

I have support for 1 to 2 MS or PhD Graduate Research Assistantships in Rangeland Ecology and Management or Forest Science beginning Fall 2008 in the Department of Ecosystem Science and Management, Texas A&M University to pursue research on a choice of multiple topics including:

- 1) the “Ecological Footprint of Livestock on Rangeland Productivity” as part of a USDA Forest Service funded project that will use rangeland and landscape ecology concepts and geomatic tools including remote sensing (RS) and GIS **to assess the regional and national-level impact of livestock on US Drylands**. This study will also allow the investigation of emerging issues such as regional rangeland fragmentation, the relationship between vegetation productivity (NPP and water-use efficiency), fires, and aridity, drought policy, RS-based early warning systems, and rangeland economics;
- 2) **Environmental 3-D Tomography** where the above- and below-ground biomass and structure of Dryland vegetation and soil patch dynamics are investigated using new non-invasive field technologies: LIDAR and ground penetrating radar (GPR). The interested applicant will conduct field work at a number of possible Dryland research sites including the Sevilleta LTER, Nevada Desert Research Center, La Copita, TX and Santa Rita, AZ. Experiment Stations calibrate/validate metrics derived from these technologies and develop new methodologies including software for operational use of these instruments;
- 3) Explore **the relationship of deductive and quantitatively derived ecoregions/ecological sites** to NRCS traditional range sites and MLRC ecoregions and climate change scenarios. In this study, the student will gain experience in parallel/grid computing (an Apple Workgroup Cluster) for visualization and ecological problem solving;
- 4) **Retrospective Analysis of Mozambique, Maputo Province Drylands from 1973 to 2006**. The interested scholar will use the Landsat Historical Archive and historical field data to assess the change in vegetation and soil dynamics in relation to livestock herbivory and human land management practices before and after the Civil war;
- 5) Relationship of Landsat and MODIS Vegetation and Soil Index time series to Historical Field Measurements in Drylands: **The U.S. Rangeland Enclosure Network**; and
- 6) **Spatial reconstruction of Dryland savanna productivity dynamics** where the student will investigate the relationships between tree ring parameters, eddy flux covariance derived gross and net primary productivity (GPP and NPP) and net ecosystem exchange (NEE), climate change, Shuttle Radar Topography Mission (SRTM), and the use of remote sensing-derived vegetation indices to spatially distribute ecosystem parameters.

I am seeking applicants with a strong interest in environmental monitoring and impact assessment of Drylands, including a strong interest in complexity science, landscape ecology, field work for calibration and validation of remote sensing data, and spatial modeling. Advanced undergraduates with astronomy, climatology, geology, environmental or civil engineering, environmental sciences, physical geography with remote sensing and GIS experience, or computer science degrees or qualified applicants with a MS in same including agronomy, crop science, soil science including pedology, hydrology, ecology, or related disciplines and a genuine interest in local to

global environmental monitoring and assessment. Students will receive a monthly stipend, plus health benefits, tuition, and fees. Prospective students are strongly encouraged to apply for many of the internal funding opportunities such as scholarships offered to graduate students at TAMU. Submit a letter of interest, curriculum vitae, three reference contacts, and GRE scores (if available) to: Dr. Robert A. Washington-Allen at washington-allen@tamu.edu and 2138 TAMU, Texas A&M University, College Station, TX 77843-2138, phone: 979-845-8803. A travel expenses stipend for a visit is currently available for outstanding prospective candidates. Interested and Returned Peace Corps Volunteers, minorities, women, veterans and persons with disabilities are encouraged to apply.

Kindest Regards,

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