

Robert A. Washington-Allen

Associate Professor
Environmental Tomography Laboratory
Department of Agriculture, Nutrition, and Veterinary Science (ANVS)
College of Agriculture, Biotechnology, & Natural Resources (CABNR)
University of Nevada, Reno
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RESEARCH INTERESTS

I am interested in the research, teaching, and application of passive and active ground to satellite-based remote sensing and geographic information system (GIS) technologies to problems in landscape ecology, physical geography including synecology/biogeography, environmental monitoring, ecological restoration for developing solutions to restoring or maintaining the sustainability of landscapes and their peoples.

EMPLOYMENT AND WORK EXPERIENCE

Associate Professor, tenured (2018-present), Department of Agriculture, Nutrition, and Veterinary Science (ANVS), University of Nevada, Reno, Reno, NV 89557

Adjunct Professor (2018-present), Department of Geography, University of Tennessee, Knoxville, TN 37996

Assistant Professor (2013-2018), Department of Geography, University of Tennessee, Knoxville, TN 37996

Adjunct Professor (2013-present), Department of Ecosystem Science and Management, Texas A&M University, College Station, Texas 77843-2138

Assistant Professor (2007-2012), Department of Ecosystem Science and Management, Texas A&M University, College Station, Texas 77843-2138

Research Assistant Professor (2005-2007), Center for Regional and Environmental Studies, Department of Environmental Sciences, University of Virginia, 257 Clark Hall, Charlottesville, VA 22904-4123

Consultant Landscape Ecologist (2006-present), Oneida Total Integrated Enterprises (OTIE) Milwaukee, Wisconsin 53226

Post Doctoral Fellow (2004-2005), Intermountain Region Digital Image Archive Center (<http://www.earth.gis.usu.edu>), Department of Forest, Range, and Wildlife Sciences, Utah State University, Logan, Utah 84321-5230

Adjunct Professor (2004-2005), Department of Geography, University of Tennessee, 304 Burchfiel Building, Knoxville, TN 37996-0925

Consultant, Landscape Ecologist (2004) to Oak Ridge National Laboratory, Environmental Sciences Division, Oak Ridge, TN 37831

Research and Development Staff Scientist (1994-2004) Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831

Research Associate (1993-1994) Pioneer Environmental Consultancy, Logan, Utah.

Research Associate (1993) Office of Navajo and Hopi Indian Relocation (ONHIR), Flagstaff, Arizona

Range Technician (1991) Office of Navajo and Hopi Indian Relocation (ONHIR) Flagstaff, Arizona

Lecturer (1988-1990) National University of Lesotho's Lesotho Agricultural College, Lesotho, Southern Africa

United States Peace Corps Volunteer (1984-1987) Math/Science Teacher in Lesotho, Southern Africa.

EDUCATION

Post Doctoral Research (2004-2005), Intermountain Region Digital Image Archive Center

(<http://www.earth.gis.usu.edu>), Department of Forest, Range, and Wildlife Sciences, Utah State University, Logan, Utah 84321-5230

Ph.D. Ecology, 2003, Department of Forest, Range, and Wildlife Sciences, Utah State University, Logan, Utah 84321-5230 Dissertation: *Retrospective ecological risk assessment of commercially-grazed rangelands using multitemporal satellite imagery.*

M.S. Range Ecology, 1994, Department of Forest, Range, and Wildlife Sciences, Utah State University, Logan, Utah 84321-5230 High

Thesis: Historical analysis of land use/land cover change on the Bolivian Altiplano: A remote sensing perspective

B.S. Zoology, 1983, Department of Evolution, Ecology and Organismal Biology, The Ohio State University, Columbus, Ohio 43210

PEER REVIEWED PUBLICATIONS (*graduate and **undergraduate students, 33 Total, 10 first authored, 837 Google Citations and an h-index = 17)

2017 (1)

- [1] Lu, Xiaoyu*, Y. Li., **R.A. Washington-Allen**, Y. Li, H. Li, and Q. Hu. 2017. The effect of grid size on the quantification of erosion, deposition, and rill network. *International Soil and Water Conservation Research* <http://dx.doi.org/10.1016/j.iswcr.2017.06.002>

2016 (2)

- [2] Moore, G.W., C.B. Edgar, J.B. Vogel, **R.A. Washington-Allen**, R.G. March*, and R. Zehnder. 2016. Tree mortality from an exceptional drought spanning mesic to semiarid ecoregions. *Ecological Applications* 26: 602-611 <http://dx.doi.org/10.1890/15-0330.1> (5 Year IF = 4.126)

- [3] Haghverdi*, A., B.G. Leib, **R.A. Washington-Allen**, P.D. Ayers, and M.J. Buschermohle. 2016. Studying uniform and variable rate center pivot irrigation strategies with the aid of site-specific water production functions. *Computers and Electronics in Agriculture* 123:327-340 <http://dx.doi.org/10.1016/j.compag.2016.03.010> (5 Year IF = 2.091)

2015 (2)

- [4] Haghverdi*, A., B.G. Leib, **R.A. Washington-Allen**, P.D. Ayers, and M.J. Buschermohle. 2015. High-resolution prediction of field-scale soil available water content within the crop root zone. *Journal of Hydrology* 530: 167-179 (5 Year IF = 3.912)

- [5] Haghverd*i, A., B.G. Leib, **R.A. Washington-Allen**, P.D. Ayers, and M.J. Buschermohle., 2015. Perspectives on delineating management zones for variable rate irrigation. *Computers and Electronics in Agriculture* 117: 154–167. <http://dx.doi.org/10.1016/j.compag.2015.06.019> (5 Year IF = 2.091)

2014 (2)

- [6] Teale**, N.G., H. Mahan**, S. Bleakney**, A. Berger**, N. Shibley**, O.W. Frauenfeld**, S.M. Quiring, A.D. Rapp, E.B. Roark, and **R.A. Washington-Allen**. 2014. Impacts of vegetation and precipitation on throughfall heterogeneity in a tropical pre-montane transitional cloud forest. *Biotropica* 46: 667-676, DOI: 10.1111/btp.12166 (5 Year IF = 2.084)

- [7] Feagin, R.A., A.M. Williams*, S. Popescu, J. Stuke***, and **R.A. Washington-Allen**. 2014. The use of Terrestrial Lidar Scanning (TLS) in dune ecosystems: The lessons learned. *Journal of Coastal Research* 30(1): 111–119., ISSN 0749-0208. (5 Year IF = 0.980)

2013 (1)

- [8] Ribeiro, N.S., C.N. Matis, I.R. Moura, **R.A. Washington-Allen**, and A. Ribeiro. 2013. Monitoring vegetation dynamics and carbon stock density in miombo woodlands. *Carbon Balance and Management* 2013, 8:11 <http://www.cbmjournal.com/content/8/1/11>(IF = 2.00)

2011 (1)

- [9] Buenemann, M., C. Martius, J.W. Jones, S.M. Herrmann, D. Klein, M. Mulligan, M.S. Reed, M. Winslow, **R.A. Washington-Allen**, R. Lal and D. Ojima. 2011. Integrative geospatial approaches for the comprehensive monitoring and assessment of land management sustainability: rationale, potentials, and characteristics. *Land Degradation & Development* 22(2): 226-239, DOI: 10.1002/ldr.1074 (5 Year IF = 3.089)

2010 (5)

- [10] Mitchell, J., **R.A. Washington-Allen**, G. Evans, D. Child, B. Boxer, and B. Allen-Diaz. 2010. Criterion III: Indicators for Maintenance of Rangeland Productive Capacity. Chapter 4. In: Mitchell JE (ed). Criteria and Indicators for Sustainable Rangeland Management. Sustainable Rangeland Management. Laramie, WY: University of Wyoming Extension Publication No. SM-56:139-170, Society for Range Management Monograph 4. (**IF = N/A**)
- [11] Joyce, L.A. W. Fox, P. Geissler, R. Heitschmidt, L. Hidinger, D. Patten, J. Spence, L. Strong, R. Unnasch, and **R.A. Washington-Allen**. 2010. Criterion II: Indicators for conservation and maintenance of plant and animal resources on rangelands. . Chapter 3. In: Mitchell JE (ed). Criteria and Indicators for Sustainable Rangeland Management. Sustainable Rangeland Management. Laramie, WY: University of Wyoming Extension Publication No. SM-56: 77-138, Society for Range Management Monograph 4. (**IF = N/A**)
- [12] **Washington-Allen, R.A.**, D. Briske, H.H. Shugart, and L.F. Salo. 2010. Catastrophic thresholds, perspectives, definitions, and applications: An introduction. Ecology and Society 15(3): 38. [online] URL: <http://www.ecologyandsociety.org/vol15/iss3/art38/> (**5 Year IF = 4.644**)
- [13] Briske, D., **R.A. Washington-Allen**, C. Johnson, T. Stringham, D. Lockwood, J. Lockwood and H.H. Shugart. 2010. Catastrophic thresholds, perspectives, definitions, and applications: A synthesis. Ecology and Society 15(3): 37. [online] URL: <http://www.ecologyandsociety.org/vol15/iss3/art37/> (**5 Year IF = 4.644**)
- [14] **Washington-Allen, R.A.**, N.E. West, R. Douglas Ramsey, D.K. Phillips and H.H. Shugart. 2010. Retrospective assessment of soil stability on a landscape subject to commercial grazing. Environmental Monitoring and Assessment 160: 101-121. DOI 10.1007/s10661-008-0661-3. (**5 Year IF = 1.679**)

