

A photograph of a river scene. The water is calm and reflects the surrounding environment. On the right bank, there are tall, green reeds growing out of the water. In the background, more reeds and some low hills or trees are visible through a layer of fog or mist.

# Discovering the Colorado

A VISION FOR THE AUSTIN-BASTROP RIVER CORRIDOR

# Austin-Bastrop River Corridor Partnership Participants

**S**ince 2003, individuals from the following entities have participated in the Austin Bastrop River Corridor Partnership in one or more ways: by attending monthly meetings, serving on a committee, or by sponsoring, planning, presenting, or attending one of the community workshops. No entity on this list has been asked to officially endorse the findings or recommendations in this document.

*Governmental* • Bastrop Parks Board • Bastrop County Health & Sanitation Dept. • Bastrop Economic Development Corporation • Capital Area Council of Governments • Capital Area Metropolitan Planning Organization • City of Austin Parks and Recreation Department • City of Austin Planning and Zoning • City of Austin Watershed Protection and Development Review Department • City of Austin Water Utility • City of Bastrop • City of Webberville • Lower Colorado River Authority • National Park Service • Texas Commission on Environmental Quality • Texas Parks and Wildlife • Travis County Transportation and Natural Resources • U.S. Army Corps of Engineers

*Non-profit* • American Youth Works • Aqua Water Supply Corporation • Austin Contractors and Engineers Association • Austin Paddling Club • Austin Youth River Watch • Bastrop County Audubon Society • Bastrop Chamber of Commerce • Bastrop County Environmental Network • Capital Area Master Naturalists • Chataqua Foundation's Texas River School • Central Texas Sustainability Indicators Project • Colorado River Foundation • Colorado River Watch Network • Envision Central Texas • Greater Austin Chamber of Commerce • Groups United Against Rural Destruction • Horned Lizard Conservation Society • Hornsby Bend Bird Observatory • Nature Conservancy of Texas • Pines and Prairies Land Trust • People Organized in Defense of the Earth and Her Resources • Riverwatch • Sierra Club, Lone Star Chapter • Society for Ecological Restoration • Texas Aggregate and Concrete Association • Texas Land Trust Council • Texas Riparian Association • Treefolks • Trust for Public Land • University of Texas Community & Regional Planning Program • University of Texas Department of Geography & the Environment

*Business* • Bar W Ranch • Cook's Canoes • Co' Design • Dwyer Realty • Edaw, Inc. • Environmental Stewardship • Environmental Survey Consulting • Harris Baker Homes — Austin's Colony • Hyatt Regency Resort • Jimmie Ann Vaughan Real Estate • J-V Dirt & Loam, Environmental Services • Land Design Studio • Larson, Burns & Smith • Longaro & Clarke, Inc • Loomis Austin, Inc • LopezGarcia Group • Raba-Kistner Consultants • Rios Verdes News • Rising Phoenix Adventures • Tarcoola Ranch • TGB Partners • The Rivers Studio • Transit Mixed Concrete • TXI, Inc. • Woodbine Development Corporation

*Other* • Churches • Landowners • Local Schools • Neighborhood Associations • Private Citizens

# Discovering the Colorado: A Vision for the Austin-Bastrop River Corridor

This “Vision Plan” represents a desired future for the Austin-Bastrop river corridor. The Austin-Bastrop River Corridor Partnership offers its vision of a healthy riparian ecosystem along the Colorado River, complete with sustainable development. In the pages that follow, the reader will find information useful for the realization of *our mission*:

To support sustainable development & a healthy riparian ecosystem along the Austin to Bastrop River Corridor.

The reader is invited to use the information provided to support sustainable development and river corridor protection in his/her community. The information provided in this document is not intended as a replacement for the policies and practices of local jurisdictions, but rather offers opportunities for inter-jurisdictional cooperation and collaboration.

# An Invitation To The Reader

December 2006

Dear Friend:

Since 2003, neighbors along the Colorado River have gathered together as stakeholders to have a conversation about the future of the Colorado River corridor. We formed the Austin-Bastrop River Corridor Partnership and together have articulated a vision of the river corridor in which people of all ages and interests recognize and appreciate the river for its clean and flowing water, recreational opportunities, scenic beauty, economic resources, and sustainable land development.

Within the following pages you will find recommendations for collaboration in the areas of recreation, water resources, cultural resources, land use, sand and gravel mining, and education. This "Vision Plan" is intended to provide a framework for city and regional policy, riparian protection and restoration efforts, public recreational infrastructure investment, educational programs, future development proposals, and an overall tool for the community to promote a sustainable river corridor.

Implementation of the plan will require support and cooperation among landowners, businesses, and governmental bodies, and the community's commitment to its fulfillment. This plan is the first step toward orchestrating agency and community actions and finding funding to make this vision a reality. It is incumbent upon us all to take action to protect and enhance those aspects of the river we value most. We invite you to contribute your thoughts and resources to this partnership effort.

Enthusiastically,

Vision Plan Committee • *The Austin-Bastrop River Corridor Partnership*

Kevin Anderson *Austin Water Utility* • Marta de la Garza Newkirk *National Park Service* • Clark Hancock  
*Austin Parks and Recreation* • Kathleen Ligon *Lower Colorado River Authority* • Kathryn Nichols *National Park Service* • Geoff Saunders *Lower Colorado River Authority* • Wendy Scaperotta *Travis County* • Molly Scarbrough  
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# Project Background

In 2003 a group of concerned individuals began a process that would eventually lead to the "vision plan" laid out in this document. That planning process grew to include a diversity of individuals, agencies, businesses, and organizations, all united around a common vision for the Austin Bastrop River Corridor. This Corridor is the 60-mile stretch of the Colorado River between Austin and Bastrop. It begins as the river is set free from the Highland Dam system at the foot of Longhorn Dam, which forms Austin's Town Lake. Downstream from Longhorn Dam we find a free-flowing river meandering southeastwardly across the bottomland toward Bastrop, and continuing all the way to the Gulf Coast. In Bastrop the Corridor ends with the sandstone bluffs which tower over the river just downstream from Tahitian Village. (See Corridor Study Area map on p.5 for more details.)

This stretch of the Colorado River has played an important role throughout the history of Central Texas – from prehistoric plant and animal life through Native American tribal cultures and Anglo

settlements, to the modern day urban lifestyle of the greater Austin/Bastrop metropolitan region. Studies suggest that the pattern of unprecedented growth of the region over the past ten years will continue, and likely accelerate for the next twenty years and into the foreseeable future. Highway construction, sand and gravel mining, and large development projects already planned for the area will dramatically change the landscape of this river corridor. What was once a vast bottomland forest – a great thicket of green or the "monte grande" described by early Spanish explorers – is now a thin collection of remnant forests along the riverbanks. Pastures, pecan orchards, housing developments, or gravel pits claim the majority of the bottomland.

For these reasons and more it is a critical time to recognize the value of the Colorado River and work cooperatively to protect and enhance those aspects we most value. By working together to articulate a vision for the river corridor from Austin to Bastrop, project supporters hope to promote development that is sensitive to the importance of the river, conservation of the delicate natural resources, river-based recreational opportunities, river interpretive and education programs for all ages and interests, and a necklace of protected natural areas that can comfortably support all of the above uses.

## MILESTONES

### February 2003

First meeting of group that will become the ABRCP. Monthly meetings begin at CER at Hornsby Bend.

### June 2003

1st ABRCP River Trip.  
22 participants paddle  
eight miles from US 183  
to Hornsby Bend.

### September 2003

City of Austin PARD purchases 321-acre  
Morrison Ranch; Park lies along Colorado  
River at mouth of Walnut Creek

### October 2003

The NPS Rivers, Trails, and  
Conservation Assistance Program  
begins working with the ABRCP

### November 2003

Society for Ecological Restoration  
International conference hosts riparian  
restoration design workshop studying  
the Colorado River.

The current conditions in the Corridor could benefit from timely, community-supported actions to promote sustainable land uses, economic development, recreational use, and riparian conservation and restoration. This is the setting that persuaded and propelled the members of the Austin-Bastrop River Corridor Partnership to undertake this vision plan for a future that protects and enhances the values of the Colorado.

#### ● May 2004

1st ABRCP Public Workshop held to identify issues and concerns for the river corridor. 64 people attend.

#### ● June 2004

2nd ABRCP River Trip. 12 people paddle twelve miles from FM 973 to Little Webberville Park.

#### Another Colorado by Jimmie Dale Gilmore

**There is another Colorado  
Wise men have told me, wise women too  
That I may find my sweet El Dorado  
Down by the banks of one sweet Colorado**

Jimmie Dale Gilmore tells a revealing story behind his song "Another Colorado." Although he had come to Austin many times, he had always thought that Austin just had lakes and no river. One evening he was walking along Town Lake with his future wife, and the wise woman informed him that he was walking along the Colorado River. Jimmie wondered how Austin's river could connect to the Grand Canyon, but she pointed out that this was "another Colorado" – the Texas Colorado River.



# The Planning Process

The individuals that formed the Austin-Bastrop River Corridor Partnership created a process that would involve community stakeholders in a conversation about the future of this river corridor. The following section shows the steps that were used to build support, knowledge, and awareness of the river and its resources and promote strategies to protect the values of the river as the region experiences unprecedented growth.

## Step 1: Form a partnership

The Austin-Bastrop River Corridor Partnership began in February 2003 with a few individuals

concerned with riparian habitat restoration and land use along the Colorado, southeast of downtown Austin. The group quickly grew as word spread among folks with an interest in protecting and improving a unique natural, recreational, and economic resource for the Austin-Bastrop area. Soon, meetings were held at least monthly and members began to discuss options for an organizational structure. Participants represented government agencies, private organizations, and individuals. Because the members wished to keep everyone involved in any plans for the river, the group chose not to form a non-profit organization, since agency staff would then be unable to continue. Instead,

participants emphasize that this Partnership is an open conversation welcoming many points of view on the future of the river corridor and welcoming everyone interested in participating.

