impacts on headwater fluvial systems in the northern and central Andes. **Invited** paper in Binghamton Geomorphology Symposium, Columbia, SC, October 20–22, 2006.

Harden, CP. Dirt and Context. **Presidential Plenary Lecture**, Association of American Geographers Annual Meeting, Chicago, IL, March 2006.

2005

Harden, CP, Soils and the Glacial History of Cajas National Park, Ecuador. Poster presented at SEDAAG meeting, Nov. 2005, West Palm Beach, FL.

Harden, CP, Glacial geomorphology and soil development in Cajas National Park, Ecuadorian Andes. International Association of Geomorphologists, Sixth International Conference on Geomorphology, Zaragoza, Spain, Sept. 2005.

Harden, CP, Cajas National Park as water source: Soil-water relationships in a glaciated, Andean watershed. Association of American Geographers Annual Meeting, Denver, CO, April 5–9, 2005.

2004

Harden, CP and Grable, J.L., Temporal and spatial aspects of the geomorphic response of an Appalachian Valley and Ridge stream to urbanization. Paper presented at the meeting of the International Geographical Union, International Association of Geomorphologists, and British Geomorphological Research Group, Glasgow, Scotland, August, 2004.

Harden, CP and Kemp, D., Jr., Persistent effects of land use change on a stream channel: Upper North Potato Creek in the Copper Basin, Tennessee. Fourteenth Annual Tennessee Water Resources Symposium, March 31-April 2, 2004, Montgomery Bell State Park, Burns, Tennessee.

Harden, CP. Fluvial response to land use change in the Southern Appalachian region: A century of investigation. Association of American Geographers Annual Meeting, Philadelphia, PA, 2004.

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2003

Harden, CP and Milam, R. Partnering for student stream monitoring yields more than data. Tennessee Water Resources Association Meeting, April 2003.

Harden, CP. Water quality of three Andean rivers above Cuenca, Ecuador. Association of American Geographers Annual Meeting, Mar. 4-Mar. 8, 2003, New Orleans, LA.

2002

Harden, CP. Determining the effects of land use change on rivers in the Río Paute drainage basin. International Symposium on Land-use Change and Geomorphic, Soil and Water Processes in Tropical Mountain Environments. Quito, Cuenca, and Guayaquil, Ecuador, December 12-22, 2002.

Harden, CP. Going with the Flow: Land Use and Water Quality Relationships in the Southeastern U.S. **Invited** presentation at Georgia Southern University, Sept. 2002.

Harden, CP. The long lag time between reforestation and hydrologic recovery in the Copper Basin." Twelfth Tennessee Water Resources Symposium, April 3-5, 2002, Montgomery Bell State Park, Burns, Tennessee.

Harden, CP. Alluvial fans flanking the Talamanca Mountains, Costa Rica: Interpreting geomorphological evidence. Association of American Geographers Annual Meeting, Mar. 29-Mar. 23, 2002, Los Angeles, CA.

2001

Harden, CP. Prospects of geocological research in mountain systems. **Invited** presentation at international workshop: Applied Montology: Comparative Geographies of the Andes and the Appalachians, November 4-6, 2001, University of Georgia.

Harden, CP, Mountains as Water Towers. **Invited** presentation for UT Speakers' Bureau, Knoxville, TN.

Harden, CP and P.D. Scruggs, Hillslope hydrology of three mountain regions. (**Invited**) Binghamton Geomorphology Symposium, October 19-21, 2001.

Harden, CP and L. Mathews, Hillslope runoff and erosion following reforestation in the Copper Basin, Tennessee, USA. Presented at the International Association of Geomorphology International Conference in Tokyo, Japan, August 23-28, 2001.

Harden, CP. The global extent of geomorphic change resulting from human activity." Association of American Geographers Annual Meeting, Feb. 27-Mar. 3, 2001, New York, NY.

Harden, CP. From Mountainside to Reservoir: Sediment Dynamics of an Andean Watershed. **Invited** presentation at Binghamton University for the Department of Geological Sciences and Environmental Studies, and Rivers and Watersheds Workshop. Feb. 2, 2001.

2000

Harden, CP. Pine Reforestation Versus Geomorphic Recovery in the Copper Basin, Tennessee. Association of American Geographers Annual Meeting, April 4-9, 2000, Pittsburgh, PA.

1999

Harden, CP. Sediment Movement and Catastrophic Events: The 1993 Rockslide at La Josefina, Ecuador." **Invited** plenary paper, Annual meeting, Southwestern Division, Association of American Geographers, San Marcos, TX, Oct. 1999.

Harden, CP. The Global Scope of the Modern Transformation. **Invited** presentation for Pardee Symposium at annual meeting of Geological Society of America, Denver, CO, Oct. 1999.

Harden, CP. Studying Soil Erosion in the Andes. **Invited** presentation for Tennessee Governor's School for the Sciences, June, 1999.

Harden, CP. Instream Mining in a Highland-Lowland Interactive Systems Context. Association of American Geographers Annual Meeting, Honolulu, Hawaii, March 23-27, 1999.

1998

Harden, CP. Spatial Variability of Infiltration on the Oak Ridge Reservation, Tennessee. Southeastern Division, Association of American Geographers annual meeting, Memphis, Tennessee, Nov. 23-25, 1998.

Harden, CP. Invited presentation for Tennessee Scholars Program, November, 1998.