2009 (1)

- [15] Thomas, D., M. Weederma, L. Billings, J. Hoffacker, and **R.A. Washington-Allen**. 2009. When to spray: a time-scale calculus approach to controlling the impact of West Nile virus. Ecology and Society 14(2): 21. [online] URL: <http://www.ecologyandsociety.org/vol14/iss2/art21/> (**5 Year IF = 4.644**)

2008 (5)

- [16] Lutz*, D. A., **R.A. Washington-Allen**, and H.H. Shugart. 2008. Remote sensing of boreal forest biophysical and inventory parameters: a review of methods for. Canadian Journal of Remote Sensing 34: Suppl.2: S286-S313 (**5 Year IF = 1.727**)
- [17] **Washington-Allen, R.A.**, R. D. Ramsey, N. E. West, and B. E. Norton. 2008. Quantification of the ecological resilience of drylands using digital remote sensing. Ecology and Society 13(1): 33. [online] URL: <http://www.ecologyandsociety.org/vol13/iss1/art33> (**5 Year IF = 4.644**)
- [18] Ribeiro*, N.S., S. S. Saatchi, H. H. Shugart and **R.A. Washington-Allen**. 2008. Aboveground biomass and leaf area index (LAI) mapping for Niassa Reserve, northern Mozambique. Journal of Geophysical Research 113, G02S02, DOI:10.1029/2007JG000550. (**5 Year IF = 3.426**)
- [19] Fatoyinbo*, T.E., M. Simard, **R.A. Washington-Allen**, and H.H. Shugart. 2008. Landscape-scale extent, height, biomass, and carbon estimation of Mozambique's mangrove forests with Landsat ETM+ and Shuttle Radar Topography Mission elevation data, Journal of Geophysical Research 113, G02S06, DOI:10.1029/2007JG000551. (**5 Year IF = 3.426**)
- [20] Ribeiro*, N.S., H.H. Shugart, and **R.A. Washington-Allen**. 2008. The effects of fire and elephants on species composition and structure of the Niassa Reserve, Northern Mozambique. Forest Ecology and Management 255: 1626-1636. (**5 Year IF = 3.153**)

2006 (2)

- [21] **Washington-Allen, R.A.**, R.D. Ramsey, N.E. West, and R.A. Efrogmson. 2006. A remote sensing-based protocol for assessing rangeland condition and trend. Rangeland Ecology and Management 59(1): 19-29. (**5 Year IF = 1.439**)
- [22] Dale, V.H., M. Aldridge, T. Arthur, L. Baskaran, M. Berry, M. Chang, R. Efrogmson, C.T. Garten Jr., C. Stewart, and **R.A. Washington-Allen**. 2006. Bioregional Planning in Central Georgia. Futures 38(4): 471-489. (**5 Year IF = 1.290**)

2005 (3)

- [23] Olsen, L.M., **R.A. Washington-Allen**, and V.H. Dale. 2005. Time-series analysis of land cover using landscape metrics. GIScience and Remote Sensing 42(3): 200-223. (**5 Year IF = 1.770**)

- [24] Miller, N.L., A.W. King, M.A. Miller, E.P. Springer, M.L. Wesley, K.E. Bashford, M.E. Conrad, K. Costigan, P.N. Foster, H.K. Gibbs, J. Jin, J. Klazura, B.M. Lesht, M.V. Mashavaram, F. Pan, J. Song, D. Troyan, and **R.A. Washington-Allen**. 2005. The DOE Global Water Cycle Pilot Project. *Bulletin of the American Meteorological Society*. 86(3): 359-374. (**5 Year IF = 6.95**)
- [25] Dale, V.H., D. Druckenbrod, L. Baskaran*, M. Aldridge, M. Berry, C.T. Garten Jr., L. Olsen, R. Efroymson, and **R.A. Washington-Allen**. 2005. Vehicle impacts on the environment at different spatial scales: Observations in west central Georgia. *Journal of Terramechanics* 42: 383-402. (**5 Year IF = 1.695**)
- 2004 (2)
- [26] **Washington-Allen, R.A.**, R. D. Ramsey, and N. E. West. 2004. Spatiotemporal mapping of the dry season vegetation response of sagebrush steppe. *Community Ecology* 5(1): 69-79. (**5 Year IF = 1.695**)
- [27] **Washington-Allen, R.A.**, T.G. Van Niel, R. D. Ramsey, and N. E. West. 2004. Remote sensing-based piospheric analysis. *GIScience and Remote Sensing* 41(2): 136-154. (**5 Year IF = 1.770**)
- 2003 (2)
- [28] **Washington-Allen, R.A.**, N.E. West, R. Douglas Ramsey, and D.K. Phillips. 2003. Retrospective Assessment of soil stability on a landscape subject to commercial grazing. *African Journal of Range & Forage Science* 20: 127. (**IF = 0.971**)
- [29] **Washington-Allen, R.A.**, N.E. West, and R. Douglas Ramsey. 2003. Remote sensing-based dynamical systems analysis of sagebrush steppe vegetation in rangelands. *African Journal of Range & Forage Science* 20: 100. (**IF = 0.971**)
- 1999 (1)
- [30] Mann, L. K., A. W. King, V. H. Dale, W. W. Hargrove, **R.A. Washington Allen**, L. Pounds, and T.L. Ashwood. 1999. The role of classification in geographic information systems modeling of habitat pattern: Threatened calcareous ecosystems. *Ecosystems* 2: 524-538. (**2014 IF = 3.943**)
- 1998 (2)
- [31] **Washington-Allen, R.A.**, R.D. Ramsey, B.E. Norton, and N.E. West. 1998. Change detection of the effect of severe drought on subsistence agropastoral communities on the Bolivian Altiplano. *International Journal of Remote Sensing* 19: 1319-1333. (**2014 IF = 1.652**)
- [32] Dale, V.H., A.W. King, L. K. Mann, **R.A. Washington-Allen**, and R.A. McCord. 1998. Assessing land-use impacts on natural resources. *Environmental Management* 22: 203-211. (**5 Year IF = 1.724**)
- 1995 (1)
- [33] **Washington-Allen, R.A.** 1995. Rangeland health: New methods to classify, inventory, and monitor rangelands, by National Research Council. *Journal of Range Management* 48:94-95. (**5 Year IF = 1.439**)

SUBMITTED PEER-REVIEW MANUSCRIPTS (4)

- [1] Wanwan Liang • Liem Tran • Robert Washington-Allen • Gregory Wiggins • Scott Stewart • James Vogt • Jerome Grant., *submitted*. Ecological Niche Shift: Predicting the Potential Biological Invasion of Kudzu Bug (*Megacopta cribraria*) in North and South America. *Biological Invasions*
- [2] Ojima, D., **R.A. Washington-Allen**, D.W. Bailey, N. Cavallaro, R. Aicher, S.R. Archer, S.M. Casby-Horton, J.A. Tanaka, and J.J.T. Reyes. *submitted*. Development of Climate Change Indicators for Grasslands, shrublands, rangelands, and pastures of the United States. *Climatic Change* (**5 Year IF = 4.374**)
- [3] Rubas-Leal*, L., **R.A. Washington-Allen**, S.C. Popescu, and J.R. Conner. *submitted*. Vegetation profile and biomass estimates in Mt. Apo Natural Park, Philippines. *Philippine Journal of Science* (**2015 IF = 0.68**)
- [4] Rubas-Leal*, L., **R.A. Washington-Allen**, S.C. Popescu, and J.R. Conner. *submitted*. Estimation of aboveground biomass in Mt. Apo Natural Park, Philippines using terrestrial LiDAR system. *BANWA Agribusiness and Management* (**5 Year IF = 0.404**)

BOOK CHAPTERS (6)

- [1] Reeves, M. C., **R. A. Washington-Allen**, J. Angerer, E.R. Hunt Jr., R.W. Kulawardhana, L. Kumar, T. Loboda, T. Loveland, G. Metternicht, and D. Ramsey. 2015. A Global View of Remote Sensing of

Rangelands: Evolution, Applications, Future Pathways. *In*: P.S. Thenkabail (Ed.) Remote Sensing Handbook. Volume II: Land Resources Monitoring, Modeling, and Mapping with Remote Sensing. Boca Raton, FL: CRC Press/Taylor & Francis Group. ISBN: 9781482217957

