

**South Llano River Project  
Action Plan  
December 2008**

## **Background**

The spring-fed flows of the South Llano River are a valuable resource to Central Texas, providing recreational opportunities, habitat for unique plant and animal communities, and water supplies to local and downstream communities. Yet their future may be uncertain without additional efforts to protect and preserve them. For this reason, Environmental Defense Fund initiated the South Llano River Project in early 2008 to begin discussions with local and regional stakeholders on the interest and feasibility of establishing a locally based watershed management alliance dedicated to ensuring the long-term protection of the South Llano River and its associated spring-flows.

To facilitate this important effort and to provide a starting point for discussions, Environmental Defense Fund prepared *Land of the Living Waters: A Characterization of the South Llano River, its Springs, and its Watershed*. This report characterized the resource, examined the framework in which management decisions are made, and offered recommendations to deal with identified potential issues.

On November 15th, Environmental Defense Fund, with the local support of the Kimble County Groundwater Conservation District, Western Edwards Plateau Texas Master Naturalist, Texas Wildlife Association and Texas AgriLife Extension Service, hosted a stakeholder workshop at the Texas Tech–Llano River Field Station in Junction. The main goal of the workshop was to discuss issues identified in the *Land of the Living Waters* report and to seek input from local stakeholders regarding issues they identified as potentially detrimental to the long-term sustainability of the river and associated spring-flows. Because attendees of the workshop came from communities across the region, many of the issues raised pertained not only to the South Llano River but also the entire Llano River and the San Saba River as well.

The issues of concern identified in the *Land of the Living Waters* report, those raised by stakeholders at the November workshop (Attachment 1), as well as issues raised with project personnel by stakeholders following the workshop, were used to organize the development of this Action Plan. The Plan is meant to serve *only* as a guide for Llano River stakeholders; the stakeholder group itself should determine any future course of action undertaken by the group, or specific tasks to be completed.

## Action Plan

The Action Plan is basically an organized 'to-do' list of suggested tasks to address all of the issues of concern raised by Llano River stakeholders or by the *Land of the Living Waters* report. This list, found in Attachment 2: South Llano River Suggested Tasks, is organized by three principal categories: Community Involvement, Land Management Issues, and Water Management Issues. The tasks listed in Attachment 2 are organized by sub-heading and assigned a timeframe. This timeframe is subjectively ranked by the relative ease in which the task might be implemented. As with the tasks, these timeframes are to serve only as a starting point for discussion and should be finalized by the stakeholder group.

It should be noted that some of the concerns raised by participants at the workshop are not easily addressed with recommended tasks; these concerns are identified in Attachment 2 as "Uncertain". While these concerns are valid, the existing legal framework within Texas may limit the opportunity to address certain issues related to property rights or water rights. Although attendees at the workshop expressed interest in preparing legislative issue papers as part of the educational outreach efforts, the general feeling of the group was that it did not wish to specifically address legislative issues.

### *Community Involvement*

The large turnout at the November workshop (76 persons) indicates that there is a strong opportunity for forming a regional stakeholder group that provides a Cohesive Voice for the protection of the Llano River. At the workshop, plans were made for interested persons to meet in January to further discuss the formation of such a group. The actual development of the organizational and institutional structure of such a group is beyond the scope of this plan and should come from within the group. However, during the November 15<sup>th</sup> Workshop, several existing watershed organizations were discussed that could provide examples for potential organizational structure. These organizations are listed on Attachment 3: Watershed Organizations.

It will be important to expand membership and develop funding through ongoing Outreach and Education. Several suggestions for outreach and education were provided at the workshop; these efforts are listed here or under other subheadings. One of the potential outreach efforts includes the development of an e-mail list serve by Environmental Defense Fund to keep stakeholders informed of the activities of the South Llano River Project and to create a forum for discussions on topics of mutual interest. Potential educational efforts include the development of several policy papers and informational brochures highlighting the importance of the Llano River to Central Texas.

### *Land Management Issues*

Identified Land Management Issues fall within three categories: Riparian Habitat, Fragmentation, and Land Stewardship. Each of these categories offers a variety of outreach and education opportunities to promote community involvement. The protection and enhancement of riparian habitat, for example, could involve the development of a riparian education program and community-wide tree planting efforts. Each of the three categories also provides a focus for research efforts that could aid future resource decisions in the Llano River. Working to promote these research efforts could enhance relationships between the regional stakeholder group and resource agencies and research groups.

### *Water Management Issues*

Springflow and Streamflow, Groundwater Availability and Water Exports, Water Quality, and Tributaries and Small Creeks are the four core topic areas identified within the principle category Water Management Issues. As with the suggested tasks under Land Management Issues, the proposed tasks provide numerous educational and community involvement opportunities as well as the opportunity to develop relationships with resource agencies and research groups.