Harden, CP. Andean soil erosion, resource degradation and sustainable development. **Invited** concept paper on at the III International Symposium on Sustainable Mountain Development “Understanding Interfaces of Andean Cultural Landscapes for Management” in Quito, Ecuador, Dec. 10-17, 1998.

Harden, CP. Spatial Variability of Infiltration on the Oak Ridge Reservation, Tennessee. Association of American Geographers Annual Meeting, Boston, MA, March 25-29, 1998.

1997

Harden, CP. Effects of Land Use Change on Hillslope Hydrology and Soil Erosion: Two Contrasting Cases. IVth International Geomorphology Congress, Bologna, Italy, Aug. 28 - Sept. 3, 1997.

Harden, CP. Land Abandonment and Soil Erosion in Mediterranean-like Environments of the Ecuadorian Andes. Symposium, Working Commission on Mediterranean Erosion and Desertification of the International Geographical Union, Rende, Italy, August 23-27, 1997.

Grable, J., Drinnon, G., and **Harden, CP.** Identifying Sediment Sources in an Urban Tributary Using Magnetic Susceptibility. Association of American Geographers Annual Meeting, Ft. Worth Texas, April 1-5, 1997.

Drinnon, G., J. Grable and **Harden, CP.** Using Magnetic Susceptibility Analysis to Study Geomorphic Processes: Lessons Learned. Association of American Geographers Annual Meeting, Ft. Worth Texas, April 1-5, 1997.

Harden, CP and Mathews, L., Degradation, revegetation, time, and erosional processes in the Copper Basin, Association of American Geographers Annual Meeting, Ft. Worth Texas, April 1-5, 1997.

1996

Harden, CP. Losing Ground in the Andes. **Invited** colloquium lecture, Department of Geography, Arizona State University, Tempe, AZ, October 25, 1996.

Harden, CP. Abandoned Fields—Wild Cards in Watershed Management. Association of American Geographers Annual Meeting, April 9-13, 1996, Charlotte, NC.

Harden, CP.and Lee, B., Seeing the World: Teachers as field assistants in geographic research. National Science Teachers Association Convention, St. Louis, MO, March 29, 1996.

Harden, CP. Runoff Connectivity Zones: Preliminary Results of a Field-Based Study in a Tributary Catchment of Second Creek, Knoxville, Tennessee. Sixth Tennessee Water Resources Symposium, Feb. 12-14, 1996, Nashville, TN.

1995

Harden, CP. Upstream Geomorphic Effects of the Josefina Landslide, Southern Ecuador. Association of American Geographers Annual Meeting, March 14-18, 1995, Chicago, Illinois.

1994

Harden, CP. Muddying the Dam Waters. **Invited** *Centripetals* lecture, University of Tennessee, September 14, 1994.

Harden, CP. Debris Dams Modify Storm Hydrographs in Mountain Watersheds. Association of American Geographers Annual Meeting, March 29-April 2, 1994, San Francisco, California.

Harden, CP. and Wallin, T., Trails, Soil Erosion, and Ecotourism in the Tropical Rainforest. Association of American Geographers Annual Meeting, March 29-April 2, 1994, San Francisco, California.

1993

Harden, CP. A Geographic Comparison of USLE and Rainfall Simulator Based Soil Erosion Estimates for the Paute Watershed, Ecuador. Southeastern Division of Association of American Geographers (SEDAAG) Annual Meeting, November 21-23, 1993, Greensboro, North Carolina.

Harden, CP. Upland Erosion and Sediment Yield in a Large Andean Drainage Basin. Third International Geomorphology Conference, Aug. 23-28, 1993 Hamilton, Ontario.

Harden, CP. Effective Runoff Zones: Hillslope Sediment in the Fast Lane. AAG meeting, April 6-10, 1993, Atlanta, Georgia.

1992

Harden, CP. The Role of Footpaths in Soil Erosion. 27th International Geographical Congress, Washington, D.C., Aug. 9-14, 1992.

Harden, CP. A New Look at Soil Erosion Processes on Highland Ecuadorian Hillslopes. International Symposium on Erosion, Debris Flows and Environment in Mountain Regions. Chengdu, China, July 5-9, 1992. International Association of Hydrological Sciences, Academica Sinica.

Harden, CP. Water Wonders of the World. **Invited** speaker for Tennessee Geographic Alliance, Oct. 1, 1992, Knoxville, Tennessee.

Harden, CP. Water Law and Water Resources Management in Ecuador. **Invited** presentation to Water Law Seminar, Apr. 16, 1992, University of Tennessee, Knoxville.

Harden, CP. Problems Associated with Assessing and Modeling Soil Erosion in Large Andean Watersheds in Ecuador. **Invited** talk for the East Tennessee Chapter of the Soil and Water Conservation Society, March, 1992, Knoxville, Tennessee.

Harden, CP. Mountain Geoecology of Interandean Ecuador. **Invited** speaker for colloquium, Department of Zoology, University of Tennessee, Feb. 21, 1992.

1991

Harden, CP. Gringa Makes Rain. **Invited** keynote speaker for meeting on the Status of Women in Geography at Southeast Division AAG meeting, Asheville, NC, Nov. 25, 1991.

Harden, CP and D. Baird, Wedge Failures and Weather in the Hartford Area of I-40 in East Tennessee. Presented at SEDAAG meeting, Asheville, North Carolina, Nov. 25, 1991.