A full list of all those who have participated in the Partnership during its three years of existence is provided on the inside front cover of this Vision Plan.

## Step 2: Develop Mission and Goals

After interested parties had been meeting for part of a year, the partners spent several meetings discussing and adopting a Mission Statement and developing goals. Even though the group chose not to incorporate as a non-profit organization, everyone realized the importance of defining the group's purpose for convening and identifying what it wished to accomplish. The mission and goals were developed in a facilitated consensus-based process at open meetings. Results were distributed to a broad email group for review and feedback and adopted at a subsequent meeting.



Paddle trips raise awareness of the river.

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### November 2004

2nd ABRCP Public Workshop, held to develop a vision for the corridor and actions to achieve the vision. 72 people attend.

## Austin-Bastrop River Corridor Partnership MISSION STATEMENT

To support sustainable development and a healthy riparian ecosystem along the Austin to Bastrop River Corridor.

## Austin-Bastrop River Corridor Partnership GOALS

Public Awareness: To raise community awareness about issues affecting the future of the river corridor over the next twenty years of rapid development.

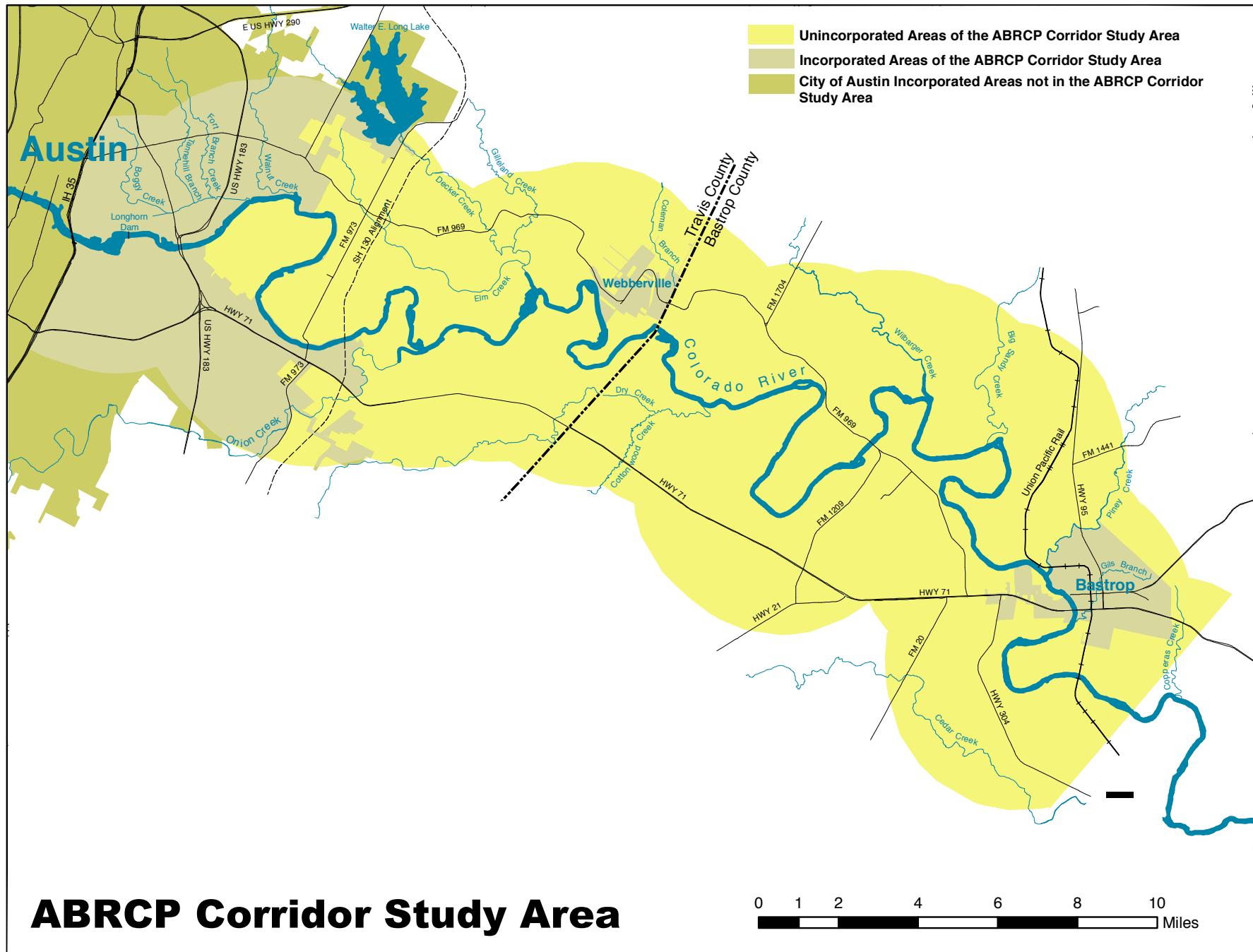
Sustainability: To promote economic and recreational use of the river corridor that supports long-term ecological health and social equity.

Riparian Management: To promote actions that conserve and maintain a healthy riparian system along the Austin-Bastrop Colorado River Corridor.

### ● December 2004

Pines and Prairies Land Trust acquires the 60-acre Colorado River Refuge in Bastrop with 1/2 mile river frontage.





## Step 3: Raise awareness of the river and the partnership

The Partnership's public awareness goal manifests in numerous activities. The monthly meetings are held on the fourth Wednesday of every month, and are structured around presentations about the river corridor, river-related issues, and updates on projects that the Partnership is supporting. The Partners organize several day-trips on the river each year for Partnership participants and, in April 2005, the group hosted federal, state and local elected and appointed officials and key staff for a picnic lunch and raft trip on the river.

The Partnership's Outreach Committee developed extensive mailing lists of stakeholders to invite to two public workshops. A special effort focused on inviting riverside landowners and organizations with business and economic interests along the river. Monthly meeting announcements are broadcast to listserves. Through monthly meetings, public workshops, and river paddling trips, participation in the Partnership has steadily increased, reflecting a shared concern with the future of the river corridor.

## Step 4: Research corridor resources and conditions

This corridor on the Colorado is steeped in settlement history as early Texans gravitated to the river for its environmental qualities. The Partnership formed two committees to begin inventorying the resources and conditions along this stretch. The Mapping Committee, with GIS (geographical information system) assistance from the Lower Colorado River Authority, prepared maps to present data that were already known. The maps were shown at three workshops, the two Partnership-sponsored ones and the design workshop at the Society for Ecological Restoration Conference. Workshop participants were asked to mark significant resources on the maps and fill out inventory forms about them.

The Research Committee was comprised of partners who volunteered to document reported historical features and events. In October 2005, the Partnership started biodiversity monitoring on the river corridor in association with the Texas Memorial Museum. The results of the various research efforts have informed the descriptions of the resources in this document.

## Step 5: Identify priority issues & concerns of the community

The Austin-Bastrop River Corridor Partnership sponsored two community workshops in an effort to gather stakeholders together for a conversation about the future of this river corridor. The first workshop, May 2004, focused on collecting issues and concerns. Issues were defined as threats and challenges that currently or will likely face the river corridor in the near future. In six small break-out groups, facilitators led participants in a brainstorming and prioritizing process to determine the most important issues. After the workshop, a Partnership committee synthesized the input from all the groups, resulting in six top issues for further work in the next workshop.

## Step 6: Seek community-based visions and recommended actions

The Partnership sponsored a follow-up workshop in November 2004 to gather community input to shape the future of the river corridor. The format involved six break-out groups based on the six issues gleaned from the first workshop. After selecting the break-out group of their choice, participants and facilitators created a vision statement for the topic. They then brainstormed and prioritized a set of actions to implement each vision. A Partnership subcommittee prepared the workshop results in a consistent format for this document.

## Step 7: Distribute “Discovering the Colorado” plan and promote its recommendations

Since the Austin-Bastrop River Corridor Partnership is not a non-profit but rather a collaborative effort of numerous partners, the role of the Partnership is primarily one of promotion. The recommendations in this document, generated by diverse stakeholders, represent a strong case for actions that support a healthy and sustainable river corridor. To promote the river as an important resource and to promote the recommended actions, the Partners intend to distribute this document both in full and excerpted formats to partners, potential partners, and decision-makers who can support the implementation of recommendations.

## Step 8: Seek partners to implement river corridor projects

Project ideas identified in the workshops and in the monthly meetings range from educational events and on-going research to parkland acquisition and gravel pit reclamation. The partners will act individually and collaboratively to implement project ideas when those ideas are compatible with their agency's, company's, organization's or personal missions and goals. Thus, each of the local jurisdictions will develop its own priority projects. The Partnership will continue to meet and serve as a catalyst for project implementation.