### **Conclusion**

The strong attendance at the November 15<sup>th</sup> Workshop, of both local residents and agency personnel alike, shows how important and pressing the protection of the South Llano River and its associated springs is to the local community and everyone involved. Environmental Defense Fund's South Llano River Project has provided an opportunity to initiate local and regional efforts that help protect and preserve this resource.

It is the intent of Environmental Defense Fund to continue to foster the initial development of a stakeholder group by providing guidance on natural resource management issues and assisting with the development of outreach and educational materials as is feasible. But the creation of a *self-sustaining* Llano River stakeholder group is *key* to the development of a process for addressing potential issues related to the river. The Action Plan presented here is meant to serve as a guide for this process.

**Attachment 1**  
**South Llano River Workshop Participant Issues and Suggestions**

***COMMUNITY INVOLVEMENT***

**Development of Cohesive Voice**

- Lack of Equal Representation in Austin

**Outreach and Education**

- Public Education-School level up to legislature
- Education on Brush Control
- Water Conservation (rural and urban)
- Encourage Rainwater Capture via Land Stewardship
- Education of Existing and New Land Owners
- Education of Public, including Out-of-Towners
- Water Quality and Litter Addressed Through Education
- Unequal Landowner Benefits: Upstream Takes Care of Habitat but Downstream User Benefits
- Encourage Green Building and Rainwater Catchment
- Education Through Environmental Recreation: Make it a Learning Experience
- Outfitters can Educate and Help with Education Re: Trash Control
- Educate Young People: Like Tech Outdoor School
- Educate City Kids and their Moms and Dads
- One Pager on How These Rivers Contribute to Downstream Interests to Distribute to People who Visit the Area
- Blog about Cleaning up after Yourself

***LAND MANAGEMENT ISSUES***

**Riparian Habitat**

- Restoration of Riparian Areas
- Control Invasive Species
- Protection of Riparian Areas
- Bank Erosion Problems Experienced by Landowners along River

**Fragmentation**

- Land Fragmentation leads to increase in wells and pumping
- Developers Blocking Flows
- Regulation of Well Drilling and Septic Tank Placement in Floodplain
- Education of Existing and New Land Owners

## Land Stewardship

- Rangeland Water Enhancement (brush management)
- Need for Financial Incentives for Stewardship
- Need Financial Incentives for Maintenance of Cleared Land
- Control Invasive Species
- Selling of Land in Small Plots
- Permanence of Wildlife Management Exemptions
- Control Native and Non-Native Invasive Plant Species
- Improve Land Stewardship
- Education on Brush Control
- No Water Right to Utilize Water Saved Through Stewardship
- Incentive: Pay Land Owner a Set Rate per Acre per Year to Keep Brush Off of Land
- Wildlife Diversity: Maintenance and Enhancement-Including Aquatic
- Land Stewardship Demonstration Facility at Texas Tech Junction
- Taxes and Control of Private Property by the State: Appraisal of Land at Highest and Best Use, which Generally Results in Land Being Taxed for Sales, which is Not Necessarily the Best Use
- Establish Juniper Control Priority Areas

## *WATER MANAGEMENT ISSUES*

### Springflow and Streamflow

- Disconnect between Surface Water and Groundwater Management
- Potential Corps of Engineer Dams on Llano River
- Protection of Surface Water
- Improve Flow
- More Study on the Groundwater Dynamics of System: Groundwater flow versus Recharge

### Groundwater Availability and Water Exports

- Legislation related to Transfers of Groundwater Out of District (36.122) and Permitting Based on Managed Available Groundwater (36.1132)
- Vanity Ponds
- Water Sales by LCRA
- Increase in Number of Wells for Small Plots
- Can other Organizations (Tech/LCRA) Develop Computer Models to Determine Groundwater Availability
- Establish Priority Groundwater Management Area for Recharge Areas

### Water Quality

- Pollution of the aquifer

- Protection of Surface Water
- Litter
- Toxic Chemicals
- Water Quality and Litter Addressed Through Education
- Improve Water Quality
- Local (Small) Agency to Monitor and Collect Data
- Outfitters can Educate and Help with Education Re: Trash Control
- Control or Minimize Recreational Impacts from Trash, Trespass, and Vandalism
- Wildlife Diversity: Maintenance and Enhancement-Including Aquatic
- Continue to Gather Water Quality Data
- Blog about Cleaning up after Yourself
- Reduction of Runoff from Pavement

### **Tributaries and Small Creeks**

- Maintaining Instream Flows on “Marginal” Streams (like James River)
- Impoundments and Vanity Ponds
- Potential Corps of Engineer Dams on James River
- Developers Blocking Flows
- Dams on Small Creeks (non-navigable)
- Increase Use of Small Streams from Selling of Small Plots
- Improve Flow in the James River
- Brush Management and Control of Invasives to Maintain Flows in Tributaries and Small Creeks

## Attachment 2 South Llano River Tasks

This is a detailed list of suggested tasks for addressing the various identified issues of concern for the South Llano River, its associated springs, and the surrounding region. Each of the tasks below is assigned a timeframe. The timeframe is completely subjective and is based on the relative ease in which the task might be implemented. As with the tasks, these timeframes are to serve only as a starting point for discussion.