Harden, CP. Integrating GIS and Nonpoint Source Modeling for Evaluating Changes in Stream Water Quality in Tennessee. Presented at the SCS Natural Resource Researchers Symposium, University of Tennessee, Knoxville, Nov. 22, 1991.

Harden, CP. Roads and Trails as Factors in Slope Erosion in the Ecuadorian Andes. Colloquium Speaker for Department of Geography, University of Tennessee, Knoxville, Nov. 21, 1991.

Harden, CP. Uso de la tierra, erosión de suelo y sedimentación del embalse en una cuenca Andina en el Ecuador. Invited speaker at Taller Internacional Sobre Geoecología de los Andes: Manejo de Recursos y Desarrollo Sustentable, University of Chile, Santiago, Chile, Oct. 21 - Nov. 3, 1991.

Harden, CP, Clark, G.M., Smoot, J. and Smith, L., Availability of GIS-Based or Compatible Data for Modeling Agricultural Nonpoint Source Pollution of Surface Waters in Tennessee." Presented at the Fourth Annual Tennessee Water Resources Symposium, Sept. 24-26, 1991, Knoxville.

Harden, CP. Modeling Nonpoint Source Pollution in East Tennessee. Presentation to visiting North African officials and hydrologists. Oct. 1991, University of Tennessee, Knoxville, Tennessee.

Harden, CP. The partial area erosional role of rural roads and trails. AAG meeting, Miami, Florida, April 14, 1991.

Harden, CP. Sediment Dynamics of the Paute Watershed, Ecuador. **Invited** speaker at University of South Carolina Department of Geography, 28 March, 1991.

Harden, CP. Partial area runoff contributions from roads and trails in inhabited mountain watersheds. Presented at Second Annual Walker Branch Watershed Research Symposium, March 21-23, 1991, Oak Ridge National Laboratory.

1990

Harden, CP. Evaluation of tropical soil erosion at the catchment/basin scale. Presented at International Symposium on Research Needs and Applications to Reduce Erosion and Sedimentation in Tropical Steeplands, June, 1990 in Suva, Fiji.

Harden, CP and Pulsipher, L.M., Physical effects of Hurricane Hugo on the island of Montserrat: Did the island change? Presented (in Harden's absence by L. Pulsipher) at "The Caribbean in the Year 2000," XV Annual Conference of the Caribbean Studies Association. May, 1990, Trinidad and Tobago, West Indies.

Harden, CP. Differences in runoff and sediment production within an Andean watershed. AAG meeting, Toronto, April, 1990.

Harden, CP. Watershed Dynamics in the Andes. **Invited** presentation to Latin American Studies colloquium, Feb. 28, 1990, University of Tennessee, Knoxville, Tennessee.

1989

Harden, CP. Losing Ground in the Andes: Naturally, Unnaturally, and Supernaturally. **Invited** National Geography Awareness Week speaker at East Carolina University Department of Geography and Planning, Nov. 15, 1989.

Harden, CP. The Critical Role of Field Research in Basin-Scale Erosion Research. Southeastern Division of AAG meeting, Nov. 1989, Charleston, WV.

Harden, CP. What is Really Meant by Soil Erosion and How Can It Be Measured in the Mountains? **Invited** speaker at Department of Geography and Planning, Appalachian State University, January 23, 1989.

Harden, CP. Vegetables and Volcanoes: Observations on Life in the Ecuadorian Andes. **Invited** Speaker at Department of Geography and Planning, Appalachian State University, January 23, 1989.

1988

Harden, CP. Problems Associated with Quantitative Mesoscale Assessment of Soil Erosion. Presented at AAG Annual Meeting, April, 1988 at Phoenix, AZ.

Harden, CP. Problems with watershed scale erosion estimates. Presented at "Suspended Sediment and Associated Chemicals in the Tennessee Region: A Technical Symposium and Research Needs Workshop." February, 1988 at Tennessee Technological University.

Harden, CP. Estimating soil erosion in the Ecuadorian Andes: A mesoscale approach. **Invited** speaker at Oak

Ridge National Lab, Environmental Sciences Division, February 11, 1988.

1987

Harden, CP. Estimating Annual Soil Erosion: The Rio Ambato Watershed, Ecuador. Presented at Southeastern Division of AAG Meeting, November, 1987, Charlotte, N. C.

Harden, CP. Extrapolating Soil Erosion Estimates: An Andean Example. Presented at AAG Annual Meeting, April, 1987, Portland, Oregon.

1986

Harden, CP. Hillslope Erosion in the Rio Ambato Watershed, Ecuador: A Mesoscale Approach. Presented at AAG Annual Meeting, May 1986, Minneapolis, Minnesota.

