

Kevin R. Mulligan
Department of Geosciences
Texas Tech University
Lubbock, Texas 79409-1053

(806) 834-0391

kevin.mulligan@ttu.edu

Academic Interests

Geomorphology, hydrology and climate of arid lands. Aeolian processes and landforms.
Applied geospatial technology, geodatabase development and digital cartography.
Applications of geospatial technology in geography higher-education.

Education

Ph.D., Geography, Texas A&M University, 1997.
Dissertation: *Aeolian Processes Controlling Dune Morphology, Salton Sea, California*.
M.A., Geography, University of California, Los Angeles, 1985.
Thesis: *The Movement of Transverse Coastal Dunes, Pismo Beach, California, 1982-83*.
B.A., Geography, *Magna cum laude*, University of California, Los Angeles, 1979.

Academic and Professional Experience

Associate Professor, Department of Geosciences, Texas Tech University (2010 - Present).
Founder and Director, Center for Geospatial Technology, Texas Tech University (2004 - 2016).
Associate Professor, Department of Economics and Geography, Texas Tech (2005 - 2010).
Assistant Professor, Department of Economics and Geography, Texas Tech (1998 - 2005).

Teaching Experience

Texas Tech (assistant and associate professor, 1998-present)
Physical Geography, Geomorphology, Arid Lands, Geographic Information Systems,
Spatial Analysis and Modeling, Remote Sensing of the Environment, Cartographic Design
Texas A&M (instructor & visiting assistant professor, 1996-98)
Physical Geography, Geomorphology, Global Climates
New Mexico State (instructor, 1993-94)
Physical Geography, Geomorphology, Mountain Geomorphology

Directed Student Learning

Served on 70 Master's and Ph.D. committees (completed).
Geography, Geosciences, Atmospheric Science, Biological Science, Natural Resource
Management, Plant & Soil Science, Civil & Environmental Engineering, Landscape
Architecture, Interdisciplinary Studies, Economics, and Curriculum & Instruction
Served as chair for 2 Master's and 1 Ph.D. in Geography.
Graduated first Ph.D. in Geography (Fahad Almutlaq) from Texas Tech (2017).
Currently serving on 2 Master's and 5 Ph.D. committees

RESEARCH

Publications

- Liu, Y., Cao, G., Zhao, N., Mulligan, K., Ye, X. (2018). Improve ground-level PM 2.5 concentration mapping using a random forests-based geostatistical approach. *Environmental Pollution*, 235, 272-282.
- Heintzman, L., Starr, S., Mulligan, K., Barbato, L., McIntyre, N. (2017). Using satellite imagery to examine the relationship between surface-water dynamics of the salt lakes of western Texas and Ogallala Aquifer depletion. *Wetlands*, 37(6), 1055-1065.
- Starr, S., Heintzman, L., Mulligan, K., Barbato, L., McIntyre, N. (2016). Using remotely sensed imagery to document how land use drives turbidity of playa waters in Texas. *Remote Sensing*, 8(3), 192.
- Luo, F., Cao, G., Mulligan, K., Li, X. (2016). Explore spatiotemporal and demographic characteristics of human mobility via Twitter: A case study of Chicago. *Applied Geography*, 70, 11-25.
- de Brito Neto, R. T., Santos, C. A. G., Mulligan, K., Barbato, L. (2016). Spatial and temporal water level variations in the Texas portion of the Ogallala Aquifer. *Natural Hazards*, 80(1), 351-365.
- Mulligan, K., Barbato, L., Weinbeck, S. (2015). The Magnitude, Frequency and Spatial Distribution of Tornadoes in Texas: An Assessment of Tornado Risk. In Graham A. Tobin, Burrell E. Montz (Ed.), *Evolving Approaches to Understanding Natural Hazards* (p. 11-22). Newcastle-Upon-Tyne: Cambridge Scholars Publishing.
- Mulligan, K., Barbato, L., Seshadri, S. (2014). Projected Usable Lifetime of the Ogallala Aquifer. *Esri Map Book*, vol. 29, p. 30-31. Redlands, California: Esri Press.
- Rufino, I., Mulligan, K., Barbato, L., Seshadri, S. (2014). U.S. Drought Risk: A Cumulative Approach from 2000 to 2012. *Esri Map Book*, vol. 29, p. 98-99. Redlands, California: Esri Press.
- Barbato, L. S., Mulligan, K., Hunt, T., Warren, A., Warren, J., McAlister, J., Seshadri, S. (2011). Petroleum Land Management Oil Field Easements. *Esri Map Book - Understanding Our World*, vol. 26, p. 73. Redlands, California: Esri Press.
- Lee, J., Gill, T. E., Mulligan, K., Dominguez-Acosta, M., Perez, A. (2009). Land use/land cover and point sources of the 15 December 2003 dust storm in southwestern North America. *Geomorphology*, 105(1-2), 18-27.
- Barbato, L.S., Mulligan, K.R., Warren, A., Masapari, K., Rainwater, K., Braden, P., Dorbala, S., and Van Nice, C. (2008). Mapping the Southern Ogallala Aquifer in Texas, *ESRI Map Book*, vol. 23, p. 72.
- Barbato, L.S., Mulligan, K.R., Masapari, K., Warren, A., Hunt, T., Parker, J. Neuman, S., Chowdhury, T., Schumaker, J., and Van Nice, C. (2008). Natural Resource Management – Mineral Leases, *ESRI Map Book*, vol. 23, p. 71. Redlands, California: ESRI Press.
- Mantilla-Meluk, H., Baker, R.J., and Mulligan, K.R., (2006) A Unified Model of Phylogeography, *ESRI Map Book*, vol. 21, p. 13. Redlands, California: ESRI Press.
- Mulligan, K.R. (2005). The Llano Estacado, *GIS: Helping Manage Our World, ESRI Map Book*, vol. 20. p. 12. Redlands, California: ESRI Press.
- Mulligan, K.R., Barbato, L.S., DeBaca, R., Masapari, K., and Sahu, P. (2005). Digital Atlas of Texas Counties, *GIS: Helping Manage Our World, ESRI Map Book*, vol. 20. p. 13. Redlands, California: ESRI Press.

- Texas Tech Health Sciences Center, Office of Rural and Community Health (2005). *West Texas – A Vision of Rural Health for America*, 65 p. Responsible for the development of 14 maps used in the publication (with Lucia Barbato and Robert DeBaca).
- Mulligan, K. R. and Fish, E. B. (2004). Mapping Playa Lake Basins on the Llano Estacado, Texas, *GIS – The Language of Geography, ESRI Map Book*, vol. 19, p. 22.
- Barbato, L. S. and Mulligan, K. R. (2004). Automating Texas' first and largest underground water district: a well permit management application and database. *Proceedings, Twenty-Fourth ESRI International User Conference*, San Diego, California (CD-ROM).
- Nagihara, S., Mulligan, K. R., and Xiong, W. (2004). Use of a three-dimensional laser scanner to digitally capture the topography of sand dunes in high spatial resolution. *Earth Surface Processes and Landforms*, vol. 29, 391-398.
- Mulligan, K. R., DeBaca, R. S., Barbato, L. S. and Speer, J. B. (2004). West Texas Atlas of Rural and Community Health. *GIS – The Language of Geography, ESRI Map Book*, vol. 19, p. 58.
- Nagihara, S., and Mulligan, K. R., and Xiong, W. (2003). High resolution digital topographic models of a sand dune obtained from a three-dimensional laser scanning survey. In *Terrain Data: Applications and Visualization*, ASPRS/MAPPS Conference, North Charleston, South Carolina.
- Barbato, L. S., Mulligan, K. R., and Weinbeck, S. (2003). Distribution of Historical Tornadoes 1950-1995, *Geography and GIS – Serving Our World, ESRI Map Book*, vol. 18., p. 30.
- Mulligan, K. R., Barbato, L. S. and Weinbeck, S. (2001). The magnitude, frequency and spatial distribution of tornadoes in Texas: an assessment of tornado risk. In *Papers and Proceedings of the Applied Geography Conferences*, Tobin, G.A., Montz, B.E., and Schoolmaster, F.A. (eds.), Fort Worth, Texas, vol. 24, p. 121-129.
- Mulligan K. R. (1995). Field methods in a study of the process-response system controlling dune morphology, Salton Sea, California. In *Desert Aeolian Processes*, V. P. Tchakerian (ed.) Chapman and Hall, p. 131-150.
- Mulligan K. R. (1988). Velocity profiles measured on the windward slope of a transverse dune. *Earth Surface Processes and Landforms*, v. 13, p. 573-582.
- Orme, A. J., Mulligan, K. R. and Tchakerian, V. P. (1985). Chapter 14, Morro Bay to Gaviota. In *Living with the California Coast*, G. Griggs and L. Savoy (eds.), Duke University Press, p. 231-249.

