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2. Contact Information

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4. My research objectives aim to fulfill information gaps in multiple disciplines of water resources management. Stemming from my background in turfgrass science and my interest in water conservation, I have installed multiple field and greenhouse studies with the objective of improving professional and consumer lawn water management. Water conservation is an ongoing and continued area of concern for Texas metropolitan centers, and residential lawns represent significant sources of summer water consumption and remain viable avenues for reducing system demand. Because of its ubiquitous use in Texas and perceived high water consumption rates, the studies exclusively examine St. Augustinegrass lawns. Specific research questions being investigated include the efficacy of simple to use historical average-based irrigation scheduling, accuracy of published crop coefficients, appropriateness of suggested critical soil moisture maximum allowed depletion levels, and the recovery rate of drought-damaged grasses. In addition to basic water conservation objectives, my research has been implemented in an urban surface runoff facility in order to investigate implications of drought-damaged turf canopies and varying soil moisture levels on total surface runoff and runoff water chemistry. The facility is instrumented with bubbler-type flow meters and automated sampling equipment. The site has been used for one growing season (2013) to estimate runoff volumes and nutrient concentrations across three irrigation regimes and three fertility levels. Funding is being sought to repeat the study for a second year. Preliminary results suggest deficit irrigation can result in marked reductions in total runoff volumes without measureable changes to turf or water quality. In summary, my research aims to elucidate irrigation management of lawns using a holistic approach considering its significant impacts on water conservation, storm water management, and urban stream water chemistry.

5. B.S. Agronomy / Horticulture, Dec 2007, Foundation Honors, Magna Cum Laude  
M.S. Agronomy, May 2010  
Ph. D. Water Management and Hydrological Sciences, May 2015 (expected)

Relevant Courses Completed & Applied towards Graduate Degrees:

Statistics and Research

STAT 651, 652 – Statistics in Research I & II  
SCSC 660 – Experimental Designs in Agriculture  
CHEM 315, 318 – Quantitative Analysis and Lab

BAEN 662 – Statistical Methods in Biological and Agricultural Engineering  
BAEN 651 – Geographic Information Systems

Environmental Sciences

SCSC 650 – Mode of Action and Environmental Fate of Herbicides  
SCSC 657 – Environmental Soil & Water Sciences  
SCSC 658 – Watershed & Water Quality Management

Hydrology and Water Resources Management

CVEN 664 – Water Resources Engineering Planning & Management  
WMHS 601 – Applications in Hydrological Sciences  
WMHS 602 – Issues in Water Resources  
GEOG 685 – Hydrology (Directed Studies)  
BAEN 672 – Small Watershed Hydrology  
SCSC 445 – Soil Physics

6.

Funds received through the TWRI Mills Scholarship will be primarily used to support my dissertation research for an additional year. The number of water samples occurring from a single storm event can be difficult to predict which often creates scenarios where project financial needs are underfunded. Major limitations of my first year's dataset are the temporal resolution of soil moisture monitoring and temporal extent of runoff water quality sampling. Having reserve dollars dedicated to lab supplies would allow for more intensive sampling of single events and extended sampling throughout the year. Remaining funds would provide financial relief for tuition. Currently, I am a full-time employee of Texas A&M AgriLife Research and pay for tuition out-of-pocket. The additional support would provide welcome aid for what is expected to be my final year of coursework.

7.

My long-term career goal is to be on faculty at an academic institution, preferably in a teaching and research position. Considering most of my experiences to date have involved applied research or direct practice managing turf and irrigation systems, an extension position may be a more natural fit initially. Through my chosen research projects and years of service as a Research Associate, I hope to position myself to be an asset for any program interested in water conservation, plant water use, and water policy. If such an academic position is not readily available, I envision myself in a role as water conservation specialist for a major water provider or governmental body. Ultimately, I hope my career contributes towards the sustainable management of water resources in conjunction with maintenance of green areas in the urban landscape.