**Texas Trends: Towards Developing an Interdisciplinary, Sustained Research Network in Land Change Science at Texas State University**

**Abstract**

Unprecedented rates of change in land use, climate, biodiversity, and human demographics demand the development of novel adaptive strategies and solutions for averting the most dangerous future scenarios. The development of mitigating strategies hinges on documenting change and using this information for analysis, forecasting, and scenario prediction. To meet this critical research need, the team proposes to initiate a multidisciplinary research network in land change science with focus on Texas. Due to its geographic, biologic, and demographic diversity, Texas is a “natural laboratory” for investigating the causes and drivers of land use and land cover change (LCLUC). The proposed work integrates two fundamental aspects LCLUC in Texas and elsewhere: the conversion of rural into urban land due to population growth and vegetation change due to climatic trends and extreme events. Specifically, the team will parameterize a spatially explicit model of urbanization (SLEUTH) with satellite image-derived land cover data to document and analyze urban development in Texas over the past 30 years, forecast future development, and examine the influence of local demographic variables on urban development. Secondly, the team will parameterize a dynamic global vegetation model for Texas to examine vegetation response to climate drivers, including the extreme drought of 2011, and consequences for ecosystem productivity and the water cycle. This interdisciplinary collaboration between four faculty members from three colleges is expected to become a springboard for an externally funded, sustained LCLUC research network at Texas State University.

**Team members:**

**Jennifer Jensen,** Assistant Professor, Department of Geography **Benjamin Schwartz,** Assistant Professor, Department of Biology **Susan Schwinning,** Associate Professor, Department of Biology

**Larry Price,** Professor & Director of Interdisciplinary Initiative for Research Design & Analysis