Intellectual Contributions: Maps Presented as Part of the Esri Map Gallery

- Mulligan, K., Barbato, L., and Seshadri, S. (2014). *Projected Usable Lifetime of the Ogallala Aquifer*. Esri Map Gallery, Thirty-fourth Annual Esri International User Conference, San Diego, California.
- Rufino, I., Mulligan, K., Barbato, L., and Seshadri, S. (2014). *U.S. Drought Risk: A Cumulative Approach from 2000 to 2012*. Esri Map Gallery, Thirty-fourth Annual Esri International User Conference, San Diego, California.
- Barbato, L., Mulligan, K., Hunt, T., Warren, A., Warren, J., McAlister, J., and Seshadri, S. (2011). *Petroleum Land Management Oil Field Easements*. Esri Map Gallery, Thirty-first Annual ESRI International User Conference, San Diego, California.

- Mulligan, K., Barbato, L., Farmer, M., Bauer, F., Bauer, T., Warren, A., and Phelps, J. (2010) *Assessment of the Bioenergy Potential of Cotton Gin Trash in West Texas*. Esri Map Gallery, Thirtieth Annual ESRI International User Conference, San Diego, California.
- Barbato, L., Mulligan, K., Scott, M., Brock, N., McAlister, J., Seshadri, S., Warren, J., Hill, L., Phelps, J., Hensley, N., Nichols, A., McKee, M., and Elliott, B. (2010). *Tax Parcel Automation for Rural County Appraisal Districts*. Esri Map Gallery, Thirtieth Annual ESRI International User Conference, San Diego, California.
- Barbato, L., Mulligan, K., Hunt, T., Warren, J., McAlister, J., and Seshadri, S. (2010). *Petroleum Land Management: Oil Field Easements*. ESRI Map Gallery, Thirtieth Annual ESRI International User Conference, San Diego, California.
- Barbato, L., Mulligan, K., Trollinger, R., Garza, J., Cassler, J., Staggs, J., Seshadri, S., Warren, J., Hill, L., Hensley, N., Nichols, A., and Leatherwood, E. (2010). *Realigning Tax Parcels to High Resolution Aerial Imagery in an Enterprise Environment using ArcGIS Server*. ESRI Map Gallery, Thirtieth Annual ESRI International User Conference, San Diego, California.
- Mulligan, K., Barbato, L., Warren, A., and Van Nice, C. (2008). *Geography of the Ogallala Aquifer in Texas*. ESRI Map Gallery, Twenty-Eighth Annual ESRI International User Conference, San Diego, California.
- Mulligan, K., Barbato, L., Lee J.A., Dick, J., McHale, R. Masapari, K., Driscoll, M., Petteway, L., Long, J., Lee, C., and Van Nice, C. (2007). *Mapping Wetlands on the Southern High Plains: Classification of Playa Lakes*. ESRI Map Gallery, Twenty-Seventh Annual ESRI International User Conference, San Diego, California.
- Barbato, L., Mulligan, K., Rainwater, K., Warren, A., Masapari, K., Braden, P., Dorbala, S., and Van Nice, C. (2007). *Mapping the Sothern Ogallala Aquifer in Texas*. ESRI Map Gallery, Twenty-Seventh Annual ESRI International User Conference, San Diego, California.
- Barbato, L., Masapari, K., Mulligan, K., Hunt, T., Parker, J., Neuman, S., Chowdhury, T., Warren, A., Schumaker, J., and Van Nice, C. (2007). *Natural Resource Management: Mineral Leases*. ESRI Map Gallery, Twenty-Seventh Annual ESRI International User Conference, San Diego, California.
- Barbato, L., Masapari, K., Mulligan, K., Hunt, T., Parker, J., Neuman, S., Chowdhury, T., Warren, A., Schumaker, J., and Van Nice, C. (2007). *Natural Resource Management: Grazing Leases*. ESRI Map Gallery, Twenty-Seventh Annual ESRI International User Conference, San Diego, California.
- Barbato, L., Rainwater, K., Mulligan, K., Warren, A., and Van Nice, C. (2007). *Municipal Water Supply: Prospecting for Groundwater in West Texas*. ESRI Map Gallery, Twenty-Seventh Annual ESRI International User Conference, San Diego, California.
- Mantilla-Meluk, H., Baker, R., and Mulligan, K. (2005). *A Unified Model of Phylogeography: Creating Genetic Isolines from Georeferenced DNA*. ESRI Map Gallery, Twenty-Fifth Annual ESRI International User Conference, San Diego, California.
- Mantilla-Meluk, H., Baker, R., and Mulligan, K. (2005). *A Unified Model of Phylogeography: Interpretation and Significance of Genetic Isolines*. ESRI Map Gallery, Twenty-Fifth Annual ESRI International User Conference, San Diego, California.
- Mulligan, K., and Barbato, L. (2004). *Digital Atlas of Texas Counties*. ESRI Map Gallery, Twenty-Fourth Annual ESRI International User Conference, San Diego.

- Mulligan, K., and Barbato, L. (2004). *Digital Atlas of New Mexico Counties*. ESRI Map Gallery, Twenty-Fourth Annual ESRI International User Conference, San Diego.
- Mulligan, K., (2004). *The Llano Estacado*. ESRI Map Gallery, Twenty-Fourth Annual ESRI International User Conference, San Diego.
- Mulligan, K., (2004). *West Texas Dust Storm*. ESRI Map Gallery, Twenty-Fourth Annual ESRI International User Conference, San Diego.
- Mulligan, K., Barbato, L., DeBaca, R., and Speer, J. (2004). *West Texas Atlas of Rural and Community Health (ARCH)*. ESRI Map Gallery, Twenty-Fourth Annual ESRI International User Conference, San Diego.
- Mulligan, K. and Fish, E., (2003). *Using ArcHydro to Map Playa Basins on the Llano Estacado, West Texas*. ESRI Map Gallery, Twenty-Third Annual ESRI International User Conference, San Diego.
- Barbato, L., Mulligan, K., May, B., and Crawford, M. (2003). *Automating the Nation's First and Largest Underground Water District*. ESRI Map Gallery, Twenty-Third Annual ESRI International User Conference, San Diego.
- Mulligan, K., Nagihara, S., and Xiong, W. (2003). *High Resolution Mapping with Ground-Based LIDAR, White Sands, New Mexico*. ESRI Map Gallery, Twenty-Third Annual ESRI International User Conference, San Diego.
- DeBaca, R., Mulligan, K., Barbato, L., and Speer, J. (2003). *Care Services for the Elderly in Texas*. ESRI Map Gallery, Twenty-Third Annual ESRI International User Conference, San Diego.
- DeBaca, R., Mulligan, K., Barbato, L., and Speer, J. (2003). *Allocation of Primary Care Physicians in Texas*. ESRI Map Gallery, Twenty-Third Annual ESRI International User Conference, San Diego.
- Vamshi, R., and Mulligan, K. (2003). *Landscape Fragmentation in the Rita Blanca Grasslands*. ESRI Map Gallery, Twenty-Third Annual ESRI International User Conference, San Diego.
- May, B., and Mulligan, K. (2003). *Range Planning with GIS: An Example from Colfax County, New Mexico*. ESRI Map Gallery, Twenty-Third Annual ESRI International User Conference, San Diego.
- Mulligan, K., Barbato, L., and Bowlin, H. (2002). *Northwest Texas Regional Economic Development*. ESRI Map Gallery, Twenty-Second Annual ESRI International User Conference, San Diego.
- Barbato, L., Mulligan, K., and Weinbeck, S. (2002). *Distribution of Historical Tornadoes, 1950-1995*. ESRI Map Gallery, Twenty-Second Annual ESRI International User Conference, San Diego.

Online Monograph

- Kotkin, J., Zimmerman, D. and Mulligan, K.R. (2012). *The Rise of the Great Plains* (pp. 118). Center for Geospatial Technology, Texas Tech University, Lubbock, Texas.

Research Reports

- Mulligan, K., Barbato, L., Rainwater, K., Smith, L. (2014) *CRP Effects on the Ogallala Aquifer: RWO 87*. Report prepared for the USDA Farm Service Agency through the U.S. Geologic Survey, pp. 121.
- Barbato, L., Seshadri, S., Mulligan, K. (2011). *Cotton Distribution and Acreage in the Lubbock Region and Surrounding Counties, 2008, 2009 and 2010*. Map series document prepared for Bayer CropScience, pp. 5. Center for Geospatial Technology, Texas Tech University, Lubbock, Texas.

