

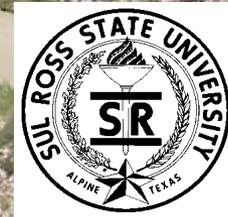


Rio Grande Basin Biophysical Assessment for Sustainable Agricultural Water Conservation

Kevin Urbanczyk

Rio Grande Research Center
Sul Ross State University

Andrew Sansom and Walter Rast, Texas State University-San Marcos
USDA CSREES National Water Conference, Reno, February 2008



Rio Grande Basin

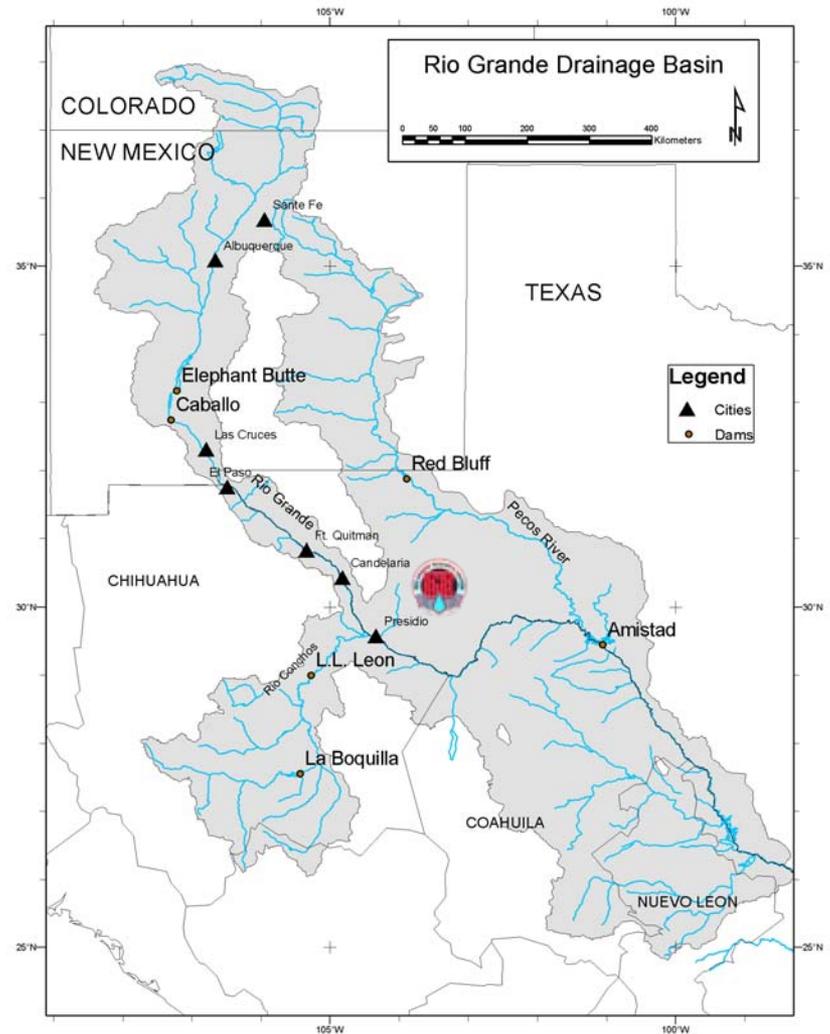
- Rio Grande
- Pecos River
- Rio Conchos

U.S. States

- Colorado
- New Mexico
- Texas

Mexican States

- Chihuahua
- Coahuila
- Nuevo Leon
- Tamaulipas



STAKEHOLDERS



Researchers
Universities

Federal Land Management Agencies

State Land Management Agencies

Ranchers

Irrigators

Private Land Managers

Local governments

Environmental groups

Non-Governmental Organizations

River-outfitters

Ecotourism





COLLABORATORS

USDA / CSREES

NRCS

Sul Ross State University

Texas State University – San Marcos

Sam Houston State University

Lamar University

Angelo State University

New Mexico State University

Rio Grande Basin Initiative, Texas A&M / NMSU

Center for Research in Water Resources, UT @ Austin

United State Geological Survey, Texas District

The Nature Conservancy

Big Bend National Park

US Fish & Wildlife Service

Local Water Districts

Trans-Pecos Water Trust

Texas Water Development Board

Texas Parks Wildlife Department

Ojinaga – Presidio Rural Task Force

Environmental Protection Agency

Department of Defense



Texas State U. San Marcos

Transboundary Diagnostic Analysis Framework

Walter Rast, Ph.D., PI

Creation of the Rio Grande Research Center

Andrew Sansom, B.S., Co-PI

Identification of Organizations and Institutions Doing Relevant Research; Rio Grande Basin Repository and Clearinghouse

Emily Armitano, M.A., M.S.