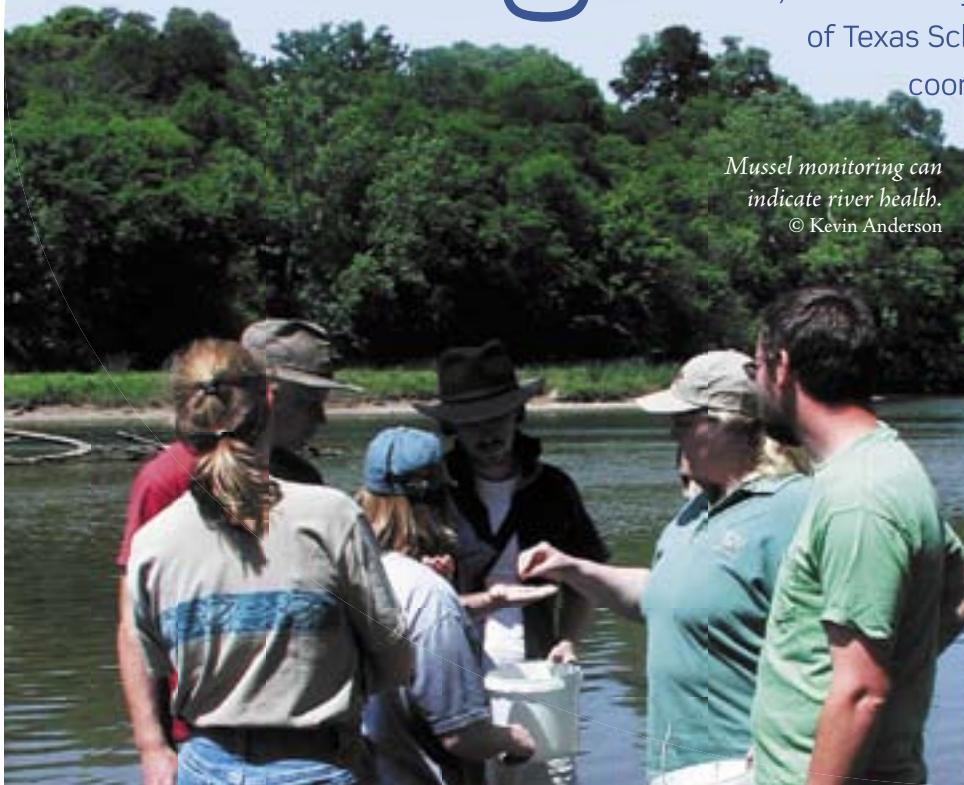
*Workshops collected  
community recommendations.  
© Kevin Anderson*



## Step 9: Continue studying and monitoring the corridor; revisit plan; continue the conversation

The Partnership holds to the concept that it is a gathering together of stakeholders for a sustained conversation about the future of this river corridor. This plan is intended to be a living document. Periodically, as circumstances change and as early recommendations become realities, this plan will need to be revised to accommodate the changing community and its desires. In the interim, partners will continue to study and monitor the corridor. New partners will emerge with new ideas. The current participants in the Austin-Bastrop River Corridor Partnership challenge local jurisdictional leaders and the broader community to add to and improve upon the recommendations and researched information presented within this document.

# Case Study



## The Trust for Public Land Makes “Greenprint” of Travis County

The results of a nine-month open space needs assessment for Travis County illustrate the need for future land conservation efforts to increase focus on the Colorado River corridor and its creek tributaries in the eastern portions of Austin and Travis County. The Trust for Public Land (TPL), a nonprofit land conservation organization, in partnership with the City of Austin, Travis County, and the University

of Texas School of Architecture, coordinated the Travis

*Mussel monitoring can indicate river health.  
© Kevin Anderson*

County Greenprint for Growth, a project designed to help citizens and government officials prioritize lands to be conserved and to develop strategic plans for land use and conservation.

Stakeholders and a community focus group met over several months in late 2005 and early 2006 to establish the community parks and green space priorities. A series of greenprint maps were developed for Travis County to indicate the areas that should be conserved based on the priorities identified by the community. The four priorities for protection are: water quality and quantity including the Colorado River, creekways, and the Edwards Aquifer; providing equitable access to recreational opportunities, additional local and neighborhood parks; protecting sensitive and rare environmental features such as high quality woodlands and endangered species habitat; and the need to protect local cultural resources such as historic, scenic, and agricultural sites.

(See Appendix B for Travis County Greenprint for Growth maps.)



# Workshop Results

The following issues, statements of desired future state, and action plans were generated by the 60-70 participants at each of the two community workshops held in 2004. Workshop participants at the first workshop listed 111 issues. After the workshop, a Partnership committee synthesized the input from all the groups, resulting in six top issues for further work in the next workshop. In the second workshop, participants followed up on the issues identified in the first workshop and created a statement to reflect their desired state of the river in twenty years and an action plan to address the issues and accomplish the desired future. The Austin-Bastrop River Corridor Partnership intends to promote these recommendations to the participating partners and the community at large as means to protect and improve the natural, cultural and economic resources of the river corridor.



## A Vision for the River...

Development along the river corridor will be planned to provide innovative, sustainable, ecologically sensitive, and community-minded development. This, in turn, will promote positive economic impacts. Cities, counties and state jurisdictions will cooperatively plan and share responsibilities related to development, infrastructure, public transportation, and river crossings. A healthy river ecosystem will exist with clean water, preserved wildlands, forested river sides, and well-designed public access.

# Land Development & Sustainable Development

## The Issue:

**C**oncerns were raised about increased development accompanying major transportation highways and growth from Austin and Bastrop (residential, airport-related, and urbanization in general). There is concern about how development might affect water quality, riparian habitats, and the loss of rural character. Participants questioned whether protective regulations are adequate and consistent among jurisdictions, and whether voluntary measures are sufficient to address issues. As a result of growth and development, issues such as flood damage, possible river channelization, and downstream impacts are concerns.

## Objective:

**E**ncourage purposeful, ecologically sensitive and community supported land development along the river corridor that brings positive economic impacts.

## Actions:

**C**reate a dialog about preferred development practices along the river. Engage the real estate and development community, local jurisdictions, state agencies, private landowners, and the public to discuss the benefits of and support the use of village-style developments with shared open spaces, innovative and sustainable buildings with alternative energy use, buildings set back from the river, and development that supports and is supported by the community. Form a sustainable building coalition.

**S**upport coordinated planning and implementation. Encourage local jurisdictions to complete comprehensive plans and cooperate with each other

and with state jurisdictions when establishing land use and development guidelines, public transportation systems, linked trails systems, and public river access. Develop a Memorandum of Understanding between local jurisdictions to facilitate coordination in planning efforts and enforcement of ordinances.

**E**ncourage stewardship of an ecologically healthy river corridor. Community stewardship will benefit residents, businesses, and visitors. Develop landowner incentives for employing sustainable land management practices.



Austin's Colony's developer created a riverfront park.  
© Kathryn Nichols

## A Vision for the River...

All interests along the Austin-Bastrop River Corridor will cooperate to preserve, protect, and restore biological diversity in aquatic habitats. Standards for water quality and quantity will be established to conserve and sustain human and environmental needs.



# Water Quality And Quantity

## The Issue:

This issue includes a variety of concerns about water in the Colorado River: non-point source pollution; the relationship between groundwater and surface water; concern over sufficient water supply for future human demands (residential, industrial, and agricultural) and ecological functions; maintaining water quality and quantity; wastewater management; fluctuations of daily flow; trash in river; and impervious cover impacts such as erosion and sedimentation. There is also concern over a lack of a centralized source of information gathering on water issues.

## Objective:

Gather information on existing conditions of water quality and quantity; establish biological standards and a regulatory structure to protect and sustain water.

## Actions:

Establish baseline measures and collect data. Consolidate existing information on water quality and quantity to determine gaps in current data gathering. Identify aquifer recharge areas. Establish baseline measures of water quality and quantity, paying particular attention to the biological health of the water. Monitor these parameters for surface water and ground water over time so that problems can be better predicted and solutions can be identified. Expand River Watch programs, emulating the successful Austin Youth River Watch and Colorado River Watch Network. Monitor changes in land use using annual aerial surveys.

Utilize and coordinate existing and expanded regulatory frameworks to protect water quality and quantity. Designate the Colorado River alluvium as a "minor aquifer." Incorporate the corridor into ground water conservation district(s) that coordinate their regulations. Encourage all jurisdictions to establish non-point source ordinances.

## Objective:

Utilize incentives and develop partnering opportunities to protect the attributes of the river corridor that enhance water quality and quantity.

## Actions:

Initiate an incentive strategy for protection of and enhancements to the river corridor. Encourage the granting of tax abatements in exchange for establishing conservation easements, land set-asides, or other means to protect the corridor from development impacts. Encourage property owners to retain and/or enhance the riparian buffer ecosystem, especially riparian vegetation.

Encourage new studies and technologies to improve water quality and quantity. One option is to cultivate riparian "water sponge" technologies to decrease run-off and retain ground water; another is flood water harvesting.

Encourage new partnerships. Create a Colorado River Watershed Association as a model partnership between urban and agricultural interests to build cooperation rather than competition and generate new ideas. Establish research partnerships with universities.

# Sand And Gravel Mining & Reclamation Opportunities

## A Vision for the River...

A cooperative relationship will exist between the sand and gravel industry and the public in approaches to reclamation of mined sites. Reclamation planning will be the industry's standard practice, and reclamation of mining pits in the river corridor will include environmental uses. Public and private needs for the Colorado River's resources will be balanced through planning. Extracted materials, previously used, will be preserved and recycled, reducing the need for newly mined materials. Environmental regulations will be enforced uniformly.



Mining too near the river drastically affects the river channel.  
© Doyle Mosier

## The Issue

**T**here is recognition that all types of building (homes, roads, businesses, etc.) depend on the need for these mineral resources, but mining near the river raises concerns of the effects on water quality. Mine restoration, however, can create opportunities for new wetland and pond resources when mineral resource removal is complete. There is a need to balance the sand and gravel industry's needs with the public's and the river's needs.

## Objective:

**D**evelop innovative and collaborative approaches to planning, reclamation, and information sharing between the sand and gravel industry and the community.

## Actions:

**G**ather and share information on existing conditions and potential solutions to protect the health of the river. Collect background information to facilitate the dialog between the industry and the community. For example, research the costs of various reclamation practices, appropriate widths for potential set backs, and alternative mining practices. Educate the public on the needs of the sand and gravel industry, and educate the industry on the values of the ecological resources in the river corridor.

**E**ncourage collaborative planning for reclamation and resource protection. Identify and map sand and gravel resources in relation to riparian resources to inform a corridor plan that addresses public and private needs. Discuss together what kinds of reclamation can be done to incorporate wetland and habitat creation. Explore ways of rewarding property owners for protecting riparian areas. Investigate public and private funding for creating public river access and open space opportunities from retired pits.