- Mulligan, K., Barbato, L., Bernard, E. (2011). *Ogallala Aquifer Program, 2010 Annual Report*. Report prepared for the USDA Agricultural Research Service, Ogallala Aquifer Program, pp. 2.
- Barbato, L., Mulligan, K., and Rainwater, K., (2007). *Ogallala Aquifer 2006 Annual Report*. Report prepared for the USDA, Agricultural Research Service, Ogallala Aquifer Program, pp. 10.
- Rainwater, K., Mulligan, K. and Barbato, L., (2006), *Ogallala Aquifer 2005 Annual Report*. Report prepared for the USDA, Agricultural Research Service, Ogallala Aquifer Program, pp. 5.
- Rainwater, K.A., Mulligan, K.R. and Barbato, L.S., (2005), *Ogallala Aquifer 2004 Annual Report*. Report prepared for the USDA, Agricultural Research Service, Ogallala Aquifer Initiative, pp. 2.

Internet Mapping Software Applications

- Mulligan, K., Seshadri, S. (2014). *Playa Viewer*. Internet mapping application to accompany the Playas and Wetlands Geodatabase, Center for Geospatial Technology, Texas Tech University, Lubbock, Texas.
- Mulligan, K., Seshadri, S. (2012). *Atlas of the Great Plains*. Internet mapping application to accompany online monograph, Center for Geospatial Technology, Texas Tech University, Lubbock, Texas.
- Mulligan, K., Seshadri, S., Barbato, L. (2011). *Sendai, Japan Earthquake Viewer*. Internet mapping application developed as a public information resource. Center for Geospatial Technology, Texas Tech University, Lubbock Texas.
- Barbato, L., Seshadri, S., Mulligan, K. (2011). *Temperature Forecast and Cotton Seed Planting Interactive Map*. Prototype Internet mapping application developed for Bayer Crop Science. Center for Geospatial Technology, Texas Tech University, Lubbock, Texas.
- Mulligan, K., Seshadri, S., Barbato, L. (2011). *Texas Tech University Turbine Mapper*. Internet mapping application developed as a public information resource. Center for Geospatial Technology, Texas Tech University, Lubbock, Texas.
- Mulligan, K., Barbato, L., Seshadri, S., Bernard, E. (2011). *USDA ARS Ogallala Aquifer Interactive Map*. Internet mapping application developed for the USDA ARS Ogallala Aquifer Program. Center for Geospatial Technology, Texas Tech University, Lubbock, Texas.

Sponsor Technical Reports

- Barbato, L., Seshadri, S., Mulligan, K., Wiger, M. (2014) *Research and Development of CPRIT Table Design for Mapping*. Lubbock, Texas: Center for Geospatial Technology, Texas Tech University.
- Mulligan, K., Barbato, L., Wiger, M., and Seshadri, S. (2012). *Data Dictionary and Database Design for NPGCD SQL Database* (pp. 101). Center for Geospatial Technology, Texas Tech University.
- Mulligan, K., Barbato, L., Seshadri, S. (2012). *Data Processing Procedures for Bayer CropScience Internet Application for Cotton Planting Forecast* (pp. 14). Center for Geospatial Technology, Texas Tech University.
- Mulligan, K., Barbato, L., Rainwater, K., Smith, L. (2012). *Initial CRP Data Evaluation for CO, KS and OK* (pp. 5). Center for Geospatial Technology, Texas Tech University.
- Mulligan, K., Barbato, L., Rainwater, K., Smith, L. (2012). *Initial CRP Data Evaluation for NE, NM, SD, TX and WY* (pp. 5). Center for Geospatial Technology, Texas Tech University.

- Mulligan, K., Barbato, L. S., Kennedy, S. (2012). *Calculating CRP Contract Dates for CRP Effect on the Ogallala Aquifer* (pp. 11). Center for Geospatial Technology, Texas Tech University.
- Barbato, L., Mulligan, K., Wiger, M., Seshadri, S. (2012). *Interim Data Dictionary and Database Design for NPGCD SQL Database* (pp. 18). Center for Geospatial Technology, Texas Tech University.
- Barbato, L., Mulligan, K., Seshadri, S., Wiger, M. (2012). *User Needs Assessment for SQL Database and Web Application* (pp. 18). Center for Geospatial Technology, Texas Tech University.
- Barbato, L., Mulligan, K., Seshadri, S. (2011) *CottonWeb Application Components and Workflow for Desktop and Mobile Platforms* (pp. 11). Center for Geospatial Technology, Texas Tech University.
- Barbato, L., Mulligan, K., Seshadri, S. (2011) *Software, Hosting and Data Requirements for CottonWeb Desktop and Mobile Applications* (pp. 8). Center for Geospatial Technology, Texas Tech University.
- Barbato, L., Mulligan, K., Seshadri, S. (2011). *Tax Parcel Management Instructions*. Technical report prepared for Fisher County Appraisal District (pp. 50). Center for Geospatial Technology, Texas Tech University.
- Barbato, L., Mulligan, K., Seshadri, S., McAlister, J. (2011). *Database Design, Data Dictionary and Standard Operating Procedures for Generating Tax Parcels*. Technical report prepared for Fisher County Appraisal District (pp. 38). Center for Geospatial Technology, Texas Tech University.
- Barbato, L., Seshadri, S., Mulligan, K. (2011). *Editing Instructions for Property Spatial Data Infrastructure*. Technical report prepared for North Plains Underground Water District (pp. 49). Center for Geospatial Technology, Texas Tech University.
- Barbato, L., Seshadri, S., Mulligan, K. (2011). *Training Instructions for Editing Property and Sections Using Topology*. Technical report prepared for North Plains Underground Water District (pp. 11). Center for Geospatial Technology, Texas Tech University.
- Barbato, L., Seshadri, S., Mulligan, K., McAlister, J. (2011). *Database Design, Data Dictionary and Standard Operating Procedures for Spatial Data Infrastructure*. Technical report prepared for North Plains Underground Water District (pp. 38). Center for Geospatial Technology, Texas Tech.
- Barbato, L., Mulligan, K. Seshadri, S., McAlister, J. (2010). *Tax Parcel Management Instructions for the Lynn County Appraisal District. Lynn CAD, Tahoka, Texas*.
- Mulligan, K., and Barbato, L., (2009). *A Regional Analysis of Groundwater Depletion Rates*, USDA, Agricultural Research Service, Ogallala Aquifer Program, 2008 Final Report (pp. 4).
- Barbato, L., and Mulligan, K. (2009). *Map Series for the Texas High Plains / Ogallala Aquifer*. USDA, Agricultural Research service, Ogallala Aquifer Program, 2008 Final Report (pp. 3).
- Barbato, L., Mulligan, K., and Warren, A. (2009). *Generating Easements: Standard Operating Procedures, Database Design and Data Dictionary*. Report prepared for The University of Texas System, University Lands (pp. 30)
- Warren, A., Barbato, L., and Mulligan, K. (2009). *Easements Training for University Lands: Digitizing, Rectifying and Survey Analyst Procedures*. Report prepared for The University of Texas System, University Lands (pp. 30)
- Rosenbaum, A., Barbato, L., Mulligan, K., and Rainwater, K. (2006). *GIS Database and Map Production for Transmissivity Distribution in the Ogallala Aquifer for Floyd, Hale, Lubbock, Randall, and Swisher Counties*. Report prepared for the Canadian River Municipal Water Management Authority (pp. 16).