### *COMMUNITY INVOLVEMENT*

#### **Development of Cohesive Voice**

##### **Short-Range Tasks**

- Form a Regional Stakeholder Group to Provide Protection to Llano River
- Develop Organizational and Institutional Structure of Group
- Identify and Prioritize Tasks of Group

##### **Mid-Range Tasks**

- Identify and Seek Sources of Funding
- Continue Outreach Efforts to Expand Membership

#### **Outreach and Education**

##### **Short-Range Tasks**

- Provide Information to Local Media re Group Efforts
- Develop One-page Visitor Information Sheet re Importance of Llano River
- Initiate Efforts to Control and Monitor Recreational Impacts
- Develop Webpage and e-mail List Serve

##### **Mid-Range Tasks**

- Promote and Encourage Development of Educational Programs for All Ages
- Promote and Encourage Development of Educational Programs via Recreational Activities
- Enhance and Promote Programs like Tech Outdoor Program
- Encourage Water Conservation-both Urban and Rural
- Encourage Green-building and Rainwater Harvesting

## *LAND MANAGEMENT ISSUES*

### Riparian Habitat

#### Short-Range Tasks

- Develop Riparian Education Program

#### Mid-Range Tasks

- Explore and Initiate Ways to Protect and Restore Riparian Habitat
- Explore and Initiate Ways to Control Bank Erosion along Rivers
- Explore and Initiate Ways to Control Invasive Species in Riparian Areas
- Initiate Pecan Tree Planting Efforts in Riparian Areas
- Develop Wildlife Management Plans to Curtail Wildlife Overgrazing

#### Long-Range Tasks

- Research Impacts of Small Dams to Riparian Areas

### Fragmentation

#### Short-Range Tasks

- Education of Existing and New Landowners to Minimize Fragmentation Impacts

#### Mid-Range Tasks

- Develop Brochure re Impact and Legality of Surface Water Diversions

#### Long-Range Tasks

- Conduct Detailed Analysis of Impacts of Fragmentation:
  - a. Small Land Tracts on River Flows
  - b. Increase in Impervious Cover and Loss of Recharge
  - c. Increase in Exempt Wells

### Land Stewardship

#### Short-Range Tasks

- Continue Education re Importance of Land Stewardship
- Education of Public re Unequal Landowner Benefits (Upstream v Downstream)

#### Mid-Range Tasks

- Determine Juniper Control Priority Areas
- Explore Additional Means for Funding & Coordinating Land Stewardship
- Begin Developing Land Stewardship Demonstration Facility @ Tech Center
- Promote Importance of Wildlife Management Exemptions
- Develop "Issue Paper" re Land Appraisals that Encourage Sales rather than Use



- Encourage & Enhance Education re Wildlife Habitat Diversity & Preservation
- Encourage & Enhance Education re Control of Terrestrial & Aquatic Invasive Species

#### Long-Range Tasks

- Further Research Quantifying Flows following Brush Removal in Large Catchments
- Develop Incentives to Pay Landowners Set Rate/Acre/Yr to Keep Brush off Land
- Further Brush Management Efforts to Enhance Flows in Small Catchments
- Further Research Quantifying Impacts of other Native & Non-Natives on Water Supply

#### Uncertain Tasks

- Develop Mechanism to Use Water Saved via Land Stewardship (Water Right?)
- Unequal Representation of Rural Communities in Austin

### *WATER MANAGEMENT ISSUES*

#### Springflow and Streamflow

##### Short-Range Tasks

- Education re Importance of Springflows to Downstream Supply
- Attend Groundwater District and Groundwater Management Area Meetings
- Attend Regional Water Planning Group Meetings

##### Mid-Range Tasks

- Assess Recharge/Discharge Variability due to Changes in Precipitation using Groundwater Modeling

##### Long-Range Tasks

- Further Research into Volume of Water Recharging the Aquifer Annually
- Identification of Recharge Areas and Key Recharge Features
- Further Quantify Volume, Location, and Timing of Water discharging from Aquifer to River
- Evaluate Potential Donation of Water Rights to Water Trusts

##### Uncertain Tasks

- Uncertainty Regarding Regulation of Springsflows (is it Surface Water or Groundwater?)