- [2] **Washington-Allen, R.A.**, R.D. Ramsey, T. Van Niel, and N.E. West. 2014. Detection of Harbingers of Catastrophic Regime Shifts in Drylands. Chapter 13, pp 273-289 *In*: G.R. Guntenspergen (Ed.) Application of threshold concepts in natural resource decision making. Springer Science+Business Media, LLC 2014, DOI 10.1007/978-1-4899-8041-0_13.
- [3] **Washington-Allen, R.A.** and S. Ravi. 2011. Rangeland Monitoring & Assessment. Chapter 5. 35.18. In V. Squires (Ed.), Range and animal sciences and resources management, EOLSS (Encyclopedia of Life Support Systems) EOLSS/UNESCO, Paris, www.eolss.net
- [4] Zimmermann, N. E., **R.A. Washington-Allen**, R.D. Ramsey, M.E. Schaepman, L. Mathys, B. Koetz, M. Kneubuehler, and T.C. Edwards. 2007. Modern remote sensing for environmental monitoring of landscape states and trajectories, Pages 65-91 *In*: F. Kienast, O. Wildi, & S. Ghosh (Eds.). A changing world: Challenges for landscape research. Landscape Series, Vol. 8. Springer, New York, New York.
- [5] **Washington-Allen, R.A.**, R. D. Ramsey, and N. E. West. 2004. Spatiotemporal mapping of the dry season vegetation response of sagebrush steppe. [Reprinted from *Community Ecology* 5(1): 69-79] *In*: E. Feldmeyer-Christe, S. Ghosh, O. Wildi, N.E. Zimmermann (Eds.) Modern approaches in vegetation monitoring, Akademiai Kiado, Budapest.
- [6] Ashwood, T.L., B.E. Sample, **R.A. Washington-Allen**, G.W. Suter. 1998. An integrated approach to ecological risk assessment of a large forested ecosystem. *In*: S. A. El-Swaify and D. S. Yakowitz (Eds.) Multiple objective decision making for land, water, and environmental management. P. 121-132. CRC Press LLC, Boca Raton, Florida

PEER-REVIEWED TECHNICAL REPORTS (7, *graduate and **undergraduate students)

- [1] Ojima, D., N. Cavallaro, **R. Washington Allen**, S. Archer, D. Bailey, J. Belnap, J. Blair, S. Casby-Horton, J. Dwyer, J. Garrett, J. Herrick, M.A. Kenney, E. Pendall, J. Tanaka, B. Wilcox, R. Aicher, J. Reyes. (2014) Grasslands, Rangelands, and Pasturelands Indicators. Report to the National Climate Assessment and Development Advisory Committee Indicators Work Group.
- [2] **Robert A. Washington-Allen**, G. Powers**, A. Delgado*, M. Austin*. D.T. Booth, W.E. Limbach, S.C. Popescu, and V. Mendieta* 2013. Part III: Initial Findings: Description of the 3-Dimensional Vegetation Structure using Terrestrial Scanning Laser and Comparison of Manual and Automated Feature Extraction. pp 30 – 43 *In*: Booth, D.T. and S.E. Cox. 2013. Curlew Valley Sagebrush Inventory and Habitat Assessment Final Report. April 2013 to the USFS.
- [3] **US Forest Service. 2012.** Contributed to Chapter 11: Rangeland Resources, pp. 97-108. Future of America's Forest and Rangelands: Forest Service 2010 Resources Planning Act Assessment. Gen. Tech. Rep. WO-87. Washington, DC. 198 p. (I am one of the contributors for this report)
- [4] Hall, C., L. Neher, L. Wilder, T. Carlsen, T. Ashwood, **R. Washington-Allen**, and R. Efroymson. 2001. Data collection protocol for developing geographical information systems to investigate and manage ecological impacts at petroleum exploration and production sites. Lawrence Livermore National Laboratory, Livermore, CA. January 2001. UCRL-ID-142371.
- [5] **Washington-Allen, R.A.** and B. E. Sample. 1997. Determination of the Spatial Risk to Wildlife from Dispersed Contaminants on the Oak Ridge Reservation, Oak Ridge, Tennessee. ES/ER/TM-229 Oak Ridge National Laboratory, Tennessee.
- [6] **Washington-Allen, R.A.**, T. L. Ashwood, S.W. Christensen, H. Offerman, and P. Scarbrough-Luther. 1995. Terrestrial Habitat Mapping of the Oak Ridge Reservation: Phase 1. ES/ER/TM-152 Oak Ridge National Laboratory, Tennessee.
- [7] **Washington-Allen, R.A.** and T. L. Ashwood. 1996. Terrestrial Habitat Mapping of the Oak Ridge Reservation: 1996 Summary. ES/ER/TM-201 Oak Ridge National Laboratory, Tennessee.

CONFERENCE PROCEEDINGS, PRESENTATIONS AND ABSTRACTS (91, *graduate & **undergraduate students)

- [1] **Washington-Allen, RA**, KL Landolt, RE Emanuel, MD Therrell, NN Nagle, HD Grissino-Mayer, and B Poulter. 2016. Progress Towards the Use of Publicly Available Data Networks to Conduct Cross-Scale Historical Reconstructions of Carbon Dynamics in US Drylands.GC21C-1105: Poster. American Geophysical Union Fall Meeting December 12-16, 2016, San Francisco, CA.
- [2] Li, Y., J. McNelis*, and **R.A. Washington-Allen**. 2016. Monitoring Sediment Dynamics within a Gully in West Tennessee using Terrestrial LiDAR. Poster Presentation 71st Annual Meeting of the Southeastern Division of the Association of American Geographers, Columbia, SC, November 20-22, 2016
- [3] Lu, X.,*, Y. Li, and **R.A. Washington-Allen**. 2016. Oral Presentation: Studying rill erosion and rill morphology using terrestrial laser scanning: the effect of grid size. The Third World Conference of World Association of Soil and Water Conservation (WASWAC), Belgrade, Serbia, August 22-26, 2016.
- [4] **Washington-Allen, R.A.** 2015. Beyond Monitoring: A brief review of the use of remote sensing technology for assessing dryland sustainability. GC11I-04: Invited Oral Paper. In Climate-Vegetation Interaction and Land Cover/Land Use Change in Semi-Arid Grassland Ecosystems I. American Geophysical Union Fall Meeting December 14-18, 2015, San Francisco, CA.
- [5] Landolt, K.L*, **R. Washington-Allen**, N. Nagle, and H. Grissino-Mayer. 2015. Towards the development of historical indicators of spatial carbon dynamics in drylands: A blue oak woodlands of California case study. GC13F-1220. American Geophysical Union Fall Meeting December 14-18, 2015, San Francisco, CA.
- [6] Lu, X*, Y. Li, J. McNelis, Y. Li, and **R. Washington-Allen**. Terrestrial laser scanner an effective tool for studying streambank erosion. 4th Annual Watershed Symposium. 15th September 2015, Knoxville, TN.
- [7] Lu, X*, G. Bailey, R. Friedrichs, M. Walker, Y. Li, **R. Washington-Allen**, Y. Li. Evaluation of three topographic factors in hillslope erosion process using terrestrial laser scanner and GIS: a case study in Loudon, Tennessee. 46th Binghampton Geomorphology Symposium. 18th – 20th September 2015. Buffalo, NY.
- [8] Landolt, K.L*, **R.A. Washington-Allen**, A. Delgado*, C. Brademan*, M. Wann**, D.D. Nally*, R. Bruton*, and W. Rogers. 2015. Can Chinese Tallow distribution be reduced to certification levels within Greens Bayou Wetland Mitigation Bank? Physical Geography Poster Session #3570. The Association of American Geographers 2015 Annual Meeting, April 21-25, 2015 Hyatt Hotel, Chicago, Ill.
- [9] **Washington-Allen, R.A.**, M. Louachi, A.,Mude, C. Liao*, K.M. Clifton, and P.E. Clarke, 2015. The impact of land use change on the 3-D structure of shrubland and dryland savanna ecosystems. Chapter 3, Pp 273- 274 In: B. Hubert & M. Broin Eds. 3rd UNCCD Scientific Conference: “Combating desertification/land degradation and drought for poverty reduction and sustainable development: the contribution of science, technology, traditional knowledge and practices”, 9-12 March 2015, Cancun, Mexico. ISBN: 978-2-35682-379-3, Agropolis International - 1000, Avenue Agropolis - 34394 Montpellier, France and Groupe CCEE (<http://autres-talents.fr>)
- [10] **Washington-Allen, R.A.**, R.G. March*, J.J.McNelis*, J.R. Roberts*, Z.T..Seiden*, R.W. Kulawardhana, M.C. Reeves, and J.E. Mitchell. 2015. Examining the causes of US dryland “greening” and their relationships to commercial livestock grazing using time series of LST and NPP satellite data. Chapter 3, Pp. 335 -337 In: B. Hubert & M. Broin Eds. 3rd UNCCD Scientific Conference: “Combating desertification/land degradation and drought for poverty reduction and sustainable development: the contribution of science, technology, traditional knowledge and practices”, 9-12 March 2015, Cancun, Mexico. ISBN: 978-2-35682-379-3, Agropolis International - 1000, Avenue Agropolis - 34394 Montpellier, France and Groupe CCEE (<http://autres-talents.fr>)
- [11] Seiden, Z.* , **R.A. Washington-Allen**, J.J. McNelis*, K. Landolt*, and J. Schwartz. 2015. The use of dual-wavelength terrestrial laser scanning to detect micro-channels or rills created by cattle trailing and trampling. Poster 68th Annual Meeting of the Society for Range Management, January 31 – February 6, 2015, Sacramento, CA.
- [12] Li, Y., M. Duchene*, J.J. McNelis*, X. Lu*, M. Walker*, and **R. Washington-Allen**. 2015. A Streamlined analysis toolset to process lidar point cloud for terrain extraction. Quaternary Geology, Geomorphology and Soils Oral Paper No. 12-7, 64th Annual meeting of the Southeastern Section of the Geological Society of America 19 – 20, March 2015, Chattanooga Hotel & Conference Center, Chattanooga, TN. Geological Society of America Abstracts with Programs. Vol. 47, No. 2, p.17.
- [13] Lu, X.* , Y. Li., J. McNelis*, Y. Li*, and **R. Washington-Allen**. 2015. Use of lidar to study urban streambank erosion associated with anthropogenic activities. Quaternary Geology, Geomorphology and Soils Oral Paper No. 12-10, 64th Annual meeting of the Southeastern Section of the Geological Society of America