## Objective:

**T**ilize regulation/legislation and investigate new approaches to lessen the impacts of sand and gravel mining.

## Actions:

**T**ilize regulation to minimize impacts to the river. Raise consciousness of existing local, state, and federal regulations, and advocate for uniform enforcement. Encourage legislation that requires reclamation of all land disturbed by future mining efforts. This legislation should make it mandatory to plan for reclamation before a permit is issued.

**E**ncourage on-going reclamation though the life of the mine. Recommend setback standards based on research.

**E**ncourage innovative solutions to reduce demand. Promote the use of recycled materials through green building for all types of construction.

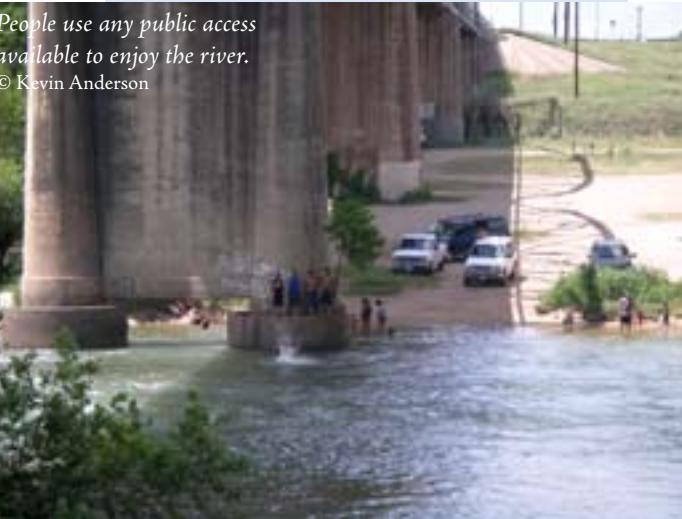
# Public Access And Recreation

## The Issue

### A Vision for the River...

The natural character of the river's landscape and habitat will be preserved, providing a scenic, clean, and quiet resource. Additional public and private parkland will be available for active and passive recreation. Public access to the river will be in place every five miles. The public will be aware of these access points and knowledgeable about which lands along the river are public.

People use any public access available to enjoy the river.  
© Kevin Anderson



**P**articipants felt there are insufficient ingress and egress points to make river floating practical. Access needs raise questions about who will fund and manage access points. There is a concern about assuring that access does not negatively impact habitat or biological functions. Related issues include trespassing and monitoring for criminal activity. There is also concern for a loss of traditional uses of rivers and banks, but at the same time, there is demand for more parks on the river, as well as land trails linking public lands.

### Objective:

**P**rotect and improve the character of the river.

### Actions:

**E**ncourage public stewardship of the river. Utilize and develop community resources, such as adopt-a-river programs, to share the message of responsible use and the historic/cultural/ecological value of the river. Help promote and expand the river clean-up activities and programs of other organizations.

**P**romote public preserves and private land conservation. Explore an incentive program for conservation or scenic easements. Explore with LCRA and others a scenic easement policy/program. Promote acquisition of preserves by public agencies.

**E**xplore water releases for recreation. Work with LCRA to consider releasing water for recreation and water quality while achieving its overall mission.

**T**Identify jurisdictions. Determine the entities that have jurisdiction over the river, including their boundaries. Make this information available to the public.

### Objective:

**I**mprove and promote public access and recreation land along the river.

### Actions:

**I**mprove, manage and publicize river access. Enhance river access available at existing parkland and road crossings. Increase quality and frequency of signage directing the public to access points. Identify and implement future access points, including crossings at SH130 and relocated FM973. Encourage counties and cities to require public river access in new developments. Link public agency websites that show access points and make this information more easily available to the public.

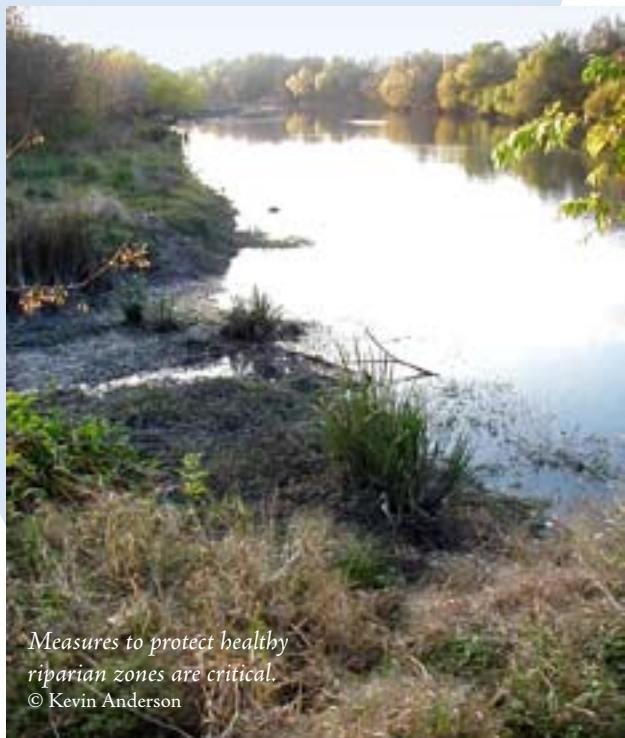
**S**urvey river islands and establish a policy for their use.

**P**rovide new recreation land and facilities. Promote the acquisition of land for parks by public agencies. Explore public-private partnerships to improve river recreation opportunities. Endorse the development of trail systems that link public access points and campsites.

# Natural and Cultural Resource Protection

## A Vision for the River...

The community will see the river as a shared resource with natural, historic and cultural value and will protect it as such. A protected riparian buffer with minimum mandatory setbacks from the river's edge will extend the length of the river corridor. Previously impacted areas within the setback zone will be restored to a natural state. Minimum-impact public access will be available for river education and enjoyment. Natural and cultural resources will be identified, protected, and available for appreciation through experience.



Measures to protect healthy  
riparian zones are critical.  
© Kevin Anderson

## The Issue

This topic involves concerns about conserving aquatic and terrestrial habitat, maintaining and restoring a vegetated riparian buffer, and identifying and conserving cultural resources. Other issues include loss of open space and wildlife corridors and the need for tributary and watershed protection.

### Objective:

**T**Identify natural and cultural resources along the river.

### Actions:

**D**ocument existing resources and their conditions. Compile information that has been collected by others. Identify data/knowledge gaps and coordinate with interested parties to gather the needed information. Monitor species, native and invasive, and identify trends that indicate concerns about the river's health.

**P**rioritize areas for protection. Establish science-based criteria and analyze the collected data on natural and cultural resources to identify priority areas most in need of habitat, wildlife, water quality, and historic/archeological protection and acquisition. Work with public agencies, municipalities, land trusts and others to fund this "sensitivity analysis."

### Objective:

**P**rotect natural and cultural resources along the river.

### Actions:

**E**stablish a buffer along the river within which development would be restricted. Encourage Austin and Bastrop to establish a buffer, or "water quality zone," within which the minimal setback would be 200 feet from the ordinary high water mark (OHWM) or the 100-year floodplain, whichever is larger.

**R**estore areas within the buffer. Encourage landowners to restore disturbed riparian land. Share "best practices" information with private and public landholders.

**G**ain public and political support for the buffer. Existing City of Austin code includes the requirement to "protect the natural character of the floodplain;" however, the importance of having and enforcing such protection should be shared with citizens and city councils along the corridor. Monitor regulatory agencies' commission agendas and attend when permits and actions affecting the river are being discussed. Share recommendations based on this report.

**B**uild partnerships to support land acquisition and protection. Develop relationships with landowners, land trusts, realtors, park departments, and others to share information about ecological priorities and conservation tools, and to facilitate timely acquisition when high priority areas become available.

## A Vision for the River...

All citizens – of all ages and backgrounds - will know the name and location of the Colorado River, and will understand their connection and interdependence with other people along the river and with the river itself. There will be an expansion of volunteer corps along each segment of the river and its tributaries. The Partnership will acknowledge the importance of social equity in everything it does. Communities up and down the river will host “river fests” to celebrate and promote the Colorado River.

# Public Awareness And Education

## The Issue

This issue is based on a concern that the public in general is relatively unaware of the valuable qualities of the Colorado River. Despite the close proximity to a metropolitan population, exposure to the river is believed to be limited. Some perceptions that were identified include: an image of the river as a dumping ground, a lack of understanding of human impacts on the river, and environmental justice issues east of IH 35.

## Objective:

Promote a connection between the Colorado River and people of all ages and backgrounds living along it.

## Actions:

Identify the existing resources. Survey ABRCP partners to determine what money, people, and programs they may make available for education. Contact other community groups, especially those related to rivers and their environment, for possibilities of joining forces.

Develop a “traveling road show.” This program would include talks, videos, slide shows, and other media, as appropriate, and would be accompanied by a “library” of books about rivers. The road show would visit schools, churches, senior centers, community groups, and festivals to promote the value and enjoyment of rivers.

Develop a “teacher training” program. This program, which would be compatible with state standards and would offer continuing education credit to participants, would assist teachers in educating our students about water issues. The hope is that this would nurture in the students a familiarity, knowledge and love of rivers.

Raise consciousness and change cultural attitudes through a public relations campaign. Create a public relations committee within the ABRCP; develop public service announcements; create a website for the Partnership. Team with area teachers and with the traveling road show to collect oral histories from community members about their experiences with the River and use them as part of our public relations effort.

## Objective:

Promote the river in communities along the corridor through River Fests.