Conference Presentations

- Mulligan, K., Almutlaq, F., "Using Weather Forecast Reanalysis Data to Analyze Potential Sand Transport and Dune Morphology within the Rub a' Khali," 10th International Conference on Aeolian Research, Bordeaux, France (forthcoming, June 2018).
- Mulligan, K., Almutlaq, F., "Analysis of Dune Morphology within the Rub' al Khali, Kingdom of Saudi Arabia," Annual Meeting, Association of American Geographers, San Francisco, CA. (April 2016).
- Starr, S., Heintzman, L., Barbato, L., Mulligan, K., McIntyre, N., "Using Remotely Sensed Imagery to Document how Land Use Drives Turbidity of Playa Waters in Texas," Annual meeting of the US Chapter of the International Assn. of Landscape Ecology, US-IALE, Asheville, NC. (April 6, 2016).
- Heintzman, L., Starr, S., Claassen, C. L., Barbato, L., Mulligan, K., McIntyre, N., , "Patterns of Surface Water Dynamics in Salt Playas of Texas over a 27-Year Span," Annual meeting of the US Chapter of the International Assn. of Landscape Ecology, US-IALE, Asheville, NC. (April 4, 2016).
- Starr, S., Heintzman, L., Mulligan, K., Barbato, L., McIntyre, N., "Using Remotely Sensed Imagery to Document how Land Use Drives Turbidity of Playa Waters in Texas," TTABSS, Lubbock, TX. (April 1, 2016).
- Mulligan, K., Barbato, L., Seshadri, S., Warren, A., Van Nice, C., "Geography of the Ogallala Aquifer: Connecting the Late Miocene and Modern Landscapes of West Texas," Association of American Geographers, Chicago, Illinois. (April 23, 2015).
- Barbato, L., Seshadri, S. and Mulligan, K., "Development of a Playa Wetlands Geodatabase and Web Mapping Application for the Southern Ogallala Aquifer," Texas GIS Forum, Texas Natural Resources Information System, Austin, Texas. (October 22, 2014).
- Mulligan, K., Barbato, L., Seshadri, S., "Playa Wetlands Mapping," Ogallala Aquifer Program Workshop, USDA Agricultural Research Service, Lubbock, TX. (March 25, 2014).
- Rufino, I., Mulligan, K., "Dados Espaciais Globais E Analises Regionais: Geotecnologias No Estudo De Mudancas No Semiarido, PAP013981 (Global Spatial Data for Regional Analysis: Geotechnology to Study Changes in the Semiarido)," XX Brazilian Symposium on Water Resources, Brazilian Water Resources Association (ABRH), Bento Goncalves, Rio Grande do Sul, Brazil. (November 18, 2013).
- Rufino, I., Mulligan, K., Barbato, L., Seshadri, S., "Analysis of U.S. Drought Conditions," Texas GIS Forum, Texas Natural Resources Information System, Austin, Texas. (October 24, 2013).
- Rufino, I., Mulligan, K., Barbato, L., Seshadri, S., "Brazilian Semi-arid Region: Global Datasets for Regional Analysis," Esri International User Conference, San Diego, California. (July 9, 2013).
- Rufino, I., Mulligan, K., "Changes in the Brazilian Semi-arid: Analysis Supported by GIS Technology," Esri International User Conference, San Diego, California. (July 8, 2013).
- Mulligan, K., Barbato, L. S., Ogallala Aquifer Water Availability Data Workshop, "Estimating Water Availability and Withdrawals from the Ogallala Aquifer in Texas," U.S.D.A., Agricultural Research Service, Ogallala Aquifer Program, West Texas A&M University, Canyon, Texas. (Feb 3, 2012).
- Mulligan, K., Barbato, L. S., Trollinger, R., Garza, J., Casler, J., Staggs, J., Seshadri, S., Warren, J., Hill, L., Hensley, N., Nichols, A., Leatherwood, E., "Realigning Tax Parcels to High Resolution Aerial Imagery in an Enterprise Environment using ArcGIS Server," Texas GIS Forum, Texas Natural Resources Information System (TNRIS), Austin, Texas. (October 27, 2010).

Mulligan, K., East Texas Geospatial Conference, "The Texas Tech University Center for Geospatial Technology," East Texas Arc User Group, Nacogdoches, Texas. (January 28, 2010).

Nagihara, S., Mulligan, K. R., and Ochoa, R. (2004). Use of a three-dimensional laser scanner to track dune movement in White Sands National Monument. *Geological Society of America, 2004 Denver Annual Meeting, Abstracts with Programs*, vol. 36, no. 5.

Invited Speaker

Mulligan, K., 21st Annual South Plains Conference, "Mapping the Projected Usable Lifetime of the Ogallala Aquifer," Ogallala Commons, Lubbock, Texas. (April 14, 2010).

Solis, P., Mulligan, K., Barbato, L., Cao, G., Portillo Quintero, C., Mappers Without Borders Organizational Meeting, USAID, Texas Tech University, invited participant. (January 2015).

Mulligan, K., Texas County Appraisal District Meeting, "What is a Geographic Information System?" Texas State Comptroller, Property Tax Assistance Division, Lubbock, Texas. (September 20, 2010).

Mulligan, K., "Applications of GIS to Water Mapping and Planning," Agriculture in Arid Lands Conference, (sponsored by the Sultanate of Oman), Lubbock, Texas. (November 5, 2015).

Mulligan, K., Water Management and Conservation: Database Workshop, "Geodatabases for the Ogallala Aquifer: With Special Reference to Counties of Interest," High Plains Underground Water Conservation District, Lubbock, Texas. (April 26, 2013).

Barbato, L., Mulligan, K., Seshadri, S., U.S. Department of Agriculture, Farm Service Agency, CRP Webinar Series, "CRP Effects on the Ogallala Aquifer," U.S. Department of Agriculture, Farm Service Agency, Internet Webinar. (April 23, 2013).

Mulligan, K., Spatial Thinking across the Curriculum, Summer Geography Institute, "GIS and Geospatial Education," College of Education, Texas Tech University. (June 15, 2011).

Mulligan, K., Wednesday Seminar Series, "Geospatial Technology and the Prototype Development of the West Texas Turbine Mapper," Wind Science and Engineering, Texas Tech University. (Feb. 23, 2011).

Map Awards

First Place, Best Map. Texas GIS Forum, Austin, Texas. (October, 2014). Rufino, I., Mulligan, K., Barbato, L., Seshadri, S., "Playa Wetlands Geodatabase and Web Mapping Application."

First Place, Best Map. Texas GIS Forum, Austin, Texas. (October, 2013). Rufino, I., Mulligan, K., Barbato, L., Seshadri, S., "Analysis of US Drought Conditions 2000-2012."

Third Place, Best Use of Esri Basemap. Esri International User Conference, San Diego (July 2013). Mulligan, K., Barbato, L., Seshadri, S., "Projected Useable Lifetime of the Ogallala Aquifer."

First Place, Best Map. Texas GIS Forum, Austin, Texas. (October, 2008). Barbato, L., Mulligan, K., Warren, A., "Geography of the Ogallala Aquifer."

First Place, Best Atlas. Texas GIS Forum, Austin, Texas. (July. 2007). Barbato, L. S., Mulligan, K. R., Warren, A., Braden, P., "Mapping the Southern Ogallala Aquifer of Texas, Saturated Thickness Change 1990-2004."

Second Place, Cartographic Design – Map Series or Atlas-In-House Copy. ESRI International User Conference, San Diego. Mulligan, K. R., Barbato, L.S. DeBaca, R., Speer, J., and Masapari, K., "Digital Atlas of New Mexico Counties."