19 – 20, March 2015, Chattanooga Hotel & Conference Center, Chattanooga, TN. Geological Society of America Abstracts with Programs. Vol. 47, No. 2, p.18

- [14] **Washington-Allen, R.A.**, J. McNelis*, J. Roberts*, Z. Seiden*, M. Reeves, J.E. Mitchell and R.W. Kulawardhana. 2014. How much of US dryland's carbon stocks is being appropriated by commercial grazing livestock? B54G-07: American Geophysical Union Fall Meeting December 15-19, 2014, San Francisco, CA.
- [15] **Washington-Allen, R.A.**, A. Delgado*, K. Landolt**, C.G. Brademan*, M. Wann**, D.D. Nally*, R. Bruton*, W.E. Rogers, R. Martinez and C. Rogers-McCoy. 2014. Restoration of an urban wetland mitigation bank from invasion by Chinese Tallow. COS 119-10. Invasion: Prevention & Management. 99th Annual Meeting of the Ecological Society of America Meeting: From Oceans to Mountains, August 10 -15, 2014, Sacramento, CA.
- [16] **Washington-Allen, R.A.**, L. Rubas*, A. Delgado*, J.R. Conner, and S. Popescu. 2013. Remote sensing of the carbon stocks of the UNESCO World Heritage site: Mt. Apo Natural Park, Philippines B43H-07: Remote Sensing of Terrestrial Carbon Fluxes, American Geophysical Union Fall Meeting December 9-13, 2013, San Francisco, CA.
- [17] Houser, C., A. Cahill, E. Gonzalez, S. Brooks, O. Frauenfeld, G. Miller, G. Moore, A. Rapp, B. Roark, G. Schade, C. Schumacher, **R. Washington-Allen**, K. Brumbelow and K. Lemmons. 2013. Eco-hydrology of a tropical montane forest: A REU site hosted by Texas A&M University in Costa Rica. Tropical Biology Conference, San Jose, Costa Rica.
- [18] **Washington-Allen, R.A.**, S.M. Thompson*, D.B. Hays, A. Delgado*, J. Li, W.T. Brademan*, S. Popescu, R.M. Martínez Peña*, E. Huber-Sannwald, C. Brademan*, R.G. March*, G. Moore, C.B. Edgar, J.S. Johnson*, N.R. Modala*, M.C. Reeves, J.E. Mitchell, and R. Wasantha Kulawardhana*. 2013. Invited International Oral Presentation: An Overview of The Use of Remote Sensing Technologies to Assess Dryland Production and Degradation. IV Congreso Mexicano de Ecología, March 18 – 22, 2013, Villahermosa, Tabasco, México
- [19] March, R.G.* , **R.A. Washington-Allen**, G.W. Moore and C. Edgar. 2013. Detecting statewide tree mortality from the 2011 Texas drought. Oral presentation: at the U.S. Regional Association of the International Association for Landscape Ecology (US-IALE) 2013 Annual Symposium, April 14-18, 2013, Austin, TX
- [20] Kulawardhana, R.W. *, **R.A. Washington-Allen**, M.C. Reeves, J.E. Mitchell, S.C. Popescu and R.A. Feagin. 2012. NDM1251: A 28 year remotely sensed vegetation net primary productivity dataset for the regional scale assessment of rangeland degradation and their key drivers. 4th Int. Conference on Geo-Information Technology for Natural Disaster Management - "Reduce Exposure to Reduce Risk" 7-8 November 2012 Hotel Galadari, Colombo, Sri Lanka
- [21] March, R*, **R.A. Washington-Allen**, G.W. Moore, and C. Edgar. 2012. A remote sensing method for mapping the extent of tree mortality in Texas following the 2011 exceptional drought using publicly available datasets. Poster presentation: B41E-0336. American Geophysical Union Fall Meeting December 3-7, 2013, San Francisco, CA.
- [22] **Washington-Allen, R.A.**, E. Buckwalter**, G.W. Moore, J. Burns**, A. Dennis**, O. Dodge**, E. Guffin**, E. Morris**, R. Oien**, G. Orozco**, A. Peterson**, N.G. Teale**, N. Shibley**, N. J. Tourtellotte**, C. Houser, S. Brooks, K. Brumbelow, A. Cahill, O. W. Frauenfeld, E. Gonzalez, C.T. Hallmark, K.J. McInnes, G. Miller, C. Morgan, S. Quiring, A. Rapp, B. Roark, A. Delgado*, J. Ackerson*, and D. Ryan Arnott*. 2012. Exploratory water budget analysis of a transitional premontane cloud forest in Costa Rica through undergraduate research. Poster Presentation: ED23B-0752. American Geophysical Union Fall Meeting December 3-7, 2013, San Francisco, CA.
- [23] Delgado, A. *, **R.A. Washington-Allen**, R.K. Bruton*, and A. Swemmer. 2012. Comparison of the Impact of fire, floods, and large herbivore grazing on the 3-D structure and biomass of Mopane woodland in Kruger National Park using terrestrial laser scanning. Oral Presentation: American Geophysical Union, Fall Meeting 2012, December 3-7, 2012, San Francisco, CA.
- [24] Avery, W.A. **, D. Riveros-Iregui, J.C. Jaimes, **R.A Washington-Allen**, and A. Delgado*. 2012. Land use effects on vegetation diversity in high-elevation ecosystems: a comparison of disturbed and undisturbed paramos. Poster Presentation: B31A-0377. American Geophysical Union Fall Meeting December 3-7, 2012, San Francisco, CA.