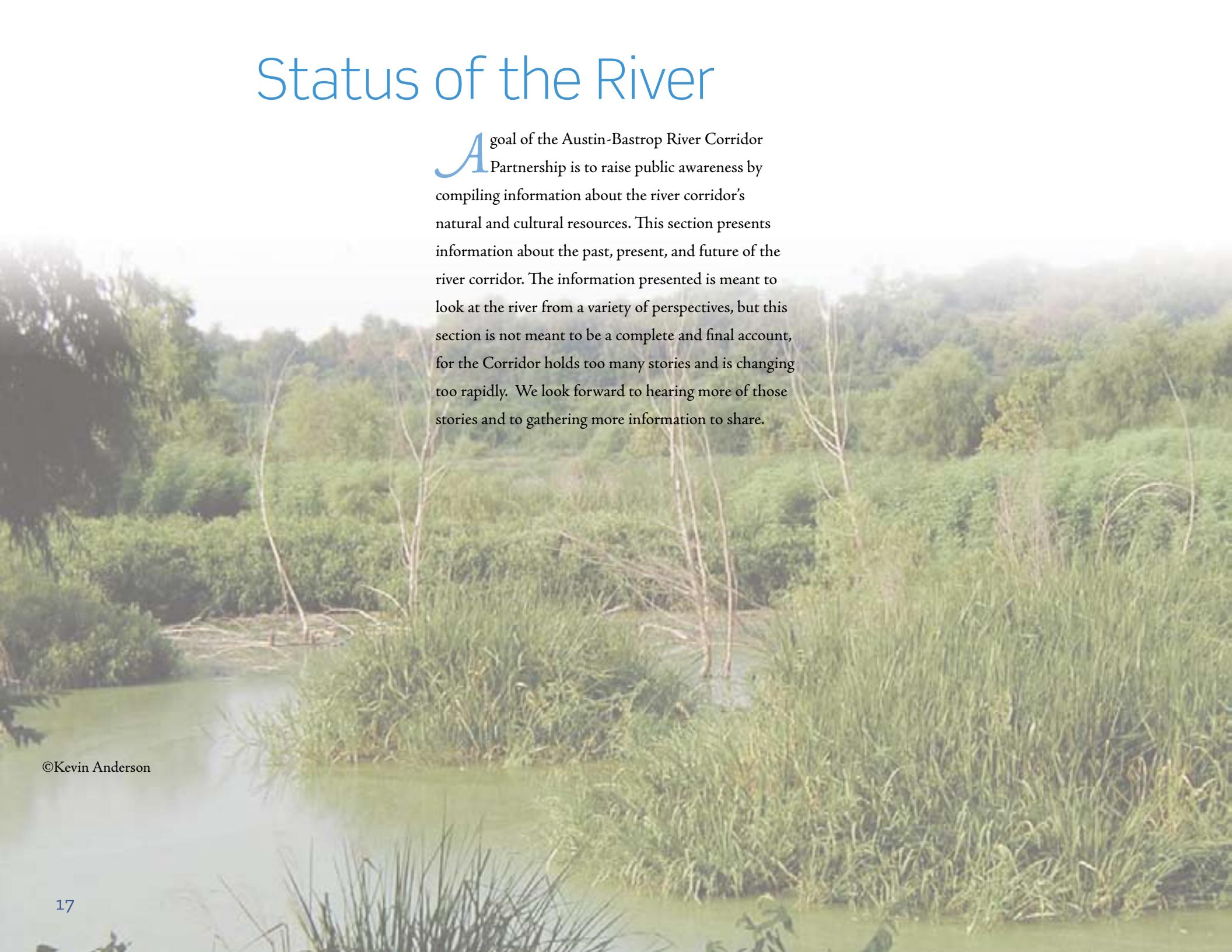
## Actions:

Encourage communities along the corridor to host River Festivals. Held in conjunction with Earth Day, these events would raise consciousness among citizens and potentially serve as "friend raisers" for the ABRCP. The festivals would provide educational tables and events for all ages and interests, including those who don't paddle or fish. Support and participation would be sought from groups focused on recreation, nature, boating, water safety, angling, river history/lore and storytellers from many cultures, as well as from vendors related to the river.



Young people who learn about the river will care for it.  
©Kevin Anderson

# Status of the River

A photograph of a river scene. In the foreground, there is a body of water with tall, green aquatic plants growing out of it. The water is calm. In the middle ground, there is a small, rocky island or a group of fallen trees in the water. The background is filled with dense green trees and bushes, creating a lush, natural environment.

The goal of the Austin-Bastrop River Corridor Partnership is to raise public awareness by compiling information about the river corridor's natural and cultural resources. This section presents information about the past, present, and future of the river corridor. The information presented is meant to look at the river from a variety of perspectives, but this section is not meant to be a complete and final account, for the Corridor holds too many stories and is changing too rapidly. We look forward to hearing more of those stories and to gathering more information to share.

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# The Ecology of the River Corridor



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*The river needs undeveloped  
floodplains to minimize flood damage*  
©Kevin Anderson

# The Ecology of the River Corridor

To view the river landscape below Longhorn Dam is to journey back in time. It is here that the riverside forest returns and forms a green pathway that hints at its former expanse when it covered the many square miles of bottomland between Austin and Bastrop. A bottomland forest once filled this floodplain with a “great thicket” of green, or the “Monte Grande” described by early Spanish explorers. The Espinosa-Olivares-Aguirre Expedition of 1709 probably camped near Hornsby Bend:

“We came to the river, which has a guard on either side of luxuriant trees, nut trees [nogales], ash trees, poplars [cottonwood], elms, willows, mulberries, and wild grapevines much taller and thicker than those in Castile. It has sand banks which mark how high it rises, a quarter of a league wide. The water is of the best we have found.”



Some bottomland forest thickets remain today.

©Wendy Scaperotta

The mature hardwood bottomland forest made it impossible to move downriver because “the monte that offered itself to our sight was so much that we could not penetrate it.” Instead, they followed buffalo trails across the river and traveled toward the Bastrop area along the upland terraces amidst the more open savannah of post oaks.

As we follow the river southeast out of Austin, it winds round bends that bear the names of Texas pioneers who settled here in the 1820’s and 1830’s – Wilbarger, Webber, Hornsby, Duty. From its narrow channel at the dam, the river bottom widens and slows with the river meandering across the ancient river floodplain between low terraces or bluffs, which resist the winding river and force it into another bend. On some bends, the river cuts into the banks revealing the vast alluvial deposits that underlie the bottomland. On other bends, sandstone bluffs rise high above the river and offer dramatic views of the river landscape below. The riverbed varies between a blue clay bottom and gravel riffles where the river flows swift and clear.

Now only thin remnants of forest remain along the riverbanks, and pastures, pecan orchards, housing developments, or gravel pits claim the majority of the bottomland. Thus, the remaining bottomland forest and wetlands are critical habitat and precious remnants of the historical river landscape - rich with biodiversity, vital as a wildlife corridor, and unique as a living legacy for Central Texas.

The following essays present a brief overview of the Colorado River’s rich ecological resources. This information is presented, for purposes of this vision plan, according to six resource categories: river, land, riparian zone, vegetation, wildlife, and water.

# River

Kevin Anderson  
Director, Center for Environmental Research  
Austin Water Utility

## River Channel

The river channel is comprised of the bed and banks of the river. The width of the river channel between Austin and Bastrop averages 400-600 feet with water depth varying with flows. The bed of the river is primarily gravel and sand, although in places just below Austin, it has been scoured to reveal a blue clay substrate. There are only shallow rapids as the river makes its way across the flat alluvial bottomland, and, when the river flows are low, there are numerous riffles and gravel bars along this stretch. In places large areas of submerged rooted aquatic vegetation covers the riverbed. Most commonly this vegetation is Water Stargrass (*Heteranthera dubia*) which covers shallow stretches of the riverbed with a waving green grass-like mat dotted with yellow star-shaped flowers.



Water Stargrass abounds in shallow stretches.  
©Kevin Anderson

## Alluvial deposits

One look at a geology map of Eastern Travis County tells you that a significant change occurs as the Colorado River emerges from the heart of Austin. The river channel escapes the hard steep limestone bluffs of the Edwards Plateau and spills over the Balcones Escarpment onto the deep alluvial deposits of the East where it begins to meander in long bends southeast toward Bastrop between upland terraces of ancient alluvial deposits. When a river slows and meanders, it can no longer transport the sediment load it carries and so alluvial deposits of silt, sand and gravel are formed. The depth of these deposits on the broad floodplain varies from a few feet to several hundred feet depending on the underlying geology. Just downstream from Austin, large gravel mining pits focus on the alluvial sand and gravel deposits near the river which are twenty to thirty feet below the surface.

## Islands

Alluvial deposition in the river channel has resulted in numerous islands along this stretch of river. Gravel operations in and along the river combined with increased sediment load from tributary creeks that are affected by erosion have added to this deposition. Some large islands have formed since the 1960's and are still slowly moving downstream with each flood event.

*Islands can provide resting places for paddlers.*



# Land

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## Floodplain

A topographic map of the river corridor reveals that the historical floodplain of the Colorado River can stretch for several miles between the upland terraces. In the 1930s, large floods sent the river over this broad bottomland, but the completion of the upstream dams have limited the scale of flooding since then. (See floodplain map on next page.) However, with degradation of the river's watershed, the 100-year floodplain is being reassessed. With recent development rapidly degrading the ability of riparian areas to absorb and slow floodwater, floods can potentially be more severe on this river corridor.

## Upland

Ancient alluvial terraces and sandstone bluffs rise above the wide floodplain of the Colorado. These upland soils were also farmed and grazed extensively, while the slopes are now covered in secondary woods. At the Bastrop end of the corridor, the uplands are sandy soils supporting loblolly pine forest with sandstone outcrops which offer impressive views of the river bottomland.