OTHER INVITED TALKS

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|------|---|
| 2014 | Guest lecture in Environmental Sociology course (UTK) Nov. 2013 |
| 2013 | Guest lecture in Environmental Sociology course (UTK) Nov. 2013 |
| 2012 | Guest lecture in International Conservation course (UTK) 2011 |
| 2010 | Guest lecture in International Conservation course (UTK) January 2010. |
| 2009 | Trajectories in Geography: 2000–2009 and beyond (with D. Richardson) at West Lakes Division of the AAG Annual Meeting, St. Paul, MN, November 2009. |
| 2008 | Guest lecture in geography class, Minnesota State Univ., Dec. 2008. |
| 2008 | Guest lecture for Environmental UT Sociology course (Cable), Oct. 2008. |
| 2008 | Guest lecture for UT International Conservation course (Ostermeier), Nov. 2008. |
| 2008 | O'Connor Senior Citizen Center |
| 2008 | Lunch speaker, Oak Ridge National Lab (Fish group). |
| 2007 | Guest lecture for Earth and Planetary Science 455, Jan. 2007. |
| 2006 | Panelist on "Healthy Departments" panel at SWAAG meeting, October 27, 2006. |
| 2006 | International Conservation class, Forestry, UT, September 2006. |
| 2004 | International Conservation class, Forestry, UT, Oct. 2004. |
| 2004 | Science series, Riobamba, Ecuador |
| 2004 | University of Azuay and Cajas National Park, Ecuador, August 2004. |
| 2003 | Guest lecture for Latin American Studies class, UT, Feb. 11, 2003 |
| 2002 | Tennessee Geographic Alliance, keynote speaker, Knoxville, TN Oct. 3, 2002. |
| 2002 | Department of Geography and Geology, Georgia Southern University, Sept. 19, Statesboro, GA. |
| 2002 | Universidad de Cuenca, Cuenca, Ecuador, July 4, 2002, Department of Geography. |
| 2000 | Speaker for Knoxville Chapter, Tennessee Geographic Alliance |
| 1998 | Tennessee Scholars Program, University of Tennessee |
| 1997 | Department of Ecology and Evolutionary Biology, University of Tennessee |
| 1996 | Environmental Policy Seminar, University of Tennessee |
| 1995 | Pre-Game Showcase, University of Tennessee |
| 1995 | Tennessee Geographic Alliance |
| 1994 | Environmental Engineering, University of Tennessee |
| 1993 | Department of Plant and Soil Science, University of Tennessee |
| 1993 | University of South Carolina, Spartanburg |
| 1993 | Water Resources Research Center, University of Tennessee |
| 1993 | Maryville College, guest instructor |
| 1992 | Department of Zoology, University of Tennessee |
| 1992 | Department of Geography, University of Tennessee |
| 1991 | Water Resources Research Center, University of Tennessee |
| 1990 | Tennessee Geographical Alliance, Knoxville, Tennessee |
| 1989 | Department of Geography, University of Tennessee |
| 1988 | Environmental Sciences Division, Oak Ridge National Laboratory |
| 1988 | Graduate Program in Ecology, University of Tennessee |

1987 Explorers Club, Boulder, Colorado
1986 Department of Geography, University of Colorado, Boulder

COURSES TAUGHT

AT THE UNIVERSITY OF TENNESSEE

Geography of the Natural Environment (2 semester course with lab) (Geog. 131-132)
Water (First-year studies 129)
Introduction to World Regional Geography (Geog. 101)
Climate Change and Human Response (Geog. 333)
Population and Environment (Geog. 345)
The Land Surface System (Geog. 433)
Water Resources (Geog. 436)
Colloquium in Geography (Geog. 501)
Research Design (Geog. 504)
Watershed Dynamics (Geog. 533, 536)
Seminar in Physical Geography: Watershed Dynamics (Geog. 633, 636)
Seminar in Physical Geography: Human-Environment Interactions (Geog. 633)
Seminar in Physical Geography: Water Resources (Geog. 633)
Seminar in Natural Hazards (Geog. 633, 631)
Geography of Resources (Geog. 3490)
Quantitative Methods in Geography (Geog. 4100)

AT ELDERLY COLLEGE, MIDDLEBURY, VERMONT

Fall 2017 Climate Change: Causes, Consequences, Choices (four-part)
Fall 2018 A Citizen's Guide to Water Quality Problems and Solutions (two-part)
Fall 2021 It Looks Different Now: Landscape Changes We Have Wrought (one session)

AT MIDDLEBURY COLLEGE, MIDDLEBURY, VERMONT

Fall 2021 Environmental Change in Latin America (GEOG225)
Spring 2022 The Global Environment (GEOG206)

DISSERTATIONS AND THESES DIRECTED

DISSERTATIONS

1990 Thomas B. Maertens, Jr. "The relationships of climate and terrain to maintenance of way on the Norfolk Southern Railroad between Norfolk, Virginia, and Portsmouth, Ohio."
1996 Gailya Glawson "Evaluating and modeling flood potential in ungaged high relief basins in East Tennessee: A hydrogeomorphic approach."
1997 Glenn Hyman "Sediment transfer in the Rio Pacuare watershed and neighboring basins in Costa Rica."
1997 P. Daniel Royall "Lake-catchment based evaluation of medium-term sediment yield and sediment dynamics from the Blue Ridge Mountains, Virginia."
2000 Evan Hart, "Coarse woody debris as a geomorphic factor in mountain streams of southern Appalachian watersheds."

- 2003 Judith Grable, "Sediment movement and stream channel stability after urbanization: A study of Second Creek in Knoxville, Tennessee"
- 2005 Lisa Boulton "Spatio-temporal patterns of geomorphic adjustment in channelized tributary streams of the lower Hatchie River basin, West Tennessee."
- 2005 Martin Lafrenz "A watershed classification system based on headwater contributing areas in Great Smoky Mountains National Park."
- 2014 Derek Martin "Geospatial characterization of fluvial wood in a midwestern, semi-confined alluvial river system."
- 2015 Julie McKnight "Linking soil-water interactions and carbon-cycle pathways in two understudied terrestrial ecosystems: Constructed agricultural wetlands and Ecuadorian páramo grasslands."