- [25] Washington-Allen, R. A. 2011. Local to Global Remote Sensing of Dryland Degradation from 1972 to 2011. Invited Oral Presentation: Seminar Series Department of Plant Biology, Michigan State University, Host: Dr. Carolyn Malstrom.
- [26] **Washington-Allen, R.A.**, R.W. Kulawardhana*, M.C. Reeves, and J.E. Mitchell. 2011. The Impact of Livestock Grazing on the Dryland Productivity from 1982 to 2009. . Invited Oral Presentation to the Sustainable Rangelands Roundtable, Las Vegas, Nevada.
- [27] **Washington-Allen, R.A.**, R.D. Ramsey, N.E. West, R.W. Kulawardhana*, M.C. Reeves, J.E. Mitchell, and T.G. Van Niel. 2011. Local to Global Scale Time Series Analysis of US Dryland Degradation Using Landsat, AVHRR, and MODIS. Oral Presentation in Remote Sensing of Long Term Ecological Trends II: B54C-06, presented at 2011 Fall Meeting of American Geophysical Union, San Francisco, CA., 5-9, Dec.
- [28] **Washington-Allen, R.A.**, K. Davis**, T. Falkowski**, B. Tarbox**, A. Delgado*, R. March*, G.W. Moore, M. Tjoelker, E. Gonzalez, and C. Houser. 2011. NSF Research Experience for Undergraduates: 3-D Characterization and Comparison of Vegetation Structure in a Tropical Premontane Wet Forest. Poster Presentation ED31A-0707: American Geophysical Union Fall Meeting December 5-9, 2011, San Francisco, CA.
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- [31] Delgado, A. *, M. Austin*, **R.A. Washington-Allen**, J. Li, and V. Mendieta*. 2011. Characterizing the effects of wind erosion on vegetation and microtopography in the Chihuahuan Desert. Remote Sensing & Image Analysis, Poster Presentation PS 53-180: 96th Annual Ecological Society of America Meeting: Earth Stewardship: Preserving and enhancing the earth's life-support systems, August 7 -12, 2011, Austin, TX.
- [32] Ku, N *, S. Popescu, R. Sheridan*, **R.A. Washington-Allen** and M. Agca. 2011. Estimating available rangeland woody plant biomass with terrestrial lidar remote sensing. Remote Sensing & Image Analysis, Poster Presentation PS 53-181: 96th Annual Ecological Society of America Meeting: Earth Stewardship: Preserving and enhancing the earth's life-support systems, August 7 -12, 2011, Austin, TX.
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- [35] **Washington-Allen, R.A.**, R.W. Kulawardhana*, M.C. Reeves, and J.E. Mitchell. 2011. El Impacto de La Ganadería en La Productividad de Las Tierras Secas de US desde 1982 hasta 2009. International Oral Presentation Monitoring: IX International Rangelands Congress, April 2-8, 2011 in Rosario, Argentina.
- [36] **Washington-Allen, R.A.**, V. Mendieta, T. Booth, H.E. Limbach and S. Popescu. 2011. Comparison of the Effects of Fire on Sagebrush Steppe 3-Dimensional Structure and Biomass using Fusion of Terrestrial Scanning Laser and Airborne Digital Photography. Invited Oral Presentation: Symposium on Very-High Resolution Imaging for Resources Monitoring, 64th Annual Society for Range Management Meetings, February 6-10, 2011, Billings, MT
- [37] **Washington-Allen, R.A.**, R.W. Kulawardhana*, M.C. Reeves, and J.E. Mitchell. 2011. The Impact of Livestock Grazing at State and National Scales on US Dryland Productivity at 1-km and 8-km Resolution from 1981 to 2009. Poster Session A-16: Inventory Monitoring & Assessment, 64th Annual Society for Range Management Meetings, February 6-10, 2011, Billings, MT

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- [39] **Washington-Allen, R.A.**, R. Wasantha Kulawardhana*, J.E. Mitchell and M.C. Reeves. 2010. Regional & national scale assessment of the impact of the US livestock footprint on dryland productive capacity. Oral Presentation, Working Landscapes: Providing for the Future, 63rd Annual Society for Range Management Meetings, February 7-11, 2010, Denver, Colorado.
- [40] Williams, A.M.* , R.A. Feagin, S.C. Popescu, J. Stuke, and **R. Washington-Allen**. 2010. Geomorphometric analysis of hurricane induced change in coastal dune volumes using terrestrial and airborne LIDAR. 95 Annual Ecological Society of America Meeting, August 1-6, 2010, Pittsburgh, PA.
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- [43] **Washington-Allen, R.A.**, D. Twidwell*, V.P. Mendieta*, A. Delgado*, B. Redman**, W. Trollope, L. Trollope, N. Govender, I. Smit, S. Popescu, C. de Bruno Austin, W.E. Rogers, and M.C. Reeves. 2009. Undergraduate research experiences in support of dryland monitoring: field and satellite remote sensing of change in savanna structure, biomass, and carbon after prescribed fires. American Geophysical Union, Fall Meeting 2009, Eos Trans. AGU, 90(52), abstract #ED13A-0577, December 14-18, 2009, San Francisco, CA.
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- [45] **Washington-Allen, R.A.**, R.D. Ramsey, N.E. West, and R.A. Efroymson. 2009. A protocol for retrospective remote-sensing-based ecological monitoring of rangelands. Poster: American Geophysical Union, Fall Meeting 2009, abstract #GC23A-0752, December 14-18, 2009, San Francisco, CA.
- [46] Ribiero, N. S.* , **R.A. Washington-Allen**, M. Simard, and H. H. Shugart, 2008. Estimation of tree height, biomass, and standing carbon in miombo woodlands using radar interferometry. International Grasslands - International Rangelands Congress, Poster, June 29 - July 5, Hohhot, Mongolia, People's Republic of China
- [47] **Washington-Allen, R.A.**, M.D. Therrell, and R.E. Emanuel. 2007. Theory and practice in determining the long-term spatial productivity of drylands: a California blue oak case study." Eos Transactions AGU, 88(52), Fall Meeting Supplement, Abstract B42B-03.
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- [50] **Washington-Allen, R.A.**, T.E. Fatoyinbo*, N.S. Ribeiro*, H.H. Shugart, M.D. Therrell, K.T. Vaz*, and L. von Schill. 2006. Environmental remote sensing for natural resources management: A Workshop in collaboration with Faculdade de Agronomia e Engenharia Florestal, Universidade Eduardo Mondlane. EOS Transactions American Geophysical Union, 87(52), Fall Meet. Suppl., Abstract ED31A-1369
- [51] *Fatoyinbo, T. E, **R.A. Washington-Allen**, M. Simard, and H. H. Shugart. 2006. Landscape Scale Height, Biomass and Carbon Estimation of Mangrove Forests with SRTM Elevation Data. EOS Transactions American Geophysical Union, 87(52), Fall Meeting Supplement, Abstract B44B-02
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- [53] **Washington-Allen, R.A.**, R.D. Ramsey, and N.E. West. 2005. The use of a satellite image archive to assess the impact of grazing management on inaccessible public lands. Poster. In: Global Priorities in Land

Remote Sensing, Conf. Proceedings of The 16 Annual William T. Pecora Symposium, October 23-27, 2005, Sioux Falls, South Dakota.

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- [55] **Washington-Allen, R.A.**, C.T. Garten Jr., W.W. Hargrove, T.L. Ashwood, and V.H. Dale. 2004. Poster Presentation: Regional estimation of nitrogen loss in relation to military, urban, and industrial land use activities. p. 532, In: Abstracts, Lessons of Lewis & Clark Ecological Exploration of Inhabited Landscapes, Ecological Society of America, 89th Annual Meeting, August 2-6, 2004, Portland, Oregon.
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To Military Training And Testing Activities Using Ecological Indicators Derived From Historical Satellite Remote Sensing Imagery, p. 96, In: Building on Past Successes to Address Emerging Issues, SERDP Partners in Environmental Technology Technical Symposium and Workshop, November 27-29, 2001, Washington, D.C.

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PROJECTS AS PI OR CO-PI (19)

- [1] **PI**, UTK Teaching and Learning Center Teaching for Impact Grant, *Dynamic 3-D Topographic Sandbox*, \$500, Fall 2016
- [2] **CO-I**, US Environmental Protection Agency, *Engaging the community and creating young scientists to restore nutrient impacted Baker Creek*, \$64,678, 2016-2018
- [3] **PI**, National Bobwhite Conservation Initiative (NBCI), Dept. of Forestry, Wildlife & Fisheries, University of Tennessee, *"Then And Now": Long Term Land-Use Changes Impact Bobwhites*, \$19,713, March 1, 2016 – October 31, 2016
- [4] **PI**, Southeastern Conference Faculty Travel Grant, University of Tennessee, *The Use of Advanced Remote Sensing Technologies for Plant Phenomics*, \$1,000, 2014 - 2015