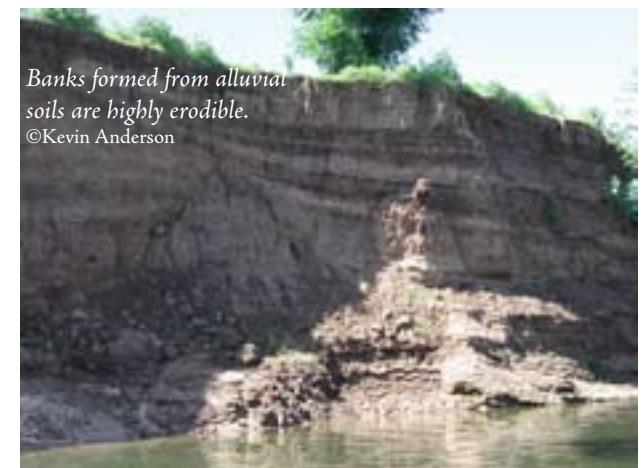
## Soils

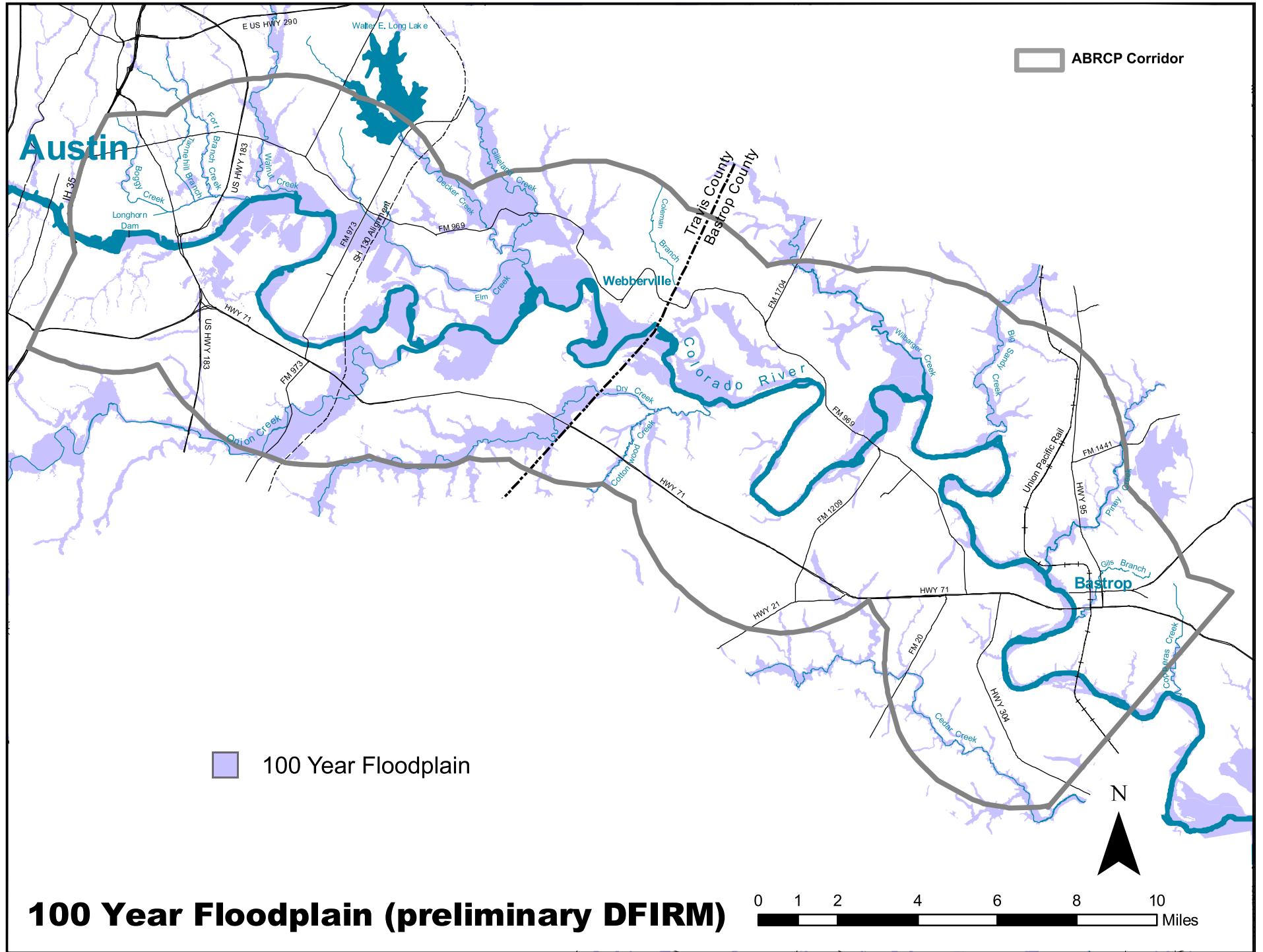
On the surface, the alluvial soils have been farmed intensively since the 1820's. This farming, especially decades of cotton crops, have stripped the river soils of fertility. One consequence of lost soil fertility has been a shift from plowing and row crop production to grazing and hay production on much of the bottomland. Nonetheless, these alluvial soils can recover fertility with proper management, and small-scale organic farms along the river corridor attest to the continued agricultural potential of the river corridor soils.



## Erosion

The alluvial soils of the river corridor are highly erodible. Some of this erosion is a normal part of the movement of the river channel meandering across the flood plain, with steep "cutbanks" forming along some of the bends. However, development of the watersheds along the river corridor combined with the loss of riparian vegetation has resulted in more erosion and increased sediment in the river.





# Riparian Zone

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Director, Center for Environmental Research

Austin Water Utility

Riparian ecosystems, like wetlands, have been characterized as a “halfway world between terrestrial and aquatic ecosystems that exhibit some of the characteristics of each.” [R.L. Smith, *Ecology and Field Biology*, 3rd ed., Harper and Row, New York, 1980] Because a riparian area is a transitional ecosystem, it is home for organisms of both terrestrial and aquatic ecosystems. The riparian ecosystem of the Colorado River is the natural infrastructure of the river corridor. It connects land and water. Along the Austin-Bastrop river corridor, a the map on the facing page shows the potential extent of the riparian forest that covered the bottomlands with the soils of the alluvial plain tracing the boundaries of the lost riparian forest. However, today, along most of the river, only a thin strip of riparian vegetation remains.



Healthy, vegetated riparian areas need protection.

©Kevin Anderson

## Riparian Ecosystem Services

From the perspective of ecosystem function in a watershed, riparian areas are the most important part since they are the buffer between the uplands and the stream channel. The riparian ecosystem of the Colorado, in proper functioning condition, provides irreplaceable ecosystem services for us. These ecosystem services include:

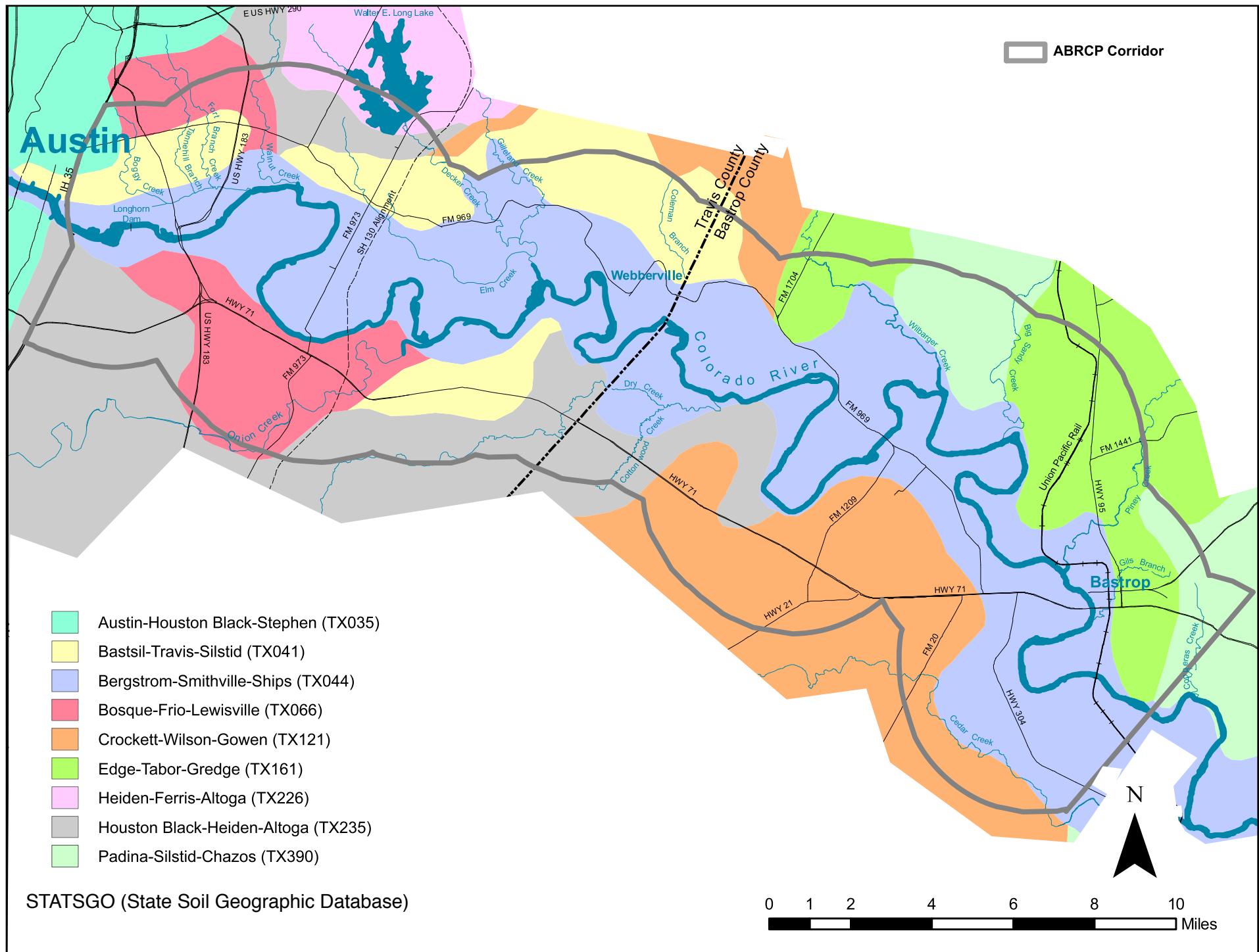
*Hydrological services*, including water storage in the riparian “sponge” of plant roots and soil and water quality improvement as water is filtered through the riparian vegetation, flood attenuation as the riparian area slows, filters, and absorbs flood waters, flow stabilization as the riparian area releases water to

maintain baseflow of the river or absorbs water when the river flows are high, and, finally, groundwater recharge and discharge as the riparian area contributes to the alluvial aquifer along the Colorado River;

*Biological services*, by providing a breeding habitat for Texas aquatic and terrestrial organisms, wildlife corridors for linking Texas bioregions, critical migratory habitat for North American birds and butterflies; and...