FUNDING

Contracts, Grants and Sponsored Research

- Ballou, M., Barbato, L., Burow, M., Cao, G, Mitchell, D., Mulligan, K., Ritchie, G., Williams, R., Uddameri, V., Zhang, H., "OAP - Water Management to Sustain the Economic Activity from the Ogallala Aquifer on the Southern High Plains-TTU," Sponsored by USDA Agricultural Research Service, \$308,173.00. Federal, (October 1, 2015 - August 31, 2020).
- Solis, P., Cao, G., Mulligan, K., Portillo Quintero, C., "Mapping for Resilience University Consortium," Sponsored by USAID, Federal, \$999,000.00. (September 28, 2015 - December 31, 2019).
- Ballou, M., Barbato, L., Woodward, J., Burow, M., Seshadri, S, Mulligan, K., Williams, R., Ritchie, G., Trojan, S., "Improving Water Productivity and New Water Management Technologies to Sustain Rural Economies-TTU," Sponsored by USDA Agricultural Research Service, \$282,125.00. Federal, (September 1, 2015 - August 31, 2017).
- Mulligan, K., Cao, G., Barbato, L., "Development of a GIS Model to Project and Map Future Water Availability," Sponsored by USDA ARS, Federal, \$40,769.00. (October 1, 2015 - September 30, 2016).
- Mulligan, K., Cao, G., Barbato, L., Seshadri, S., "OAP: Development of Current Hydrologic Data and Analysis of Water Availability in the Ogallala Aquifer over the Next 50 Years," Sponsored by USDA Agricultural Research Service, Federal, \$119,895.00. (October 1, 2014 - September 30, 2016).
- Barbato, L., Seshadri, S., Mulligan, K., "Development of a Dynamic Internet Map for Editing Fireworks Locations," Sponsored by TX Department of Insurance, \$17,620.00. State, (March 24, 2015 - August 31, 2015).
- Barbato, L., Seshadri, S., Mulligan, K., "Water Management Application Enhancements," Sponsored by North Plains Groundwater Conservation District, Dumas, Texas, Local, \$6,048.00. (October 1, 2013 - August 31, 2015).
- Swain, S., Seshadri, S., Barbato, L., Mulligan, K. 2014. Identification and Quantification of Irrigated Farmland. Sponsored by North Plains Underground Water District, Dumas, Texas. \$5,272 (May 14, 2014 – December 31, 2014)
- Barbato, L., Mulligan, K., Seshadri, S., "Research and Development of CPRIT Table Design for Mapping for Administrative Interface Development - Addendum," Sponsored by Cancer Prevention Research Institute of Texas, State, \$6,034.00. (March 15, 2014 - December 31, 2014).
- Barbato, L., Mulligan, K., "Development of Environmental Data for Research Playas," Sponsored by USDA, Agricultural Research Service, Ogallala Aquifer Program, Federal, \$42,533.00. (October 1, 2012 - September 30, 2014).
- Barbato, L., Mulligan, K., Seshadri, S., Lucas, D., "Addendum to Research and Development of CPRIT Table Design for Mapping," Sponsored by Cancer Prevention & Research Institute of Texas, State, \$24,990.00. (September 1, 2013 - August 31, 2014).
- Mulligan, K., Barbato, L., "Development of Environmental and Plant Temperature Seasonal Phenotypes using a "Time Surface" Approach," Sponsored by USDA, Agricultural Research Service, Ogallala Aquifer Program, Federal, \$40,030.00. (October 1, 2012 - August 31, 2014).

Mulligan, K., Barbato, L. S., Rainwater, K., "CRP Effects on the Ogallala Aquifer Phase II," Sponsored by U.S. Geological Survey, TCFWRS 82 (USDA, Farm Service Agency), Federal, \$61,320.00. (June 1, 2012 - May 31, 2014).

Barbato, L., Mulligan, K., Seshadri, S., "Planting Forecast Tool Enhancements," Sponsored by Bayer CropScience, Private, \$8,424.00. (November 2013 - February 2014).

Barbato, L., Mulligan, K., "Development of an Appraisal Report Based on Soil Data," Sponsored by Val Verde County Appraisal District, Local, \$4,669.00. (September 2013 - December 2013).

Barbato, L., Seshadri, S., Mulligan, K., "Water Management Application Training," Sponsored by North Plains Groundwater Conservation District, Dumas, Texas, Local, \$4,062.00. (March 11, 2013 - October 31, 2013).

Barbato, L., Mulligan, K., "Development of an Appraisal Report based on Soil Data for LaSalle CAD," Sponsored by La Salle County Appraisal District, Local, \$4,669.00. (February 15, 2013 - August 31, 2013).

Barbato, L., Mulligan, K., Seshadri, S., "Research and Development of CPRIT Table Design for Mapping," Sponsored by Cancer Prevention & Research Institute of Texas, State, \$11,862.00. (January 7, 2013 - August 31, 2013).

Mulligan, K., Barbato, L. S., DeOtte, R., Stewart, B., "Mass Balance, Groundwater Modeling and GIS for the Ogallala Aquifer," Sponsored by USDA Agricultural Research Service, Ogallala Aquifer Program, \$96,486.00. (September 1, 2011 - August 31, 2013).

Mulligan, K., Barbato, L. S., "Playa Wetlands Geodatabase and Web Application," Sponsored by USDA, Agricultural Research Service, Ogallala Aquifer Program, Federal, \$128,508.00. (September 1, 2011 - August 31, 2013).

Mulligan, K., Barbato, L., Seshadri, S., "Well Permit and Production Software Application Development," Sponsored by North Plains Groundwater Conservation District, Local, \$28,316.00. (July 1, 2012 - February 28, 2013).

Barbato, L., Mulligan, K., "Transfer of the CottonWeb Cotton Seed Planting Temperature Forecast Application and Open Source GIS Server Development," Sponsored by Bayer CropScience, Private, \$39,240.00. (March 1, 2012 - February 28, 2013).

O'Bryant, S., Gong, G., Zhang, Y., Mulligan, K., "Development and Validation of the Cumulative Environmental Exposure Index for Arsenic: A Novel Environmental Public Health Indicator," Sponsored by EPA STAR Grant R834794, Federal, \$483,128.00. (March 1, 2011 - February 28, 2013).

Barbato, L., Mulligan, K., "GIS Design and Automation of Tax Parcels, Fisher County, Texas," Sponsored by Fisher County Appraisal District, \$27,617.00. (February 1, 2011 - January 31, 2013).

Mulligan, K., Kotkin, J., Zimmerman, D., "Atlas of the Great Plains," Sponsored by Texas Tech University - President's Office, Texas Tech University, \$150,000.00. (2011 - 2012).

Mulligan, K., Barbato, L. S., Seshadri, S., "Enhancement of Bayer Cotton Temperature Planting Forecast," Sponsored by Bayer CropScience, \$54,559.00. (2011 - 2012).

Mulligan, K., Barbato, L. S., Seshadri, S., "Integration of Weather Forecast and Mesonet Data for Optimized Cotton Seed Planting," Sponsored by Bayer CropScience, Private, \$20,000.00. (2011 - 2012).

Mulligan, K., Barbato, L. S., Rainwater, K., "CRP Effects on the Ogallala Aquifer," Sponsored by U.S. Geological Survey, TCFWRU 359 (USDA, Farm Service Agency), Federal, \$80,598.00. (April 1, 2011 - November 30, 2012).

Barbato, L., Mulligan, K., Seshadri, S., "Permitting Interface and Database Design for SQL Database," Sponsored by North Plains Groundwater Conservation District, Local, \$34,166.00. (January 19, 2012 - September 30, 2012).

Barbato, L., Mulligan, K., Seshadri, S., "User Needs Assessment for SQL Database and Web Application," Sponsored by North Plains Groundwater Conservation District, Local, \$4,943.00. (January 5, 2012 - May 30, 2012).

Barbato, L., Mulligan, K., "Database Design and Development of Property Spatial Data Infrastructure for North Plains Water District," Sponsored by North Plains Underground Water District, Local, \$9,134.00. (May 1, 2011 - December 31, 2011).

Mulligan, K., Rainwater, K., Barbato, L. (Co-Principal), "TCU 359: CRP Effects on the Ogallala Aquifer," Sponsored by U.S. Geological Survey, Federal, \$80,118.00. (April 1, 2011 - September 30, 2011).

Mulligan, K., Barbato, L., "Mass Balance, Groundwater Modeling and GIS for the Ogallala Aquifer," Sponsored by USDA Agricultural Research Service, Federal, \$96,486.00. (2011)

Mulligan, K., Barbato, L., "Playa Wetlands Geodatabase and Web Application," Sponsored by USDA Agricultural Research Service, Federal, \$128,508.00. (2012 - 2013)

Mulligan, K., Barbato, L., "Map Service Development and Integration," Sponsored by USDA, Agricultural Research Service, Ogallala Aquifer Program / Kansas State University, \$9,519.00. (January 1, 2011 - August 31, 2011).

Mulligan, K., Barbato, L., "A Regional Analysis of Groundwater Depletion Rates," Sponsored by USDA, Agricultural Research Service, Ogallala Aquifer Program, Federal, \$28,000.00. (September 1, 2007 - August 31, 2011).

Mulligan, K., Barbato, L., "Map Series for the Texas High Plains," Sponsored by USDA, Agricultural Research Service, Ogallala Aquifer Program, Federal, \$17,000.00. (September 1, 2007 - August 31, 2011).

Barbato, L., Mulligan, K., "GIS Design and Automation of Tax Parcels, Dawson County, Texas," Sponsored by Dawson County Appraisal District, Local, \$20,760.00. (April 1, 2010 - March 31, 2011).

Barbato, L., Mulligan, K., "GIS Design and Automation of Tax Parcels, Lynn County, Texas," Sponsored by Lynn County Appraisal District, Local, \$20,380.00. (April 1, 2010 - March 31, 2011).

Mulligan, K., Barbato, L. S., "Realignment of Parcels to Pictometry Imagery," Sponsored by Lubbock Central Appraisal District, Local, \$20,531.00. (October 15, 2009 - October 14, 2010).