- [5] **PI**, Harris County, TX Soil & Water Conservation District, *Can Chinese Tallow Distribution be reduced to < 5% canopy cover within Greens Bayou Wetlands Mitigation Bank?* \$11,761 to University of Tennessee and \$90,000 total to Texas A&M University, 2011 - 2014
- [6] **PI**, The Texas A&M Forest Service: *Mapping Extent and Percent Tree Mortality due to an Extreme Record Drought in Texas in 2011* \$19,975, 2012 - 2013
- [7] **PI**, Neuhaus-Shepardson International Faculty Development Grant, Texas A&M University, \$2,000, 2012
- [8] **CO-I**, Texas Wheat Producers Board, Texas A&M University, *Improved Root and Foliar Biomass for Drought Tolerant Cultivars*. \$212,142, 2011-2012
- [9] **PI**, Neuhaus-Shepardson International Faculty Development Grant, Texas A&M University, \$2,000, 2011
- [10] **CO-I**, USDA Cooperative Research & Extension Services (CSREES) Food and Agricultural Sciences National Needs Graduate and Postgraduate Fellowship (NNF), *A Graduate Program in Forest Resources: Developing Integrated Expertise in Forest Resource, Management, Conservation, and Restoration*, \$362,290, 2010-2013
- [11] **CO-I**, USDA Cooperative Research & Extension Services (CSREES) 1890 Institution Teaching and Research Capacity Building Grants Program, *Enhancing the Capacity of Urban Forestry Graduate Program at Southern University and A&M College*, Texas A&M University, \$60,000, 2008-2011
- [12] **CO-I**, Instructional Enhancement/Equipment Fee (IEEF), Texas A&M University, Beowulf Cluster Computing for Education, \$60,000, 2008-2009
- [13] **PI**, USDA US Forest Service, *Ecological Footprint of Livestock Herbivory on Rangeland Productivity*, \$116,000, 2008-2011
- [14] **CO-I**, Bureau of Educational and Cultural Affairs of the United States Department of State: *Mainstreaming Use of GIS and Remote Sensing in Environmental Assessment and Sustainable Development*, University of Virginia, \$100K, 2005
- [15] **PI**, Department of Energy (DOE) Consultancy to ORNL-ESD to complete 5 projects including 1) Petroleum Environmental Research Forum (PERF) Ecological Risk Assessment, 2) PERF Hyperspectral, 3) Department of Defense (DoD) Strategic Environmental Research and Development Program (SERDP) Indicators, 4) SERDP Ecosystem Management Program (SEMP), and 5) SERDP RSim, for \$24K, 2004
- [16] **CO-I**, DOE, *DOE Global Water Cycle Pilot project*, ORNL, \$900,000, 2001-2003
- [17] **CO-I**, DOE PERF: 1) *Hyperspectral remote sensing technology to discriminate petroleum industry impacts to desert plants* and 2) *Remote sensing and GIS technologies for determining the ecological risks to flora and fauna from the spatial effects of petroleum industry land use activities*, ORNL, \$550,000, 2000-2004
- [18] **PI**, SERDP, *Emerging and Contemporary Technologies in Remote Sensing for Ecosystem Assessment and Change Detection on Military Reservations*, ORNL, \$4,000,000 (\$900,000 to PI), 1998-2001
- [19] **CO-I**, US EPA Science-To-Achieve-Results (STAR), *Retrospective Ecological Risk Assessment of Rangeland Health Using Multitemporal Satellite Imagery*, Utah State University, \$350,000, 1998-2001

PROJECTS AS COLLABORATOR AND SENIOR SCIENTIST (8)

- [1] **U.S. Collaborator**, Administrative Department of Science, Technology, and Innovation of Colombia (COLCIENCIAS), *Water Quality and Sustainability of Andean Paramos: Drinking Water for Millions of People in Latin America*, \$162,000, PIs: D. Riveros-Iregui (University of Nebraska-Lincoln), 2012
- [2] **Collaborator**, NSF Research Experience for Undergraduates (REU) EAR- 1004874, *Ecohydrology of a Tropical Montane Cloud Forest*, \$557,606, PIs: Chris Houser and Anthony Cahill, 2011-2013
- [3] **Collaborator**, USDA National Institute of Food & Agriculture. (NIFA), Texas A&M University, *Expanding South Plains Winter Canola*. PIs: Dr. Chad Godsey (Oklahoma State University (OSU), Cropping Systems Specialist), Mark Boyles (OSU, Canola Specialist) and Robert Duncan TAMU, \$100,000, 2009-2012
- [4] **Collaborator**, NSF Integrative Graduate Education and Research Traineeship Applied Biodiversity Science Bridging Ecology, Culture, and Governance for Effective Conservation: (Faculty Associate), Texas A&M University, \$3,000,000, PIs: Amanda Stronza and Lee Fitzgerald, 2007 – 2012
- [5] **Collaborator**, [NSF Biocomplexity Dynamics of Coupled Natural and Human Systems](#) National Science Foundation Project Number: BCS-030846, University of Virginia, [Comparative Stability & Resiliency of](#)

Ecosystems: Five Centuries of Human Interactions with the Environment on the Eastern Shore of Virginia, \$1,977,437, PI: H.H. Shugart, III, 2005 – 2007

- [6] **Collaborator**, NASA, University of Virginia, *Hydrologic and Nutrient Controls on the Structure and Function of Southern African Savannas: a Multi-scale Approach*, \$900,000, PI: H.H. Shugart, 2005-2007
- [7] **Collaborator**, SEMP, ORNL, \$880,000, PI: Charles Garten, 1999 - 2003
- [8] **Collaborator**, USAID, *Historical analysis of land use/land cover change on the Bolivian Altiplano: A remote sensing perspective*, Utah State University, \$40,000, PI: Brien E. Norton, 1992-1994

INVITED TALKS (23)

1. **Washington-Allen, R.A. 2017.** School of the Earth, Ocean and Environment, University of South Carolina, Colombia, South Carolina, November 2017
2. **Washington-Allen, R.A. 2016.** What are rangelands and what is happening to them, 83-year old University of Tennessee Science Forum, Knoxville, TN, October 28, 2016
3. **Washington-Allen, R.A. 2016.** Remote Sensing Assessment of Land Degradation in US Drylands. October 6, 2016 University of Nevada-Reno, Department of Natural Resources & Environmental Science, Departmental Seminar Series
4. **Washington-Allen, R.A. 2016.** A survey of applications of the remote sensing of erosion and vegetation dynamics in drylands & the tropics using active field, airborne & satellite sensors. Department of Earth & Planetary Sciences, Seminar Series, January 21, 2016
5. **Washington-Allen, R.A. 2016.** Remote Sensing Assessment of Land Degradation in US Drylands. Planetary Geosciences Institute Brown Bag Lunch Seminar Series, Department of Earth & Planetary Sciences, January 21, 2016
6. **Washington-Allen, R.A. 2015.** Beyond Monitoring: A brief review of the use of remote sensing technology for assessing dryland sustainability. **Invited Oral Paper**, GC11I-04, *In: Climate-Vegetation Interaction and Land Cover/Land Use Change in Semi-Arid Grassland Ecosystems I.* American Geophysical Union Fall Meeting December 14-18, 2015, San Francisco, CA.
7. **Washington-Allen, R.A. 2015.** Retrospective analysis of US dryland carbon dynamics. Symposium on Physical Geography: Environmental Reconstruction – A Nexus of Biogeography, Climatology and Geomorphology. 2015 Annual Meeting of the Association of American Geographers, Chicago, Ill April 21-25, 2015.
8. **Washington-Allen, R.A. 2014.** A Primer On the use of remote sensing to assess carbon fluxes at local to global spatial scales to meet international standards. **Invited Oral** to Department of Forestry & Environmental Resources, College of Natural Resources, North Carolina State University, Raleigh, NC 27695
9. **Washington-Allen, R.A.** S.M. Thompson*, D.B. Hays, A. Delgado*, J. Li, W.T. Brademan*, S. Popescu, R.M. Martínez Peña*, E. Huber-Sannwald, C. Brademan*, R.G. March*, G. Moore, C.B. Edgar, J.S. Johnson*, N.R. Modala*, M.C. Reeves, J.E. Mitchell, and R. Wasantha Kulawardhana*. **2013.** An Overview of the Use of Remote Sensing Technologies to Assess Dryland Production and Degradation. **Invited International Talk:** IV Congreso Mexicano de Ecología, March 18 – 22, 2013, Villahermosa, Tabasco, México
10. **Washington-Allen, R.A. 2012.** Ecosystem inventory, monitoring & assessment from local to national spatial scales using remote sensing. Instituto Potosino de Investigación Científica y Tecnológica (IPICYT) in San Luis Potosi, Mexico, August 16, 2012
11. **Washington-Allen, R.A. 2011.** Local to Global Remote Sensing of Dryland Degradation from 1972 to 2011. Department of Plant Biology at Michigan State University, East Lansing, Michigan to present a seminar in their annual seminar series.
12. **Washington-Allen, R.A.,** R.W. Kulawardhana*, M.C. Reeves, and J.E. Mitchell. 2011. The Impact of Livestock Grazing on the Dryland Productivity from 1982 to 2009. **Invited Oral** Presenter to the Sustainable Rangelands Roundtable, Las Vegas, Nevada.
13. **Washington-Allen, R.A.,** V. Mendieta, T. Booth, H.E. Limbach and S. Popescu. 2010. 3-Dimensional Characterization of Sage-Grouse Habitat Structure Using Terrestrial LIDAR, **Invited Talk**, Working

Landscapes: Providing for the Future, 63rd Annual Society for Range Management Meetings, 2010, Denver, Colorado.