*Geological services*, such as erosion control along the river channel as the riparian vegetation “armors” the river banks against erosion protecting both the river and our coastal bays and estuaries against sediment.

**[ri·par·i·an zone]** - The ecological term for waterway margins, which includes river bottomlands, is “riparian.” The potential width of a riparian margin varies with the size of the floodplain and the gradient to the surrounding uplands. It varies because riparian areas are a continuous gradient between the uplands and the water in a stream or river channel.



# Vegetation

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Where once a great forest dominated the river bottom only a thin remnant remains to hint at the former glory that was the bottomland forest. Early settler accounts also describe "bottomland ryegrass prairies". These openings in the forest were different than the blackland prairies, and, although place names like "Webber's Prairie" note one former prairie location, they have long since disappeared. The forest and prairies were cut and plowed by the end of the 1800's, and the river corridor was dominated by agriculture until recent decades when farms have been abandoned, mined for gravel, or developed for housing. The abandoned fields have returned to brush and recovering forest which has helped re-establish bottomland forest in some areas. However, these remnant forest sites are a small fraction of the original bottomland forest.

**B**ottomland Forest: A healthy bottomland forest structure includes mature canopy trees, understory trees and shrubs, and forest floor plants and grasses.

Remnant parcels of bottomland forest in the Colorado River corridor include the following native species:

*Canopy trees:* bald cypress, black willow, sycamore, live and bur oak, pecan, Texas hickory, American and cedar elm, box elder, green ash, and hackberry

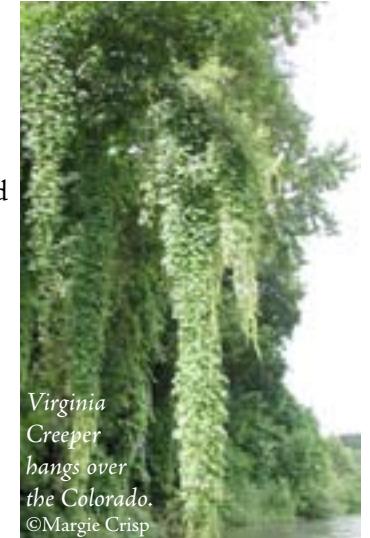
*Understory trees and shrubs:* roughleaf dogwood, false indigo, wafer ash, Texas persimmon, redbud, yaupon, elderberry, baccharis, and Eve's necklace



*Ground cover and vines:* Mustang grapes, Virginia creeper, ryegrass, inland sea oats, turk's cap, greenbrier, and poison ivy

## B ottomland Prairies

found in the corridor include ryegrass, inland sea oats, little and bushy bluestem, eastern gamagrass, Indian grass, Texas bluegrass, and Purple three-awn.



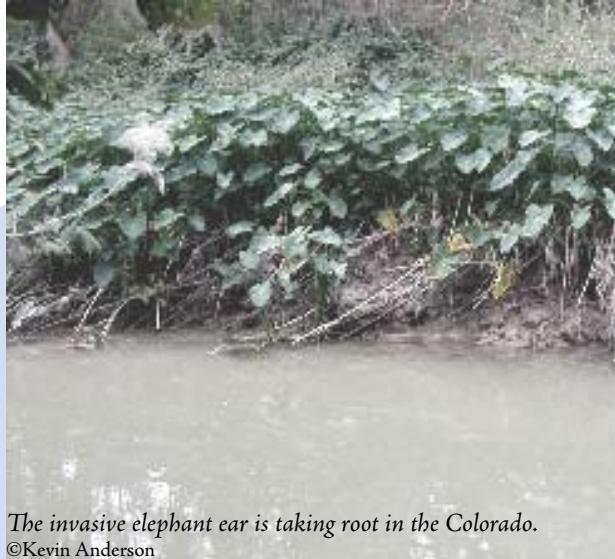
Virginia Creeper hangs over the Colorado.  
©Margie Crisp

**R**iverbanks and gravel bars are home to willows, baccharis, Colorado River hemp, Southern wildrice, switchgrass, cattails, and giant ragweed.

**R**iparian Wetlands in the corridor host Southern wildrice, switchgrass, cattails, horsetail, rushes, sedges

**U**pland and field edge vegetation includes post oak, blackjack oak, eastern red cedar, mesquite, palo verde, gum bumelia, western soapberry, and toothache tree. Yaupon transition at the Bastrop end of the river corridor to Loblolly pines.

**N**on-native vegetation – Another great change in the ecology of the river corridor is the introduction of non-native vegetation. Primarily, these introductions have come through agriculture and landscaping plants. While some non-natives are not problem species, some escape cultivation and rapidly spread or “invade” the disturbed habitat along the river corridor. These “invasive” species are most conspicuous along the riverbanks (elephant ear) and field edges (Chinaberry tree), and some are now the dominant grasses of the bottomland pastures and hayfields (coastal bermuda and Johnson grass).



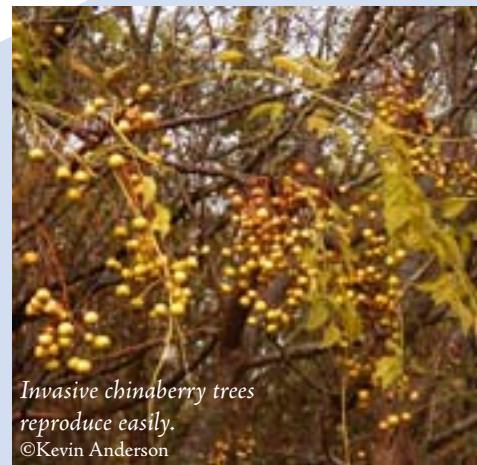
The invasive elephant ear is taking root in the Colorado.  
©Kevin Anderson

Below are some of the non-native species found in the corridor:

*In the Bottomland and Upland Forest - Chinaberry, Chinese tallow tree, Privet, Chastetree, and Tobacco tree.*  
*In the Bottomland Prairies - Coastal burmuda, Johnson grass, and KR bluestem.*

*In the Riverbanks and gravel bars – elephant ears and giant cane.*

*In the Riparian Wetlands - elephant ears, giant cane, and alligator weed.*



Invasive chinaberry trees  
reproduce easily.  
©Kevin Anderson

# Wildlife

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The Colorado River corridor is both home and highway for wildlife. In Texas, riparian habitat is home to a great diversity of creatures since it is a transitional ecosystem between aquatic and terrestrial. Moreover, riparian corridors are critical pathways for wildlife that use the corridor for moving from one area to another within Texas, or, for migratory birds, as stopover sites during spring and fall migration through Texas.

Unfortunately, the once massive forest or "Monte Grande" that the Spanish explorers described from the 1700's is long gone, and only thin remnants of trees along the river remain with occasional larger forest areas on these publicly owned properties or in the current flood zone of the river where agriculture is not possible. For wildlife, this fragmented habitat means that the river corridor is a greatly diminished riparian ecosystem. The river itself is also greatly altered by upstream dams, pulsed flows and increased sediment loading. However, in spite of the changes, the river and its riparian ecosystem is home to a diversity of wildlife.

## Aquatic Wildlife

Because the water quality of this stretch of the Colorado River is usually good to excellent, the

Along the Austin-Bastrop river corridor, the following sites are well known for wildlife observation and monitoring:

- City of Austin Guerrero Colorado River Park and the Colorado River Preserve
- Austin Water Utility's Hornsby Bend facility
- Travis County Southeast Metro Park
- LCRA's McKinney Roughs Nature Park
- Travis County - Big & Little Webberville Parks
- Bastrop - Bob Bryant Park, Fisherman's Park, and River Front Park
- Pines and Prairies Land Trust Colorado River Refuge

aquatic ecosystem of the river is remarkably healthy for a river flowing through a highly urbanized region. The river is home to an abundance and diversity of fish including a threatened fish species – the blue sucker. The river is habitat as well for larval lifestages of insects such as mayflies, damselflies, and dragonflies – all of whom are intolerant of poor water quality and so their presence indicates that the river ecosystem is still very healthy.

**N**ative clams or mussels are another indicator species which are not doing as well in the Colorado River, although they can still be found in this

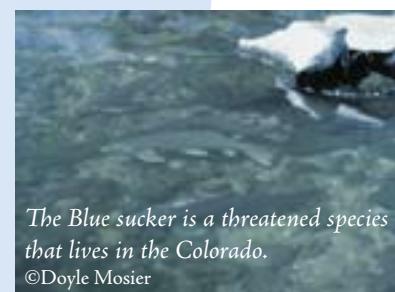
### Listed Threatened Species of the River Corridor:

- Blue sucker [*Cyclopterus elongatus*]
- Texas horned lizard [*Phrynosoma cornutum*]
- Timber rattlesnake [*Crotalus horridus*]

stretch. The most common clam is the small Asian clam [*Corbicula fluminea*] which only grow up to an inch and a half in size, and their small shells can be found by the hundreds on gravel bars in the Colorado. Our native clams, of which there are 52 species in Texas, are larger and some can be 9 to 10 inches in size and live to be 50 years old. Their shells can still be found in the river, though most are from long dead clams, but there are sites along this stretch of the river which still harbor living populations of our native clams.