THESES AND NON-THESIS RESEARCH

- 1990 Douglas Baird, Jr. "Wedge Failures in the Blue Ridge Province of East Tennessee: A Case Study of the Hartford Area Slides."
- 1991 Miriam Miranda. "The *Feria* system for marketing fresh produce in Costa Rica: The role of the government as studied in San Jose and San Isidro."
- 1991 Maria C. Leary "Acid mine drainage and water quality in Big South Fork National Recreation Area, Tennessee-Kentucky."
- 1994 Patrick Solomon "Channelization effectiveness in the Obion Basin, Tennessee."
- 1995 Thomas Wallin "Quantifying trail-related soil erosion at two sites in the humid tropics: Jatun Sacha, Ecuador, and La Selva, Costa Rica."
- 1995 Louise Mathews "Patterns of land degradation and restoration in the Copper Basin, Tennessee, and their influence on soil hydrologic properties"
- 1996 Christopher Buhi "Soil hydraulic properties in two tropical lowland forests: Jatun Sacha, Ecuador and La Selva, Costa Rica."
- 1996 Sheila Carman "The effectiveness of a small, participatory water development project in the St. Vincent Grenadines, West Indies"
- 1996 Matthew Casey "Throughfall for a forestry plantation at the La Selva Biological Station, Costa Rica."
- 1996 Martha Castle "A Comparison of three methods for estimating impervious area in an urban watershed: Second Creek, Knoxville, Tennessee."
- 1997 Joseph Henderson, "Debris slide susceptibility analysis in the Great Smoky Mountains, Tennessee and North Carolina."
- 2001 Robert James, "Development along the boundary of the Great Smoky Mountains National Park: Can the Park's "soft-edge" boundary be preserved?"
- 2001 Karen Burhenn, "GIS analysis of impacts of anthropogenic activity on riparian forest systems in Eastern Tennessee" [Department of Ecology and Evolutionary Biology]

- 2001 Randa Rollins, "A sedimentological investigation of anthropogenic effects on the Tallapoosa River Basin, Georgia." [Dept. of Geological Sciences, co-advisors M. McKinney and C. Harden]
- 2002 Esther Parish, "Linking channel instability to urbanization in the Upper Portion of the Beaver Creek Watershed, Knox County, Tennessee"
- 2002 Don Kemp, "Land-use change and fluvial system dynamics in Upper North Potato Creek, Copper Basin, Tennessee."
- 2003 P. D. Scruggs, Jr., "Spatial variability of rainfall infiltration in the Luquillo Forest, Puerto Rico."
- 2003 Ben Arthur, "Evaluating the use of parameters from a large watershed in a subwatershed: Modeling the hydrology of the Emory River, Crooked Fork, and Daddy's Creek watersheds using the Loading Simulation Program C++ (LSPC)."
- 2004 Christopher Moniodes, "An analysis of broad-scale land cover data as indicators in targeting stream remediation areas."
- 2004 B. Alan Jolly, "Testing the ability of the Chemical Perturbation Index to describe changes in water quality in mixed-use urban watersheds, Knoxville TN."
- [deceased] James Bert Britton, "Estimating agricultural water usage in Tennessee at the state, county, and watershed levels." [not completed]
- 2008 Christopher Morris "Woody debris, channel morphology, and sediment size of streams in logged and unlogged watersheds of Great Smoky Mountains National Park."
- 2008 Tracy Pollock "Atlas of natural hazards in Tennessee" [non-thesis research project]
- 2009 Anne Wambersie "Relationships between sediment concentration, *E.coli*, and land use in two subwatersheds of the Little River, East Tennessee.
- 2009 Jeff Dahoda, "GIS analysis of factors affecting acidity in Crab Orchard Creek, Cumberland and Morgan Counties, TN." [non-thesis research project]
- 2010 William (Ryan) Foster, "The relationships of streambank angles and shapes to streambank erosion rates in the Little River watershed, TN."
- 2010 Charles (Jamie) Phillips "Classifying headwater catchments in the Little River Watershed, TN." [non-thesis research project]
- 2011 Angela Danovi, "The relationship of phosphorus-laden streambed sediment and land use."
- 2011 James Hunter Terrell, "Improving adaptive sediment TMAL implementation: Exploring relationships between substrate characteristics and benthic habitat status in streams of the Ridge and Valley and Blue Ridge ecoregions."
- 2011 James Hartsig, "Effects of land-use change on moisture and water-retention characteristics of paramo soils at two sites in highland Ecuador."
- 2012 Anna Compton, "A GIS and field-based assessment of channel stability in subwatersheds of Beaver Creek, Knox County, Tennessee" [non-thesis research project]
- 2012 Grant Lynch, "Linking stream sediment metrics and aquatic macroinvertebrate status in East Tennessee Streams."

- 2013 Chaney Swiney, (undergraduate honors thesis) "Suspended Sediment Concentrations in Three Tributaries of the Little River."
- 2014 Anna Alsobrook, "A multidimensional analysis of the Great Green Wall: The environmental and social effects of reforestation in Senegal."
- 2014 Jamie Haverkamp, "Institutional responses to climate change: A case study of adaptation in Hampton Roads, Virginia"
- 2014 Vi Tran "Using sediment rating curve parameters to determine the relationship of stream discharge to suspended sediment load in the Upper Mississippi River Basin."
- 2015 Catherine Olson "A decade of lessons learned: The local implementation of stormwater programs in Tennessee."