14. **Washington-Allen, R.A. 2008.** A Summary of Ecological Society of America 2006 Symposium and a 2008 Special Issue of Ecology & Society on the Detection of Catastrophic Thresholds: Perspectives, Definitions, and Methods. **Invited Talk**, USGS Quantitative Detection of Ecological Thresholds Workshop, Duluth, Minnesota, April 29, 2008
15. **Washington-Allen, R.A.,** M.D. Therrell, and R.E. Emanuel. 2007. Theory and practice in determining the long-term spatial productivity of drylands: A California blue oak case study." Eos Transactions AGU, 88(52), Fall Meeting Supplement, **Invited Presenter** Abstract B42B-03, 2007
16. **Washington-Allen, R.A.,** N.E. West, R.D. Ramsey, and C.T. Hunsaker. 2004. Landscape Pattern Dynamics in Sagebrush Steppe, **Invited Talk**, Society for Range Management's Remote Sensing and Geographic Information Systems Committee's Sponsored Symposia: Application of Geospatial Data for Rangeland Management. The 57th annual meeting was January 24–30, 2004 in Salt Lake City, Utah, 2004
17. **Washington-Allen, R.A.** 2003. A 30-year study of Landscape Dynamics. **Invited Talk** to the Swiss Federal Institute: Forest, Snow, and Landscape Research, Birmensdorf, Switzerland
18. **Washington-Allen, R.A.,** N.E. West, R.D. Ramsey. 2001. A Dynamical Systems Perspective on Being Dried, Eaten, and Burned: What Is A Semi-Arid Landscape To Do? **Invited Talk**, International Association for Landscape Ecology, April 29 - May 3, 2001, Tempe, Az.
19. **Washington-Allen, R.A,** N.E. West, & R.D. Ramsey. 2000. A Remote Sensing-Based General Tool for Monitoring, **Invited Talk**, p. 44, *In: Abstracts*, Remote Sensing in Rangelands Symposium, 2000 Trails to Boise, 53rd Annual Meetings Society for Range Management, Boise, Idaho.
20. **Washington-Allen, R.A,** N.E. West, & R.D. Ramsey. 1999. A 30-year study of the effects of grazing and climate change on vegetation dynamics. **Invited Talk**, Centre for Resource and Environmental Studies (CRES) program at Australian National University, Canberra, Australia, 1999
21. **Washington-Allen, R.A,** N.E. West, & R.D. Ramsey. 1998. Retrospective remote sensing. **Invited Talk**, Natural Resources Conservation Service at the Rangeland Health Workshop, October 1998, New Mexico State University, Las Cruces, NM, 1998
22. **Washington-Allen, R.A.,** T.L. Ashwood, and B.E. Sample. 1996. Use of GIS to assess risks to wildlife on a large federal facility. **Invited Oral Paper/Presenter**, Symposium on GIS in Wildlife Science: Current and Future Directions, Wildlife Society of America Annual Conference, October 1-6, 1996, Cincinnati, Ohio.
23. Ashwood, T.L., B.E. Sample, **R.A. Washington-Allen,** G.W. Suter. 1995. An integrated approach to ecological risk assessment of a large forested ecosystem. **Invited Paper/Oral Presentation**, Malama Aina 1995 International Conference on Multiple Objective Decision Support Systems for Land, Water, and Environmental Management: Concepts, Approaches, and Applications, 1995

TEACHING INTERESTS AND EXPERIENCE

Courses taught at the University of Tennessee:

GEOG 309: *Special Topics: Pastoralism in Drylands*, Undergraduate course.

GEOG 413: *Introductory Remote Sensing of the Environment*, Undergraduate/Graduate course.

GEOG 435: *Biogeography*, Undergraduate/Graduate course.

GEOG 493: *Independent Study*, Undergraduate course.

GEOG 494: *Undergraduate Research Experience*, Undergraduate course.

GEOG 500: *Thesis Research*, Graduate course.

GEOG 501: *Colloquium in Geography*, Graduate course.

GEOG 505: *Directed Research*, Graduate course.

GEOG 506: *Directed Research*, Graduate course.

GEOG 513: *Advanced Remote Sensing*, Graduate course.

GEOG 593: *Independent Study*, Graduate course.

Courses taught at Texas A&M University:

RLEM 314: *Rangeland Management Principles Around the World*, Undergraduate course.

RLEM 316: *Rangeland Communities and Ecosystems*, Undergraduate course.

ESSM 462: *Advanced GIS for Natural Resources Management*, Undergraduate/Graduate course.

ESSM 652: *Advanced GIS: Problems in Spatial Modeling*, Graduate Course.

ESSM 692: *Graduate Independent Research*, Graduate Course.

Courses taught at The University of Virginia:

EVSC 410/710: *Introductory Remote Sensing*, Undergraduate/Graduate course.

Courses taught at National University of Lesotho's Lesotho Agricultural College, Lesotho, Southern Africa:

Agricultural Mathematics,

Soil Physics & Conservation Management

Principles of Rangeland Science & Management

Agricultural Extension

Graduate Student Supervision at the University of Tennessee:

[1] Kyle Landolt (Masters, 2014-2016)

[2] Zachary Merrill (PhD, 2016)

Service on Graduate Student Committees at the University of Tennessee

[1] Evan Norton (Masters, Major advisor: Dr. Li, 2016 – present)

[2] Wanwan Liang (PhD, Major advisor: Dr. Grant, Department of Entomology and Plant Pathology, 2016-present)

[3] David Stamps (Masters, Major advisor: Dr. Nagle, 2016 - 2017)

[4] Amir Haghverdi (PhD, Major advisor: Dr. Leib, Biosystems Engineering & Soil Science, 2014-2015)

[5] Hayley Gotwald (Masters, Major advisor: Dr. Alford, Forestry, Wildlife & Fisheries, 2014-2016)

[6] Xiaoyu Lu (PhD, Major advisor: Dr. Li, 2014-present)

[7] John “Jack” McNelis (Masters, Major advisor: Dr. Li, 2013-2016)

[8] Joseph Roberts (Masters, Major advisor: Dr. Nagle, 2014-2015)

[9] Angela Chuang (PhD, Major advisor: Dr. Reichert, Ecology/Evolutionary Biology, 2013-2015)

[10] Njoroge Ikonye Gathongo (PhD, Major advisor: Dr. Tran, 2014-2016)

[11] Anna Alsobrook (Masters, Major advisor: Dr. Harden, Geography, 2013-2014)

Graduate Student Supervision at Texas A&M University

[1] Mrs. Rosaleen March (PhD, Co-Major Advisor: Dr. Georgianne Moore, 2011-2016)

[2] Ranjani Wasantha Kulawardhana (PhD, 2008-2011)

[3] Vincent Mendieta (Masters, 2007-2010)

[4] Alfredo Delgado (Masters, 2011-2013)

[5] Cameron Brademan (Masters, 2011- 2013)

[6] William Brademan (Masters, 2009 - 2011)

Service on Graduate Student Committees at Texas A&M University

[1] Richard Bruton (PhD, Major advisor: Dr. Hayes, Soils & Crop Science, 2014-present)

[2] Ligaya Rubas Leal (PhD, Major advisor: Dr. Connor, Ecosystem Science & Management, 2011-2014)

[3] Sean Thompson (PhD, Major advisor: Dr. Hayes, Soils & Crop Science, 2011-present)

[4] Jonathon Fliegel (Masters, Major advisor: Dr. Schumacher, Geography, 2010-2012)

Service on International Graduate Student Committees

- [1] Medhi Vakili, The [Islamic Azad University of Roudehen in Iran](#), (PhD, Major advisor: Dr Motahari. and Dr Saeb, School of Environmental Science, 2016 – present)
- [2] Christopher Barichievy, University of Witswatersrand, Johannesburg, South Africa, (PhD, External Review of Dissertation, Major advisor: Dr. Erasmus, School of Animal Plant and Environmental Sciences, 2009-2012)
- [3] Ruth Magnolia Martínez Peña, Institute for Scientific and Technological Research of San Luis Potosi (IPICYT), Mexico, (PhD, Committee member, Major advisor: Dr. Elisabeth Huber-Sannwald, 2008-2012)
- [4] Adriana Mata, Institute for Scientific and Technological Research of San Luis Potosi (IPICYT), Mexico, (PhD, Committee member, Major advisor: Dr. Tulio Moreno, 2013-2016)

Graduate student supervision at ORNL

- [1] Brian Beach (Masters, Funded Masters in Computer Science, Major Advisor: Dr. Berry, 1995 – 2002)

Post Masters and Post Doctorates Supervision at ORNL

- [1] Post Masters at Utah State University/ORNL Dr. Thomas Van Niel (now with CSIRO in Australia) 2000-2002
- [2] Post Masters, Dr. Holly Gibbs (now in Geography, University of Wisconsin), 2003-2004
- [3] Post Doctorate, Dr. Debra Phillips (now at Queens University, Belfast, Ireland), 2000-2002