Mulligan, K., Barbato, L., "The Texas Tech University Columbia Regional Geospatial Service Center - FY 2010," Sponsored by Texas National Guard / Stephen F. Austin State University, Federal, \$850,000.00. (October 1, 2009 - September 30, 2010).

Mulligan, K., Barbato, L., "Infrastructure Expansion of the Texas Tech University Columbia Regional Geospatial Service Center," Sponsored by National Guard Bureau / Texas National Guard / Stephen F. Austin State University, Federal, \$200,000.00. (September 30, 2009 - January 31, 2010).

Mulligan, K., Barbato, L. "Critical Facilities Infrastructure Mapping. " Sponsored by US EPA/Texas Commission on Environmental Quality/Stephen F. Austin University. \$171,424. (February 10, 2009 – August 31, 2010).

Barbato, L.S. and Mulligan, K.R., "Playa Lakes Mapping and Climate Change Analysis", Sponsored by U.S. Fish and Wildlife Service, National Wetlands Inventory, Albuquerque, NM., Federal, \$33,019 (May 15, 2009 – June 30, 2010).

Rainwater, K., Mulligan, K., Barbato, L., Zartman, R., Hudnall, W., Gitz, III, D., "Influence of USDA Programs on Ecological Services Provided by Playa Wetlands in the High Plains," Sponsored by USGS/NRCS, Federal, \$76,930.00. (2008 - 2009).

Barbato, L., Mulligan, K., "Automation of University Lands Easements in a GIS Geodatabase", Sponsored by University of Texas System - University Lands, State, \$160,028. (September 1, 2008 – August 31, 2009).

Rainwater, K., Johnson, J., Willis, D., Ethridge, D., Mulligan, K., Fish, E., "Ogallala Initiative: Sustainable Rural Economics Through New Water Management Technologies," Sponsored by USDA, Agricultural Research Service, Federal, \$1,000,000.00. (2007 - 2009).

Rainwater, K., Mulligan, K., Barbato, L., Zartman, R., Hudnall, W., Gitz, III, D., "Influence of USDA Programs on Ecological Services Provided by Playa Wetlands in the High Plains," Sponsored by USGS/NRCS, Federal, \$83,807.00. (2007 - 2008).

Mulligan, K., Barbato, L. "Infrastructure Development for the Texas Tech University - Columbia Regional Geospatial Service Center. " Sponsored by U.S. Department of Defense/Tx National Guard/Columbia Regional Geospatial Service Center/S.F. Austin University. \$50,000. (September 30, 2007 – September 30, 2008)

Mulligan, K., "Quality Assurance for Critical Infrastructure Mapping. " Sponsored by US EPA/Texas Commission on Environmental Quality/Stephen F. Austin University. \$1,500. (June 1, 2007 – July 15, 2007).

Mulligan, K., Barbato, L., Lee, J., "GIS Database for Playa Lakes 1, National Wetlands Inventory," Sponsored by US Fish and Wildlife Service, Federal, \$45,000.00. (2006 - 2007).

Mulligan, K., "Analysis of Agricultural Irrigation on the High Plains of West Texas," Sponsored by USGS / TexasView Remote Sensing Consortium / Stephen F. Austin State University, \$3,000.00. (July 1, 2007 - November 30, 2007).

Mulligan, K., Barbato, L., "Portraits of Rural West Texas: Year 2." Sponsored by National Institute of Health through TTU Health Science Center Office Rural and Community Health, Federal, \$24,650. (January 1, 2007 – July 31, 2007).

Rainwater, K., Barbato, L., Mulligan, K., "Transmissivity Distribution in the Ogallala Aquifer for Floyd, Hale, Lubbock, Randall and Swisher Counties," Sponsored by Canadian River Municipal Water Authority, State, \$15,264.00. (2006).

Barbato, L., Mulligan, K., "Enhanced Mineral Leases Geographic Information System for FY2008 – University West Texas Operations", Sponsored by University of Texas System - University Lands, State, \$160,028. (September 1, 2006 – August 31, 2008).

Barbato, L., Mulligan, K., “Enhanced Mineral Leases Geographic Information System – University West Texas Operations”, Sponsored by University of Texas System - University Lands, State, \$150,010.(September 1, 2006 – August 31, 2008).

Barbato, L., and Mulligan, K., “Reprojection of Aerial Photos and Geologic Maps”. Sponsored by University of Texas System - University Lands, State. \$21,538. (September 1, 2006 – February 28, 2007).

Mulligan, K., Barbato, L., “Rural Health Initiative / Portraits of Rural West Texas.” Sponsored by National Institute of Health through TTU Health Science Center Office Rural and Community Health, Federal, \$24,650. (January 1, 2006 – August 31, 2006).

Rainwater, K., Mulligan, K., Barbato, L., "Ogallala Initiative: Hydrology and Climatology," Sponsored by Department of Agriculture, Federal, \$37,251.00. (2005 - 2006).

Barbato, L., Mulligan, K., “Automation of Mineral Lease Maps.” Sponsored by University of Texas System - University Lands, State. \$22,900. (September 1, 2005 – August 31, 2006).

Barbato, L., Mulligan, K., Masapari, K., ”Andrews County Geodatabase Development – Development of a Mineral Leases GIS for University Lands – West Texas Operations.” Sponsored by University of Texas System - University Lands, State, \$9,993. (September 1, 2005 – August 31, 2006).

Barbato, L., Mulligan, K., “Development of a Mineral LeasesGIS for University West Texas Operations.” Sponsored by University of Texas System - University Lands, Local. \$137,832. (September 1, 2005 – August 31, 2006).

Mulligan, K., Barbato, L.S., “Geospatial Analysis of Unpaved Roads in West Texas.” Sponsored by National Institute of Health through TTU Health Science Center Office Rural and Community Health, Federal, \$23,440. (May 4, 2005 – July 31, 2005).

Mulligan, K., “Development of a FGDC Metadata Clearinghouse Node”, Sponsored by City of Lubbock, Local, \$2,000. (December 13, 2004 – December 31, 2007).

Barbato, L., Mulligan, K., “Supplemental Analysis of Grazing Leases, University Lands – West Texas Operations.” Sponsored by University of Texas System - University Lands, State. \$48,570. (December 1, 2004 – August 31, 2005).

Barbato, L., Mulligan, K., “Analysis of Grazing Leases, University Lands – West Texas Operations.” Sponsored by University of Texas System - University Lands, State. \$88,284. (December 1, 2004 – August 31, 2005).

Barbato, L.S., and Mulligan, K.R., “GIS Infrastructure Enhancement, Maintenance and Technical Support,” Sponsored by High Plains Underground Water District No. 1, Local, \$14,527. (September 1, 2004 – December 31, 2004)

Mulligan, K., Barbato, L., “Analysis of the Spatial Distribution of Playa Lakes Using Satellite Imagery, Soils Data and a Digital Elevation Model”, Sponsored by TexasView, State, \$3,000. (July 1, 2004 – August 31, 2004)

Mulligan, K., Barbato, L., Al Hmoud, R., Lee, J., "Water Level Data Collection and Analysis," Sponsored by High Plains Underground Water Conservation District No. 1, Local, \$15,963.00. (2003 - 2004).

Mehta, K., Smith, D., Letchford, C., Kiesling, E., Schroeder, J., Kruse, J., Peterson., R., Ewing, B., Gill, T., Gilliam, X., James, D., McDonald, J., Mulligan, K., “Windstorm Mitigation Initiative (Year 6)”, Sponsored by National Institute of Standards & Technology, Federal, \$79,038.80 (of \$3,951,940). (October 1, 2003 – September 30, 2005).

- Mulligan, K., Barbato, L., “West Texas Atlas of Rural and Community Health”, Sponsored by TTU Health Sciences Center, State, \$62,813. (January 22, 2002 – March 31, 2007).
- Barbato, L.S., Mulligan, K.R., and Al-Hmoud, R., 2003, “Supplemental Proposal for GIS Database and Applications for Well Permitting”, Sponsored by High Plains Underground Water District No. 1, Local, \$9,514. (September 1, 2002 – December 31, 2003).
- Barbato, L.S., Mulligan, K.R., and Al-Hmoud, R., “GIS Database and Applications for Well Permitting”, High Plains Underground Water District No. 1., Local, \$33,270. (September 1, 2002 – December 31, 2003).
- Mulligan, K., Senadheera, S., “Develop a Report Format in GIS for the Monthly Status Report on Construction Projects/Odessa District”, Sponsored by Texas Department of Transportation, State, \$6,050. (March 22, 2002 – August 31, 2002).
- Mehta, K., Smith, D., Kiesling, E., Kruse, J., Letchford, C., Carter., R., Doggett, A., Gilliam, X., Peterson., R., Schroeder, J., Mulligan, K., Phelan, R., McDonald, J., Gill, T., Ewing, B., Crooker, S., “Windstorm Mitigation Initiative (Year 4)”, Sponsored by National Institute of Standards & Technology, Federal, \$31,788.84 (of \$1,589,442). (October 1, 2001 – September 30, 2002).