## Groundwater Availability and Water Exports

### Short-Range Tasks

- Provide Education and Stakeholder Support of Groundwater Conservation Districts (GCD) in Adoption of Pumping Restrictions Protective of Springflows
- Provide Education and Stakeholder Involvement in Groundwater Management Area Process to Preserve Aquifer Outflows to South Llano River
- Provide Continued Support of GCDs for Efforts to Protect Groundwater Resources
- Develop Legislative “Issue Papers” on Potential Impacts to South Llano from Groundwater Pumping and Groundwater Exports
- Develop Legislative “Issue Paper” re Disconnect Between Surface and Groundwater Law and Potential Local Impacts
- Attend Groundwater District and Groundwater Management Area Meetings
- Attend Regional Water Planning Group Meetings

### Mid-Range Tasks

- Monitor Potential Water Sales by LCRA above Highland Lakes

### Long-Range Tasks

- Evaluate the Potential Availability or Development of other Groundwater Models to Determine Groundwater Availability

## Water Quality

### Short-Range Tasks

- Provide Continued Support to GCDs for their Efforts to Protect GW Quality
- Provide Continued Support & Enhancement of Water Quality Monitoring Efforts for Surface and Groundwater
- Initiate Litter Control Efforts Through Education of Recreational Users via Outfitters and Lodging Providers
- Enhance Educational Efforts Related to Riparian Health and Water Quality

### Mid-Range Tasks

- Encourage Development and Use of Household Hazardous Waste Collection Efforts
- Identify Potential for Local Agency to Monitor and Collect Water Quality Data
- Provide Education re Importance of Locating Wells and Septic Systems Outside of the Floodplain

### Long-Range Tasks

- Discuss Potential Development of a Watershed Protection Plan
- Establish Ecological Data Inventory to Identify Sensitive Aquatic Habitat

### Tributaries and Small Creeks

#### Short-Range Tasks

- Enhance Educational Efforts Related to “Vanity Ponds” and Evaporation

#### Mid-Range Tasks

- Determine Which Creeks are Considered Navigable according to General Land Office

#### Long-Range Tasks

- Research Impacts of Small Dams on Small Creeks

#### Uncertain Tasks

- Maintaining Instream Flows on Marginal Streams

### Attachment 3 Watershed Organizations

There are several hundred organizations throughout the country working to protect, restore, and enhance a particular watershed or watersheds. Almost all of these groups are based on partnerships between local citizenry, local and state agencies, and other non-profit groups. Below is a sampling of these organizations.

#### *River Network*

<http://www.rivernetwork.org/>

The River Network serves as clearinghouse for many watershed organizations throughout the US and Canada. They provide information, training, and consultation to their member groups. Their publication, *How to Save A River: A Handbook for Citizen Action*, provides useful information on the formation and operation of grassroots watershed organizations.

#### *Cimarron Watershed Alliance*

<http://www.cimarronwatershed.org/>

Based in Cimarron, New Mexico, the Alliance consists of a wide range of stakeholders working collaboratively to maintain a healthy watershed. Their Board of Directors and Technical Advisory Panel are made up of local landowners, public officials, state and federal agency employees, and other civic and non-profit organizations.

#### *Cypress Creek Project*

<http://www.cypresscreekproject.org/>

This 3-year grant-funded study is coordinated through the River Systems Institute at Texas State University. Cypress Creek, located in Wimberley, is undergoing rapid change due to development in the watershed. The Project, in co-ordination with a variety of local and regional organizations, eventually seeks to develop a watershed protection plan based on stakeholder input, science, and decision-making tools.

#### *Medina River Protection Fund*

<http://www.medinariver.net/>

This endowment fund, raised in partnership with the Bandera Community Foundation, provides on-going support for the annual cleanup of the Medina River.

#### *Llano River Association*

<http://llanoriverassociation.org/>

The Llano River Association is in the process of forming an organization to foster communication between riparian landowners, and county and state agencies. The association also seeks to develop a water quality monitoring process and organize an annual river cleanup.

*Bandera Canyonlands Alliance*

<http://www.banderacanyonlandsalliance.org/>

The Alliance is a group of local landowners working together to benefit the land, water, native plants and animals, and rural way of life in western Bandera and eastern Real Counties. As part of their effort, the group seeks to promote land stewardship education and promote best management practices for Ashe Juniper.

*Trans Pecos Water Trust*

<http://www.transpecoswatertrust.com/>

The Trans Pecos Water Trust works to secure and protect instream flows of the Rio Grande and its tributaries in west Texas. With guiding principles that respect private property rights and recognize the value of landowner stewardship, the Trust also assists landowners with spring protection and the rehabilitation of riparian areas and neighboring grasslands.