Undergraduate Research Assistants

- [1] Logan Gross, Summer 2017 – Spring 2018
- [2] Michael Lannom, Spring 2017
- [3] Jerry Clint Shannon, Spring 2017
- [4] Elisabeth Taylor Tieche, Spring 2017
- [5] Jenna Rae Davis, Spring 2017
- [6] David B. Moore, UTK, Summer 2016
- [7] Taylor R. Christian UTK, Spring 2016 – Summer 2016
- [8] Joseph Robinson, UTK, Fall 2015 – Spring 2016
- [9] Connor Vermilyea, UTK, Fall, 2015 – Spring 2016
- [10] Robert Friedrichs at UTK: TLS Collection & Analysis, Research in Mozambique: 2014-2015
- [10] NSF Research Experience for Undergraduates (REU), ~50 students supervised 2011-2013
- [11] Kyle Landolt at TAMU: Seed Rain & Viability Studies, TLS & GPR Collection & Analysis: 2011–2013
- [12] Maggie Wann Anderson at TAMU: Seed Rain & Viability Studies, TLS Collection & Analysis: 2014-2015

AWARDS AND HONORS

- [1] University of Tennessee's Office of Undergraduate Research Award for an Undergraduate Research Assistantship of \$2000 and \$250 for materials, **Spring 2017**
- [2] Nominated for Chancellors Honors Award for Outstanding Undergraduate Research Mentor of the Year, **2016-2017**
- [3] Nominated for Board of Directors of the Society for Range Management **2017**
- [4] Nominated for 2nd Vice President of the Society for Range Management **2017**
- [5] Teaching for Impact Grant, Title: *Virtual Sandbox* (\$500), Teaching & Learning Center, University of Tennessee, **2016**

- [6] Sigma Xi Graduate Student Research Presentation Competition (2nd Place, \$100), UT Sigma Xi Chapter, (I am on the PhD Committee of Xiaoyu Lu, who won the award and I am the last author of this presentation) **2015**
- [7] Southeastern Conference Visiting Faculty Travel Award (\$1,000), **2014**
- [8] Neuhaus-Shepardson Faculty Development Grant (\$2000 and \$2000), **2011 and 2012**
- [9] Selected by Ecological Society of America to “**Profile of Ecologists**” in honor of accomplishments in the field of ecology for the Ecological Society of America Annual Meeting in Savannah, GA
<http://www.esa.org/education/whatdoecologistsdo.htm> **2003**
- [10] The Don Dwyer Award from the College of Natural Resources, Utah State University for Best Dissertation in the Department of Forest, Range, and Wildlife Sciences, **2002**
- [11] Best of Session-Plenary for Oral Paper entitled: *Dynamical Retrospective Assessment of Rangelands Using Historical Satellite Remote Sensing Imagery* presented at the Third International Conference on Geospatial Information in Agriculture and Forestry on 5-7 November, 2001 in Denver, Colorado, **2001**
- [12] Lockheed Martin Energy Research Co. Research Accomplishment Award, **1999**
- [13] East Tennessee Chapter of the Society for Technical Publications Award for Scholarly/Professional Article, **1999**
- [14] ORNL Supplementary Performance Award, **1997 and 1998**
- [15] Utah State University **Minority Graduate Student award** for Academic Achievement, **1993**
- [16] Utah State University Graduate School’s Allen and Alice Stokes Martin Luther King Jr. Minority Fellowship, **1991-1994**

UNIVERSITY AND DEPARTMENT SERVICE

Departmental and College Service at the University of Tennessee:

Geography Search Committee Member for Department Head, Fall 2016 – Spring 2017

Graduate Program Committee Member 2016-2017

Special Events Coordinating Committee 2016-2017

Elected Connections/Global Packages Committee Representative to College of Arts & Sciences Committee 2016 - 2019

Department Representative for Spring Graduation Ceremonies 2016

Department Representative for Fall Graduation Ceremonies 2015

Departmental Colloquium Organizer Fall Semester 2015

Stewart McCroskey Fund Committee, (chair) 2015 - 2016

Stewart McCroskey Fund Committee, (member) 2014 - 2015

Stand-In for Dr. Li to the UT Undergraduate Council, 2014

Faculty Meeting Minutes Recorder 2014 - 2015

Diversity Graduate Recruitment 2014 - present

Robert G. Long Award Masters Committee 2014

Technical Fee Committee member, 2014-present

Claxton Space Coordinator 2013 - present

Graduate Publications Committee 2013

Graduate Specialty Examinations Committee 2013

Burchfiel Geography Space Committee 2013

Departmental and College Service at Texas A&M University

Search Committee member **2008, 2011** for Blackland Research & Extension Center Assistant Professor in Agroecosystems

Search Committee member **2009** Department of Ecosystem Science & Management, Texas A&M University

Selection for Integrative Ecosystem Scientist at Associate/Full Professor tenured/tenure track position

Departmental and College Service at Utah State University

Search Committee member **1992** for Dean of Graduate School

Participant/panelist **1991** First and Second African/African-American Summits in Cote d’Ivoire and Gabon

Professional Service to Government Agency

- *Advancing Sustainability of US – Mexico Transboundary Drylands: A Binational Workshop* Development Committee Member for the US National Academies of Sciences, Engineering, & Medicine **2017 - 2018**
- Grasslands, Rangelands & Pastures Indicator Team **2012-present** National Climate Assessment of the US Global Change Program.

PROFESSIONAL MEMBERSHIPS AND ACTIVITIES

Professional Memberships:

AAG	– Association of American Geographers
AGU	– American Geophysical Union
ASPRS	– American Society of Photogrammetry and Remote Sensing
ESA	– Ecological Society of America
AIBS	– American Institute of Biological Sciences
IALE	– International Association of Landscape Ecologists
AAAS	– American Association for the Advancement of Science
SRM	– Society for Range Management

Offices Held/Boards Served:

- [1] Nominated to Board of Directors and 2nd Vice President positions with the Society for Range Management **2016**
- [2] Member, The Society for Range Management Diversity Task Force **2016**
- [3] Chair, The Society for Range Management Remote Sensing & GIS Committee **2014-2015**
- [4] Meeting Mentor **2014** The Ecological Society of America
- [5] Chair, The Society for Range Management Remote Sensing & GIS Committee **2013-2014**
- [6] Advisory Board Member for Ecological Society of America's Strategies for Ecology Education, Development and Sustainability (SEEDS) Diversity Program **2004-2006**
- [7] Advisory Plant and Animal Diversity Group, Research, and Scale Issues Committee Member **2003 -2005** Sustainable Rangeland Roundtable
- [8] Secretary, Rangeland Ecology Section **2001–2003** The Ecological Society of America
- [9] DOE ORNL Representative to U.S. Delegation **1995** Third African/African American Summit in Dakar, Senegal.

Special Issue Journal Editor:

Washington-Allen, R.A., D. Briske, H.H. Shugart, and L.F. Salo. 2010. Catastrophic thresholds, perspectives, definitions, and applications: An introduction. *Ecology and Society* 15(3): 38. [online] URL: <http://www.ecologyandsociety.org/vol15/iss3/art38/>

Edited 10 papers for 2010 Ecology and Society Feature Issue:
<http://www.ecologyandsociety.org/issues/view.php?sf=30>

Conference/Workshop Organizer and Chair:

- Conducted Workshop **June 12– 23, 2006** Environmental Remote Sensing for Natural Resources Management for graduate students and professionals at Faculdade de Agronomia e Engenharia Florestal, Universidade Eduardo Mondlane, Maputo Mozambique. Sponsored by The U.S. Department of State's Bureau of Educational and Cultural Affairs.
- Developed and Co-Chaired with Dr. Lucinda F. Salo of BRD-USGS a Symposium **August 2006** *Catastrophic Thresholds, Perspectives, Definitions, and Applications*, Sponsored by the Rangeland Ecology & Applied Ecology Sections of the Ecological Society of America, 91st Annual Meeting, Memphis, TN

- Session Moderator for University of Virginia Symposium on Race and Society, Titled: *In Katrina's Wake: Racial Implications of the New Orleans Disaster* **November 2-4, 2006**
- Conducted Cross Cultural Relations Workshop for University Faculty **2004** for the Ecological Society of America Strategies for Ecology Education, Development and Sustainability (SEEDS)

Journal Manuscript Reviewer (1995 – present):

Applied Vegetation Science

Arctic, Antarctic, and Alpine Research

Biological Invasions

BioScience

Ecological Applications

Ecology & Society

Ecosystems

Environmental Management

Environmental Monitoring & Assessment

Environmental Professional

Forest Ecology and Management

Geomorphology

Geophysical Research Letters

Global Change Biology

Great Basin Naturalist/Western North American Naturalist

H. John Heinz III Center for Science, Economics and the Environment

International Journal of Remote Sensing

Journal of Applied Ecology

Journal of Arid Environments

Journal of Geophysical Research-Biogeosciences

Journal of Range Management/Rangeland Ecology & Management

Land Degradation and Assessment

Landscape Ecology

PLOS ONE

Proceedings National Academy of Sciences

Regional Environmental Change

Remote Sensing

Remote Sensing of Environment

Soil Science Society of America Journal

Proposal Review/Panels:

National Geographic Society

National Science Foundation

NASA

US EPA STAR

USDA NRI

ESA SEEDS