DIRECTED STUDENT LEARNING

Current Master’s and Ph.D. Committees

- Ying Liu, Dissertation Committee Member, "Spatiotemporal Mapping of Ground-level Fine Particulate Matter and the Long-term Public Health Impacts," Geosciences. (2015 - Present).
- Corey Thompson, Dissertation Committee Member, Plant & Soil Science. (2016 - Present).
- Jessica Mehta, Master's Thesis Committee Member, Natural Resources Management. (2016 - Present).
- Lucas Heintzman, Dissertation Committee Member, Biological Sciences. (2015 - Present).
- Tarek Kandakji, Dissertation Committee Member, Geosciences. (2014 - Present).
- Scott Starr, Dissertation Committee Member, Biological Sciences. (2013 - Present).
- Cole Edwards, Master’s Thesis Committee Member, Geography. (2017- Present).

Completed Master’s and Ph.D. Committees

- Fahad Almutlaq, Dissertation Committee Chair, "Analysis of Dune Morphology within the Rub’ al Khali Using Geospatial Technology," Geosciences. (December 2017).
- Jason Post, Dissertation Committee Member, "Human Interactions with the Aquatic Ecosystems of the Los Angeles River: The Creation of the LA River as a Human Landscape and the Effect of Exotic Fish on Human Activity," Geosciences. (December 2017).
- Thu Nguyen, Dissertation Committee Member, "An Evaluation of Coastal Flooding Risk Due to Storm Surges in Sea-level Rise Condition on the Coast Area of Thua Thien Hue Province, Vietnam," Geosciences. (December 2017).
- Colton Laws, Master's Thesis Committee Member, "Status and Long-Term use of Artificial Escape Dens by Swift Foxes in Northwest Texas," Natural Resources Management. (August 2017).

Curtis Schaefer, Dissertation Committee Member, "Cotton Maturity and the Irrigation Timing Paradigm," Political Science. (May 2017).

De Gao, Dissertation Committee Member, "Biogeography of Herpetofaunas in the West Indies and Alien Invasion - Cause, Threat and Conservation," Natural Resources Management. (May 2017).

Aykut Caglar, Master's Thesis Committee Member, "An Investigation of Blowing Dust in Adana and Konya, Turkey from 2007 to 2015." (May 2017).

Katy Guntly, Master's Thesis Committee Member, "Black Bear (*Ursus americanus*) Movements, Diet, and Impacts on Ungulate Neonate Survival on the National Rifle Association Whittington Center, New Mexico," Natural Resources Management. (2016).

Sarah Johnson, Master's Thesis Committee Member, "Vegetation Textures of Dunes in Arid and Semi-Arid Regions," Geosciences. (2016).

Kamal Humagian, Dissertation Committee Member, "Land Cover Change and Impact of Forest Restoration Techniques in the South-West Jemez Mountains, New Mexico," Natural Resources Management. (2013 - 2016).

Morgan Kraft, Master's Thesis Committee Member, "Exploring Biases in Location-Based Social Media, A Case Study of Twitter in the 2012 U.S. Presidential Election," Geosciences. (August 2016).

Prudence Venner, Master's Thesis Committee Member, "Temporal Change of Blowing Dust in Lubbock, Texas, 1947-2013," Geosciences. (August 2016).

Maria Raquel Marchan-Rivadeneira, Dissertation Committee Member, "Environmental Effects on Morphological and Genetic Configuration within a Phylogenetic Framework," Biological Sciences. (May 2015).

Jordan Goetting / Calvert, Master's Thesis Committee Member, "Effects of Weather and Spatial Distribution of Water Sites on Arid-land Mammals in the Sonoran Desert," Natural Resources Management. (May 2015).

Corey Bryant, Master's Thesis Committee Member, "Comparison of Two Satellite Platforms for use in Land Use/Land Cover Classification in Agricultural Regions," Plant & Soil Science. (December 2014).

Steve Collins, Dissertation Committee Member, "Fine-Scale Modeling of Riverine Odonata Distributions in the Northeastern United States," Biological Sciences. (August 2014).

Juan Gutierrez, Master's Thesis Committee Member, "Modeling of Saturated Thickness of the Ogallala Aquifer in Texas," Civil & Environmental Engineering. (August 2014).

Bablu Sharma, Dissertation Committee Member, "Quantifying Growth and Boll Distribution of Cotton Using Remote Sensing and Spatial Statistics," Plant & Soil Science. (May 2014).

Jon Dean Booker, Dissertation Committee Member, "Modeling Landscape-Scale Water Balance in Irrigated Cotton Systems - Pullman and Amarillo Soil Series," Plant & Soil Science. (August 2013).

Brian Chandler, Master's Thesis Committee Member, "Spatial Relationships in Feral Hog Microhabitat Usage in the Rolling Plains of Texas," Natural Resources Management. (August 2012).

Micah-John Beierle, Master's Thesis Committee Member, "Wildfire Ignition Characteristics of the Short Grass Prairie Region of Texas," Natural Resources Management. (August 2012).

Penny Marie Kirtley Carpenter, Dissertation Committee Member, "Survey Analysis and Statistical Modeling: Facilitating K-16 Teacher Conceptualization and Integration of Geospatial Tool Use in CTE Courses," Curriculum & Instruction. (May 2012).

Chris Van Nice, Master's Thesis Committee Chair, "Spatial and Temporal Relationships between Center Pivot Irrigation and Groundwater Resource in West Texas," Geography. (May 2012).

Mark Vaughn, Master's Thesis Committee Member, by Examination. (May 2012).

Michael Snowden, Master's Thesis Committee Member, "WUE and Irrigation Response of Cotton Varieties Grown on Sub-Surface Drip," Plant & Soil Science. (May 2012).

Laura Navarrete, Master's Thesis Committee Member, "Behavioral Effects of Wind Farms on Wintering Sandhill Cranes on the Texas High Plains," Natural Resources Management. (December 2011).

Kelly Baker, Master's Thesis Committee Member, "Local Landscape Factors Influencing Diversity and Fitness in Odonates at Playa Wetlands," Biological Sciences. (August 2011).

Lacrecia A. Johnson, Dissertation Committee Member, "Occurrence, Function, and Conservation of Playa Wetlands: The Key to Biodiversity of the Southern Great Plains," Natural Resources Management. (May 2011).

Mohammed Jambally, Master's Thesis Committee Chair, "GIS and Community Planning," Interdisciplinary. (May 2011).

Ada Warren, Master's Thesis Committee Chair, "Analysis of Precipitation and Saturated Thickness of the Ogallala Aquifer," Interdisciplinary. (August 2010).

Hugo Mantilla-Meluk, Dissertation Committee Member, "Analyzing Evolutionary and Biodiversity Trends Among Phyllostomid Bats Through Synthesis of Ecological and Phylogenetic Data," Biological Sciences. (May 2010).

Joshua J. Boxell, Dissertation Committee Member, "Pedogenesis of Gypseous Soils," Plant & Soil Science. (May 2010).

Anita Schiller, Dissertation Committee Member, "Hurricane Katrina's Impact on the Houston Metropolitan Statistical Area," Civil & Environmental Engineering. (August 2009).

Bryan A. Reece, Dissertation Committee Member, "Diversity, Distribution, and Development of the Odonata of the Southern High Plains of Texas," Biological Sciences. (May 2009).

Santosh Seshadri, Master's Thesis Committee Member, "The Impact of Irrigated Cotton Acreage on the Lift of the Ogallala Aquifer," Economics & Geography. (May 2009).

Annesly Nethisinghe, Dissertation Committee Member, "Surface and Sub-Surface Flow Relationships to the Ogallala Aquifer Recharge on the Southern High Plains of Texas," Plant & Soil Science. (December 2008).

Rahish Khatri, Master's Thesis Committee Member, "Preliminary Study on Effects of the Conservation Reserve Program (CRP) on Groundwater Resources in the Texas High Plains," Civil & Environmental Engineering. (December 2008).

Robert S. DeBaca, Dissertation Committee Member, "Distribution of Mammals in the Davis Mountains, Texas and Surrounding Areas," Biological Sciences. (August 2008).