Development of a GIS Management Tool

F. Benjamin Zhan, Ph.D.

K-12 Education & Curriculum Development

Richard Boehm, Ph.D.

Geostationary Operational Environmental Satellites (GOES)

Groundwater Monitoring

Matthew Uliana, Ph.D., P.G.

Michael Jennings, P.E., P.H.

Testing Spring Discharge and Chemistry in the Trans Pecos Region

Glenn Longley, Ph.D., Craig Watts, David Flores

Amistad Reservoir Water Quality Investigations

Alan Groeger

Ecological Characterization of Rio Grande Fish Assemblages

Timothy H. Bonner

★ Sam Houston State University, Huntsville

Assessment of Effects of Vegetation Disturbance Associated with Urbanization

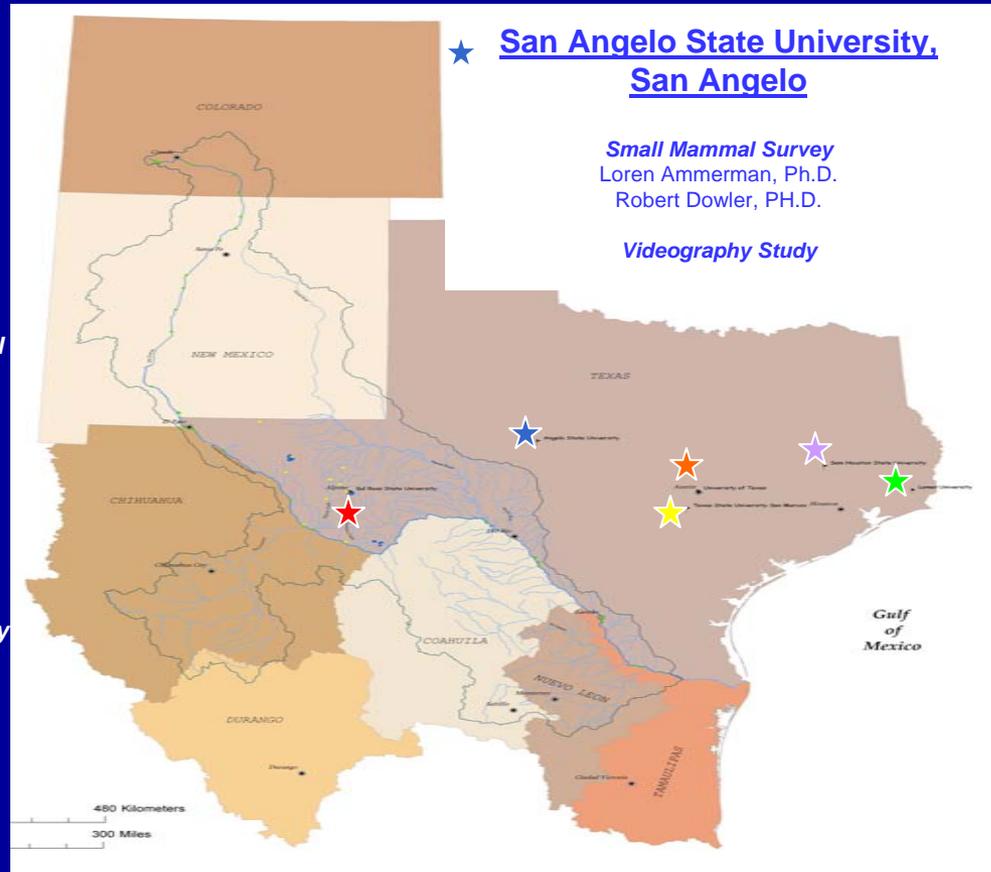
Justin K. Williams, Ph.D.

Mark Leipnik, Ph.D.