MEMBER OF GRADUATE COMMITTEES:

Anchukaitis, Babbitt (Forestry, Wildlife, Fisheries), Baskaran, Berry, Biermann, Brown, Burley, Carter (Civil and Environmental Engineering), Clement, Couch (EEB), Deane, Dimarco (EEB), Dvorak (Civil and Environmental Engineering), Dye, Feathers, Gray, Green, Harley, Hanrahan (EEB), Hart, Hass, Hembree, Henderson, Heubner (EPS), Hite, Holderfield, Hughes (EEB), Hull (BEES), Kennedy, Kermath, Kier, Kilby (Forestry, Wildlife, Fisheries), Kreps, Krstolic, Laforest, Lalande (EEB), League, Li, Liu, McCroskey, McGlynn (EPS), Miller, Nabors, Neergaard (EEB), Newton, Pan, Pierce (Forestry, Wildlife and Fisheries), Raia, Roberts, Rother, Samu, Sakulich, Schultz, Spond, Tankersley, Watson, Woockman (Civil and Env. Eng.), Underwood, Zhu.

REVIEWER

RESEARCH PROPOSALS:

American Association for the Advancement of Science
Der Wissenschaftsfonds (Austrian government)
National Science Foundation
National Geographic Research and Exploration Fund (many hundreds of proposals)
The Charles and Ann Morrow Lindbergh Foundation
NIWR (National Institute for Water Resources/ USGS)
The Volkswagen Foundation

RESEARCH MANUSCRIPTS:

Agroforestry
Annals of Association of American Geographers
Anthropocene
Australian Geographical Studies
CATENA
Conference of Latin Americanist Geographers Yearbook
Earth Surface Processes and Landforms
Environmental Conservation
Environmental Monitoring and Assessment
Geographical Review
Geomorphology
Hydrologic Processes
Journal of Hydrology
Journal of Soil and Water Conservation
Landscape Ecology
Mountain Research and Development
National Geographic Research and Exploration

The Professional Geographer
Physical Geography
Transactions in GIS

Book chapters reviewed for various editors

Promotion and Tenure external reviewer for other universities: generally two dossiers per year (I decline additional invitations after accepting two each year).

Program reviews at other universities

University of Nevada, Reno (2015)
South Dakota State (2016)
University of Idaho (2016)
University of Vermont (2017)

Textbooks:

John Wiley
Freeman Press
Guilford Press
Mosby-Year Book, Inc.

Instructional Television/Video Materials

The Annenberg Foundation for PBS

National Geography Standards, *Geography for Life*, Second Edition (2008)

College, Career, and Civic Life (C3) Framework for Social Studies Standards (2013)

POSTDOCTORAL PROFESSIONAL TRAINING

U.S. Geological Survey – National Science Foundation Water Resources Workshop, July 1993.

University of Tennessee – Leadership Institute, February 2007.

SERVICE: To Geography and Professions of Science:

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| 2016–2020 | U.S. representative to International Geographical Union |
| 2016–2020 | Chair, Geographical Sciences Committee, U.S. National Academies of Science, Engineering, and Medicine |
| 2015–2020 | Member, Board on Earth Sciences and Resources, U.S. National Academies of Science, Engineering, and Medicine |
| 2019 | Session organizer and chair, Connecting Science with Policy. AAG meeting, Washington, DC. |
| 2018 | U.S. delegate to IGU regional meeting, Quebec, Canada. |
| 2017 | Webinar moderator, National Academies of Science, Engineering, and Medicine: Dr. Andrew Miller, "Using GIS to Make Urban Mobility More Sustainable " (Feb. 22, 2017) Dr. William Solecki, Climate Risk Resiliency in U.S. Cities and Towns (May 25, 2017) |

Dr. Matilda van den Bosch, "Urban Green Spaces and Health"
(Sept. 14, 2017)

- 2017 Session organizer and chair, Linking Science to Policy. AAG meeting, Boston
- 2016–2020 Elected member, Nominations Committee, Geology and Geography section, AAAS; Chair of Nominations Committee, 2019.
- 2016 U.S. delegate to International Geographical Congress, Beijing, China; member, IGU audit committee
- 2015 Session co-organizer for 2016 AAG meeting, San Francisco, CA –poster presentations for Symposium on Physical Geography: Challenges of the “Anthropocene”
- 2015 NSF panel member, Geography and Spatial Sciences
- 2014 Session organizer for 2015 AAG meeting, Chicago, IL -- Implementing a new vision to promote the effectiveness of poster presentations of research in physical geography
- 2013 NSF panel member, Geography and Spatial Sciences
- 2012 Invited member, Committee of Visitors, National Science Foundation
- 2011–2019 Editor-in-Chief, *Physical Geography*
- 2013 Session organizer and chair, AAG meeting, Los Angeles, CA
- 2012 Session organizer and moderator, SEDAAG meeting, Asheville, NC
- 2011 Co-organized workshop on Ecosystem Services, July 2011, Quito, Ecuador
- 2010-2011 Past President (Executive Committee member), Association of American Geographers
- 2009-2010 President, Association of American Geographers (Elected)
- 2009 Organizer and Director, AAG Department Leadership Workshop (July 2009 in Wilmington, NC)
- 2008-2009 Vice President, Association of American Geographers (Elected)
- 2008–2011 Co-Editor-in-Chief, *Physical Geography*
- 2008–2017 Member, Research & Exploration Committee, National Geographic Society
- 2007–2015 Committee member, Geographical Sciences Committee, National Research Council
- 2007 Invited participant, National Science Foundation and Resources for the Future Workshop on Integrating Social Science into NSF Environmental Observatories (Jan., Wash., DC)
- 2006–2008 Chair, Publications Committee, Association of American Geographers (appointed)
- 2006–2007 Finance Committee, Association of American Geographers (appointed)
- 2005–2008 National Councilor, Association of American Geographers (Elected)
- 2004–2006 Globe Book Award committee, Association of American Geographers