Lori Lee Manship, Dissertation Committee Member, "Variation analysis of Ammonites and Conodonts (Implementing Geographic Information Systems): A Qualitative and Quantitative Method," Geosciences. (May 2008).

Charles Wayne Clark, Master's Thesis Committee Member, "Distribution and Formation of Two Calcareous Sols on the Southern High Plains of Texas," Plant & Soil Science. (May 2008).

Matthew A. Crawford, Master's Thesis Committee Member, "An Analysis of Terrain Roughness: Generating a GIS Application for Prescribed Burning," Natural Resources Management. (May 2008).

Michael Isaac Howard, Master's Thesis Committee Member, "GIS Spatial Analysis for the Design of Urban Open Space," Landscape Architecture. (May 2008).

Rachel Rogers-Van Nice, Master's Thesis Committee Member, "Forecast verification: A Dispersion Modeling Perspective," Geosciences. (May 2008).

Victoria Nicole Deycard, Master's Thesis Committee Member, "Comparison of Soil Sustainability Measured by Carbon Sequestration using Carbon Isotopes from Cotton (*Gossypium hirsutum*) - Forage - Integrated Management Systems," Plant & Soil Science. (May 2008).

Waghmode Saket, Master's Thesis Committee Member, Biological Sciences. (2007).

Katie Joan Moore, Master's Thesis Committee Chair, "A Compilation of Research in Disciplines of GIS and Remote Sensing," Interdisciplinary. (December 2006).

Karen Jenece Waggoner, Dissertation Committee Member, "Sutural Form and Shell Morphology of Placenticas and Systematic Descriptions of Late Cretaceous Ammonites from the Big Bend Region, Texas," Geosciences. (August 2006).

Mindy B. Rice, Dissertation Committee Member, "Landscape Analysis of a Recolonizing Black Bear (*Ursus americanus*) Population in the Trans-Pecos Region of Texas," Natural Resources Management. (August 2006).

Charles Brandon Law, Master's Thesis Committee Member, "Non-thesis," Interdisciplinary. (May 2006).

Virginie H. Raquet, Master's Thesis Committee Member, "Non-thesis," Biological Sciences. (May 2006).

James Arn Womble, Dissertation Committee Member, "Remote-Sensing Applications to Winstorm Damage Assessment," Civil & Environmental Engineering. (December 2005).

Stephen W. Weinbeck, Dissertation Committee Member, "Development of the West Texas Mesonet and Supporting Instrumentation," Geosciences. (May 2005).

Rhonda D. Ochoa, Master's Thesis Committee Member, "Repeated High-Precision Topographic Surveys of a Barchan Sand Dune at White Sands, New Mexico Using Ground Based Lidar," Geosciences. (May 2005).

Fajin Wang, Dissertation Committee Member, "GAP Analysis of Fish in the Hydrologic Unit 12090205 of Central Texas," Biological Sciences. (December 2004).

Dorothy E. Tinkler, Dissertation Committee Member, "Historical Changes in Crop Distributions in Texas and its Potential Application for Modeling Wildlife Distributions," Biological Sciences. (August 2004).

Felecia L. Evans, Master's Thesis Committee Member, "Visualization of Tornado Track Prediction with a GIS-based Computer Software," Geosciences. (May 2004).

Rodrigo V. Sandoval, Master's Thesis Committee Member, "Computer-Aided Mapping of Complex A at La Venta, Mexico," Interdisciplinary. (May 2004).

Matthew I. Gill, Master's Thesis Committee Member, "Spatial Analysis of Surface Collected Materials at the Lubbock Lake Landmark Utilizing Geographic Information Systems," Interdisciplinary. (August 2002).

Abdulrahman Alhabshi, Master's Thesis Committee Member, "A Framework for SiteManager - ArcGIS Data Interface," Civil & Environmental Engineering. (May 2002).

Cherise N. Carr Ginsburg, Master's Thesis Committee Member, "Evaluating Global Positioning System (GPS) Accuracy and Precision Among Receivers," Natural Resources Management. (May 2002).

Tufan Suha Tiglioglu, Dissertation Committee Member, "Modeling Hurricane Evacuation Using Transportation Models, Fuzzy Set, and Possibility Theory," Economics. (May 2001).

SERVICE

Department Service

Department webmaster - developed and maintain the Department of Geosciences web site

Faculty Advisor, Graduate Certificate in Geographic Information Science and Technology

Developed curriculum for the undergraduate minor in Geographic Information Science and Technology

Developed curriculum for the Graduated Certificate in Geographic Information Science and Technology

Department faculty searches and recruitment

Participant in the YouthMappers mapathons

Host for visiting scholar from Brazil (2012-2013)

College Service

Recognition Garden Brick Mapping Project

Holden Hall Building Management Information System

Faculty recruitment, CGST facility tours, Department of Biological Sciences

Facility tour and presentation for Lubbock Economic Development Alliance

Facility tour and presentation for students from MingDao University, China

Class presentations for PAUD 5326: Information Technology in Public Administration

University Service

Attendee at university convocations

Graduate School Dean's Representative (6 committees)

Facility tour, Center for Geospatial Technology, Texas State Representative, Robert Duncan

Facility tour, Center for Geospatial Technology, Texas Lieutenant Governor, David Dewhurst

Directed President Bailey's Atlas of the Great Plains Project. (2011).

Faculty recruitment, CGST facility tours, Natural Resource Management, Civil & Engineering,

Program organizer, university-wide GIS Day

Ogallala Aquifer maps for the Chancellor Kent Hance

Ogallala Aquifer maps for the President's Water Workshop (2014)

Meeting with Lanzhou University delegation (2015)

Presentation for the Sultanate of Oman delegation (2015)

Member, University Public Art Committee (2012-13)

Certificate of Appreciation, ICASALS. (2011).

Public Service

Maps for the Lubbock West Texas District of the U.S. Small Business Administration. (2015-2016).

Advisor and maps for the film, "Written on Water", produced by Merri Lisa Trigilio (2015-2016)

Advisor for National Geographic writer, Laura Parker. (2015).

Aquifer maps for Dearth Exhibit: Louise Hopkins Underwood Center for the Arts (May 1 - June 27, 2015).

Dearth Project, Advisor. (October 4, 2014).

Llano Estacado map for All Saints Episcopal School. (2014).

Guest Speaker, New Deal High School, New Deal, Texas (April 12, 2012, April 5, 2018).

Guest Speaker, Society of Environmental Journalists, Lubbock, Texas. (October 20, 2012).

Guest Speaker, Beyond the Windshield: Dwelling in the Natural World, 23rd Annual Southern Plains Conference, Muleshoe, Texas. (February 9, 2012).

Satellite Imagery for Guatemala Rural Development. (October 2011).

Summer Camp: Geocaching and Geology Merit Badge Counselor, Boy Scouts of America, (2011)

Project Director, Sendai, Japan Earthquake web mapping application. (March 2011).

Brownfield Outdoor Classroom Field Days, Oak Grove Elementary School, (September 22, 2011).

Guest Speaker, Ogallala Commons, Playa Grazing Management, Nazareth, Texas. (March 24, 2011).

Guest Speaker, Ogallala Commons, Conservation Education Day, Amarillo, Texas. (March 1, 2011).

Guest Speaker, Yoakum County Soil and Water Conservation District, Plains, Texas. (Sept 7, 2010).

Guest Speaker, Ogallala Commons, Conservation Education Day, Brownfield, Texas. (May 20, 2010).

Guest Speaker, Ogallala Commons, Conservation Education Day, Bovina, Texas. (February 17, 2010).

Guest Speaker, Ogallala Commons, Conservation Education Day, Tulia, Texas. (February 3, 2010).

Guest Speaker, Ogallala Commons Conservation Education Day, Whiteface, Texas. (January 13, 2010).

Interview, Helen Quinn, BBC. (January 10, 2011).

Professional Service

Reviewer, grant proposals and manuscripts for publication.

Attendee, Association of American Geographers, Annual Meetings.

Attendee, USDA ARS, Ogallala Aquifer Program Workshops; Manhattan, Amarillo, Garden City, Lubbock

Task Force Member, U.S. Department of Labor, Employment and Training Administration. (July 2014).
Shaded relief maps for *John Colter and the Native American West*, TTU, Southwest Collection. (2016).
Map of the Llano Estacado prepared for the National Weather Service. (August 2012).

Service Learning

YouthMappers, participant, USAID supported network of university-based humanitarian mapathons
November 18, 2015 - December 2019

Professional Memberships

Association of American Geographers. (1979 - Present).