Barry Williams, Ph.D.

W.P. Spencer

CURRENT RESEARCH



★ San Angelo State University, San Angelo

Small Mammal Survey

Loren Ammerman, Ph.D.

Robert Dowler, Ph.D.

Videography Study

★ Sul Ross State University, Alpine

Groundwater and Aquifer Characterization

Kevin Urbanczyk Ph.D., Primary Investigator

Surface Water Pathogens in the Rio Grande Basin

Keith Sternes, Ph.D.,

Biological Resources in Terlingua Creek

Bonnie J. Warnock, Ph.D.



University of Texas at Austin

Modeling the Forgotten Reach

Daene McKinney, Ph.D.

★ Lamar University, Beaumont

Surface Water Quality Simulations

Two- and Three-Dimensional Water Quality Model of International Lake Amistad

Xing Fang, Ph.D., P.E.

Mien Jao, Ph.D.

Assessment of the Impact of Airborne Pollutants on the Rio Grande Basin Watershed

Thomas Ho, Ph.D.

Jerry Lin, Ph.D.

Hsing-wei Chu, Ph.D.

Characterization of Water Pollution and Evaluation of Treatment Technologies

Thomas Ho, Ph.D.

Jerry Lin, Ph.D.

Hsing-wei Chu, Ph.D.

Rafael Tadmor, Ph.D.

Photochemical Treatment of Contaminated Water in the Rio Grande Region

Daniel H. Chen, Ph.D.

Bing Wang, Ph.D.

Rafael Tadmor, Ph.D.

Xuejun Ye

Kuyen Li

Agricultural Water Optimized Use

Recycle and Reuse Through Mobile Advanced Wastewater

Treatment Technology

David L. Cocke, Ph.D.

Helen Lou, Ph.D.

Kuyen Li

The Rio Grande / Rio Conchos Watershed is
a bi-national, incredibly complex socio-
political heterogeneous culture

Is consensus possible?

How do we prioritize resource allocation?





RIO GRANDE RESEARCH CENTER

Located on SRSU campus in Alpine, Texas, near the center of the Rio Grande Basin



The mission of the Rio Grande Research Center is to improve our understanding of the water resources in the Rio Grande Basin and to provide approaches for their sustainable use





Rio Grande Research Center

- ✓ Facilitate Stakeholder Collaboration
- ✓ Coordinate Outreach & Education
- ✓ Monitor SAWC Grant Budget
- ✓ SAWC Annual Accomplishment Reports
- ✓ GOES Equipment Maintenance
- ✓ Identify project appropriate funding streams
- ✓ Data Clearinghouse: www.rivers.txstate.edu/rg/
- ✓ GIS Resources: Data for research and decision making
- ✓ K-12 Education Outreach: Tex Prep, Teacher Training
- ✓ Assist researchers and land managers in connecting stakeholder identified needs with funding that results in 'real time' solutions

COLLABORATION GOALS

2008: US Rio Grande Basin – outreach to *all* land management agencies, government entities, stakeholders, and researchers in Rio Grande & Pecos River Watersheds

2009: Mexico Rio Conchos Basin – outreach to land management agencies, government entities, stakeholders, and researchers in Rio Conchos Watershed

TRANSBOUNDARY DIAGNOSTIC ANALYSIS

Walter Rast, Texas State University-San Marcos

The TDA is a decision matrix for bi-national stakeholder coordination at all levels

Objectives of TDA:

- **Define and assess the present environmental status of the Rio Grande/Rio Bravo drainage basin and its existing and emerging environmental problems, their root causes, trends and impacts**
- **Formulate proposed elements for a Rio Grande/Rio Bravo drainage basin Action Plan for the environmentally-sound, integrated development and sustainable use of the Rio Grande/Rio Bravo and its resources throughout its drainage basin**

Outcomes:

- **Development of a cooperative Management Action Plan for the sustainable management of critical water resources**
- **Bi-national collaboration of resource allocation**



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and staff:
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Sam Houston
State Texas State
University-San
Marcos
The Texas State
University System
USDA/CSREES**

**Our
Collaborators:
University of
Texas, Austin
New Mexico
State University
Rio Grande
Basin Initiative
Texas A&M
Big Bend
National Park**

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2006-38899-03586**