- 2003–2013 Invited Member, Steering Committee, Binghamton Geomorphology Symposia
- 2003–2005 Publications Officer, and Executive Committee member (co-opted), International Association of Geomorphologists
- 2003 Co-director and instructor of summer institute for K-12 teachers “Tennessee in a Globalizing World”
- 2002 Panel Member, Water Cycle Studies Panel, National Science Foundation.
- 2000–2003 Member, Long-Range Planning Committee, Association of American Geographers
- 2001 U.S. representative to the International Association of Geomorphologists
- 2000–2002 Member, National Research Council Committee on Research Priorities in Geography at the U.S. Geological Survey
- 1999–2000 Chair, Honors Committee of Mountain Specialty Group, Association of American Geographers
- 1999–2000 Director of 2000 summer institute for K-12 teachers from Tennessee, Oklahoma, Florida, South Carolina, and Pennsylvania on “How the Natural Environment Works.”
- 1999–2000 Member, Advisory Board, Tennessee Geographic Alliance
- 1998–2001 Member, Advisory Board of Geomorphology Specialty Group, Association of American Geographers. (Senior member and international representative in 2001)
- 1998–1999 Chair, Audit Committee for Southeastern Division, Association of American Geographers
- 1997–2001 Full member (appointed) of International Geographical Union Commission on Mountain Geocology and Sustainable Development.
- 1997 –2000 Elected member of Honors Committee, Association of American Geographers
- 1998–1999 Chair of Honors Committee for 2000, Association of American Geographers
- 1997–1998 Chair, Geomorphology Specialty Group of the Association of American Geographers.
- 1996–1997 Secretary-Treasurer of the Geomorphology Specialty Group of the Association of American Geographers.
- 1996 Invited Session Chair for final session of 27th Binghamton Symposium in Geomorphology.
- 1996 Invited participant in panel: “The Environment of Gender and Society: women in Physical Geography” at the national meeting of Assoc. of American Geographers, Charlotte, NC.
- 1993–1996 AAG (Geomorphology Specialty Group) representative to International Geomorphology Association.
- 2008– Editorial board, *Geography Compass*

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|-----------|---|
| 1996–2003 | Editorial board, <i>Southeastern Geographer</i> |
| 1993–2008 | Editorial board, <i>Physical Geography</i> . |
| 1993–2000 | International Editorial Advisory Board, <i>Mountain Research and Development</i> |
| 1993–1995 | Organizer of five Fluvial Geomorphology sessions for 1994 and 1995 Association of American Geographers national meetings. |
| 1994 | Teacher-consultant for National Geographic Society Regional Workshop on Water for K-12 teachers in Indiana, Illinois, Missouri, Kentucky and Tennessee, Grant City, Illinois, June 26-July 1, 1994. |
| 1992–1993 | Elected member of Honors Committee, Southeastern Division, Association of American Geographers. |
| 1989 | Co-organizer and teacher for Tennessee Geographic Alliance Summer Workshop "The River and the City: Teaching and Understanding the Local Environment." June 14-26, Chattanooga, TN. |
| 1990–1991 | Member of Program Committee, Southeastern Division, AAG. |

SERVICE: To the University of Tennessee

| | |
|-----------|---|
| 2014 | Coordinator of local arrangements for University of Tennessee to host National Geographic Society Young Explorer Grants workshop and Explorers presentations, Sept. 20, 2014. |
| 2013 | Chair, ad hoc committee for Chancellor to approve nomination for honorary doctorate |
| 2013 | Member, water resources faculty search committee, Civil and Environmental Engineering, University of Tennessee |
| 2012–2014 | Member, Watershed Faculty group, The University of Tennessee |
| 2011–2012 | VolVision Top 25, Faculty Professional Development Action Team. |
| 2010–2011 | VolVision Top 25, Faculty Task Force (strategic planning) |
| 2009–2011 | ADVANCE Task Force, UT Vice Provost's Office |
| 2009 | GK-12 Faculty Advisor: supervised work of Maggie Patrick and Jorene Hamilton in Middle School science classrooms; took Heritage Middle School teacher, Greg Metcalf to Ecuador to participate in NSF-funded research. |
| 2008 | Organized public presentations of research in the Little River watershed (at Blount County Public Library) |
| 2007 | Chair, search committee for head, Ecology and Evolutionary Biology. |
| 2007–2009 | Strategic Planning Committee, College of Arts and Sciences |
| 2007 | Water quality environmental outreach, Sept. 8, 2007 |

- 2007 Life of the Mind, discussion leader
- 2007 Presentation to Board of Blount County Soil Conservation Service, June 2007
- 2006 Budget Committee, College of Arts and Sciences
- 2006 Heads' Compensation Committee, College of Arts and Sciences
- 2006 Search Committee for Director of Institute for a Secure and Sustainable Environment (ISSE)
- 2006 Life of the Mind, discussion leader.
- 2006 Chair, ad hoc committee to review a tenure appeal for Dean Bursten
- 2005 Life of the Mind, discussion leader
- 2003–2005 Beaver Creek Task Force (Beaver Creek watershed, Knox County, TN)
- 2005–2011 Little River Water Quality Forum
- 2005 Service learning projects in Water Resources course (Geog 436), in collaboration with TVA, Knox County, and the Beaver Creek Watershed Association.
- 2005 Class on Ecuador for 1-4 grades, Tennessee Valley Unitarian Univ. Church, Knoxville.
- 2004 Member, University of Tennessee committee to award an honorary degree (to Howard Baker, Jr.), appointed by Dean of the Graduate School.
- 2004–2005 Member, Search Committee for Dean of Arts and Sciences, UT
- 2003–2004 Member, Restructuring and Review Task Force, UT
- 2003 Chair, Search Committee for Professor and Head of Geological Sciences
- 2002–2004 Member, Promotion and Tenure Committee, College of Arts and Sciences, UT.
- 2001 Member, University of Tennessee committee to review Research Centers of Excellence Proposals
- 2000–2003 Member, Graduate Council; and member of committee to evaluate Professional Development Awards
- 1999–2001 Member, Campus Committee on the Environment; Chair of Procurement Task Force
- 1999–2000 Member, Steering Committee for Howard Baker School of Government
- 1998 Member, Science and Technology Committee for Univ. of Tennessee - Oak Ridge National Laboratory Contract Proposal
- 1998 Training about watersheds for new Americorps group, Sept. 1998.
- 1998 Chair, Search Committee for Head of Department of Psychology.
- 1997–1998 Mentor, Graduate Teaching Assistant Mentoring Program, UTK.

- 1997 Participated in training to new Americorps group, Oct., 1997, Knoxville, TN.
- 1996–1999 Member, Library Carrel Award Committee, University of Tennessee
- 1996–1997 Faculty Advisor to the President, University of Tennessee.
- 1996–1997 Member of Program/Policy Committee, National Center for Environmental Decision-Making Research, JIEE, Knoxville, TN.
- 1996–1998 Member of Advisory Board for Pryme Time of the YMCA of Knoxville, TN.
- 1996 Assisted with training for new AmeriCorps team in Knoxville, TN. (stream discharge measurements and calculations).
- 1994 Chair, Internal Academic Review Team for Chemical Engineering Department at UTK.
- 1994 Member of group representing UTK at 2nd Annual National Conference on Rewarding Teaching, University of Nebraska, Lincoln, March 1994.
- 1994 Participant in "Life in the Classroom" for new student orientation.
- 1994 Participant in Joint Institute for Energy and Environment focus group to develop proposal "Identification and Resolution of Conflicting Water Uses: A Methodology for Sustainable Development in the Southeast Region."
- 1994–2000 Member, Coordinating Committee for Development of Graduate Minor in Environmental Policy
- 1993 Chair, Alumni Memorial Building Renovation Committee
- 1993 Member, Undergraduate Council Baccalaureate Committee
- 1993–2000 Member, Environmental Studies Undergraduate Major Program Committee.
- 1992 Geography Department representative to Environmental Research and Education Committee
- 1987 Participant in Spotlight on Women's Research at University of Tennessee during National Women's Week.
- 1989 Discussion leader, Liberal Arts Community Reading Program.
- 1988 Water Resources presentation to visiting Chinese delegation.
- 1988 Talk in public school (Norris Elementary)
- 1988 University of Tennessee delegate to Universities Council on Water Resources
- 1988 Judge in Environmental Sciences in the International Science and Engineering. Fair, Knoxville, TN.
- 1987 Talks in public schools (South Knoxville Elementary, Morristown High School)

SERVICE: To the Department of Geography, University of Tennessee

Organizer of departmental colloquia, Fall 2014

Chair, Graduate Examinations Committee, 2012–2014

Interim Head, July 2010 –July 2012

Acting Director of Graduate Admissions, Spring 2011

Burchfiel Geography Building Chemical Inventory 2000–2014

Chair, Search Committee for Physical/Spatial Analysis Geography position 2008–2009

Member, Search Committee for Human Geography position 2007–2008

Chair, Strategic Planning Committee 2007

Interim Head, September 2006–2007

Development and donor relations

Member, Search Committees for physical geography/GIS position, 2002–2003, 2005–2006

Chair, Search Committee for population position, 2001–2002

Associate Department Head, 1994–1995, 2000–2001

Department Head, 1995–2000

Compiled and edited Geography Department newsletter, 1988–1992

Member, McCroskey Fund committee 1993-present, Chair, 1995–2002, 2006, 2008–2010

Graduate program com. member (various years), Undergraduate program com. member (various years)

Supervisor of Geography 132, including graduate teaching associates, graduate teaching assistants, lab manual preparation and annual revision, syllabus preparation, and lab material acquisition and training, 1987–2014

Senior Proficiency Examination committee member, Faculty Evaluation committee member

Chair, Visiting Speaker Committee, 1992–1994

Chair, Hammond Lecture Committee, 1992–2006; Member, 2007–2008

Numerous other departmental committees.

SERVICE: To the Town of Middlebury, Vermont

Member, Conservation Commission 2020–present