**M**any human changes have hurt native aquatic wildlife in the Colorado. These include:

- Changes in flow rates of rivers and streams due to droughts, floods, or building of dams;
- Increased deposition of soft silt due to excessive runoff;
- Scouring of stream beds during storm events;
- Increased amounts of aquatic vegetation;
- Lack of suitable native fish hosts for larval stage;
- Aquatic contaminants; and,
- Introduction of exotic species.



The Blue sucker is a threatened species that lives in the Colorado.  
©Doyle Mosier

"Bear hunting on the Colorado River Corridor"

- John Holland Jenkins, *Recollections of Early Texas—Writing of the 1870s*

"There were two noted localities for bear near us then – Hornsby's Bend, twelve miles below Austin, and the other in the Eblin Bottom, twelve miles below Bastrop. Although bear was abundant in these places, few hunters tried to enter the almost impenetrable tangle of dogwood and greenbrier, of which the dense thickets were composed..."

**D**espite the above degradation, the Texas Commission on Environmental Quality has designated Segments 1428 and 1435 of the Colorado River below Austin for exceptional aquatic life use and associated high water quality (see Hydrology Map on p.30).

## Riparian and UpLand Wildlife

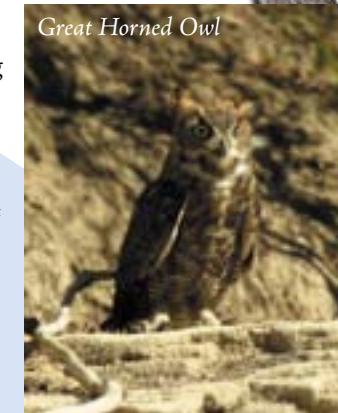
**M**ammals - Although the bear, the wolf, and the buffalo are long gone, many mammals still make their home along the river corridor. Some spend more of their lives in the river rather than on land – beavers, otters, and the non-native nutrias. However even the land-bound species are drawn to the river for food and water and roam the uplands as well. These mammals range from predators like mountain lions, bobcats, coyotes, and foxes to the common critters like deer, raccoons, opossums, skunks, armadillos, and a diversity of small rodent species. Some mammals are present but rarely seen like ringtails and badgers. Others are problem species like feral hogs and feral dogs.

**R**eptiles and Amphibians - Many of the reptiles and amphibians of the river corridor spend part of their lives in water, and so a riparian habitat is the perfect home. Snakes, frogs, toads, turtles, lizards, and salamanders are

abundant both in and along the river. Some species are present at one end of the corridor and not the other. The endangered Houston toad inhabits the uplands only at the Bastrop end of the river corridor. The threatened Texas horned lizard [or horny toad] is still locally common near Bastrop but very rare at the Austin end of the corridor.

**T**urtle species of concern – There are two land turtles of the river corridor which are now the focus of monitoring by Texas Parks and Wildlife because their numbers are dropping: Eastern Box Turtle (*Terrapene carolina*) and Ornate Box Turtle (*Terrapene ornata*). These box turtles are primarily found on the edge of the wooded uplands.

**B**irds – Texas has the most bird species of any state in the US. In Central Texas, the greatest bird species diversity is found along the Colorado River. Hornsby Bend has recorded 370 bird species since 1959, and the Audubon Society lists it as a national Important Bird Area. However, the entire river corridor is critical habitat for resident and migratory birds – and a great place for bird watching.



The peak times for birds are during spring and fall as millions of migratory birds pass through Texas and use the river corridor as a stopover site.

**Birds of the river** – wood duck, osprey, cormorant, belted – green – ringed kingfishers, white pelican

**Birds of the river bank** – great blue heron, great egret, green heron, spotted sandpiper

**Bottomland forest and wetlands** – bald eagle, red shouldered hawk, barred and great horned owl, black-bellied whistling duck, pileated - red bellied - downy woodpecker, cardinal

**Upland fields and field edges** – barn owl, red tailed hawk, eastern meadowlark, white-winged dove, cattle egret, crested caracara, scissor-tailed flycatcher, purple martin, barn swallow, painted bunting, mockingbird, eastern bluebird, black and turkey vultures

# Water

Geoffrey Saunders, P.G.  
Senior Hydrologist  
Lower Colorado River Authority

## Surface Water Flow Regime

The flow of lower Colorado River is controlled to a large extent by releases from the Highland Lakes operated by the Lower Colorado River Authority (LCRA), specifically Lake Travis which is the only flood control reservoir in the chain of lakes. Except during floods, water is stored primarily for municipal and agricultural use, and released through hydroelectric turbines to produce power on demand. In a typical year, over one million acre-feet of water (roughly the entire storage volume of Lake Travis) passes through the Austin-Bastrop river corridor, mostly for rice irrigation and environmental flows in the Gulf Coast region<sup>1</sup>. An acre-foot of water is the volume that would cover one acre of land one foot deep, or about 326,000 gallons. The Hydrology Map shows hydrologic features including tributaries, stream segments, and river morphology.

The Highland Lakes have been very successful tools for managing floods and providing water services, while also providing recreational opportunities. However, this has been done at the expense of the

natural hydrologic regime upstream and downstream from the dams. Impoundments are obvious markers of hydrologic change. The downstream effects are more subtle. The baseline flow regime of the Colorado River is represented by alluvial floodplain and terrace deposits, and these geologically “modern” deposits have been documented<sup>2</sup>.

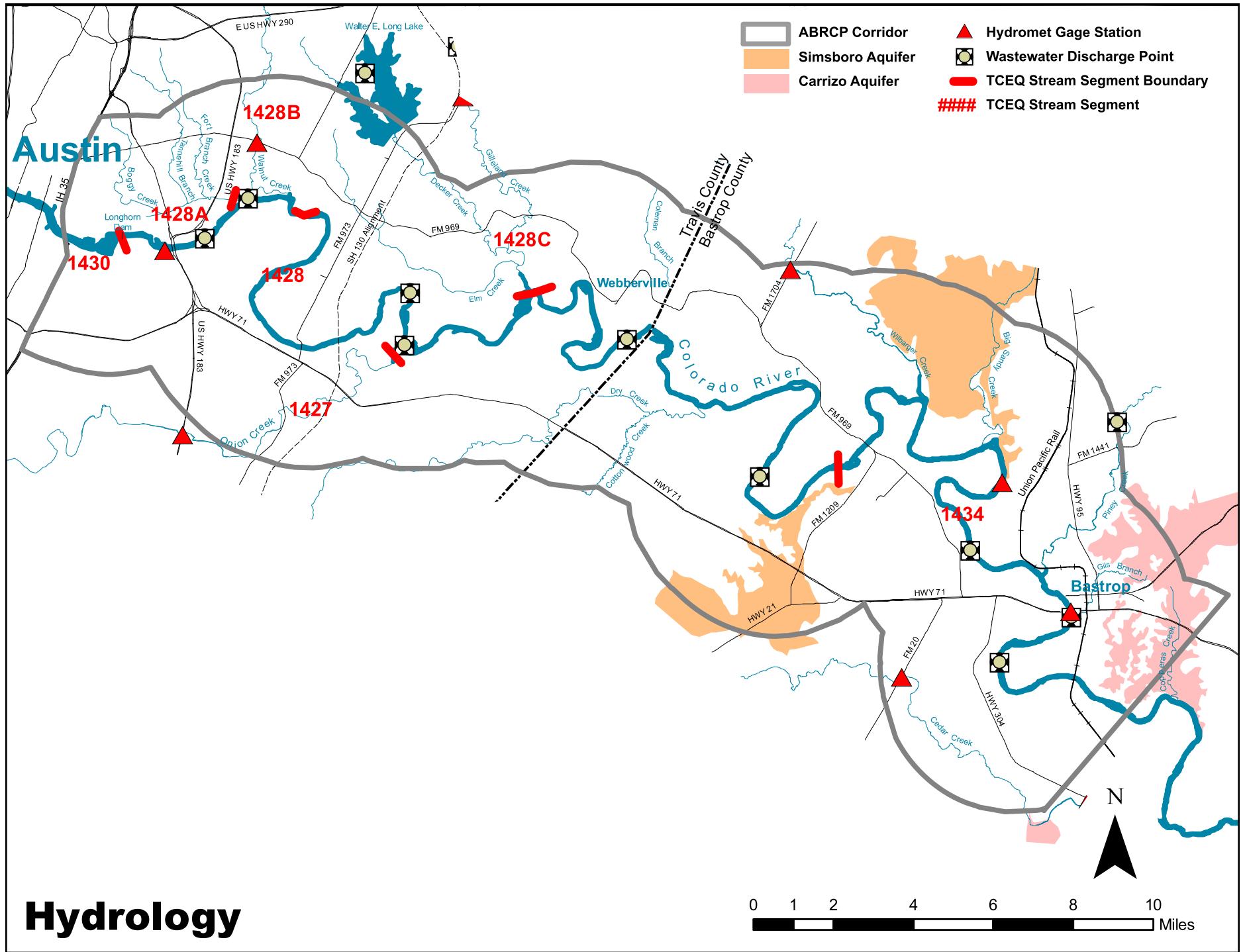
Short-term impacts of floods and droughts are attenuated, for the most part, by storage reservoirs and flood control structures in the Highland Lakes system, but the long-term effects of flow regulation on the geomorphology of the Colorado River have yet to be fully realized<sup>3</sup>. Compounding the effects of flow regulation, gravel mining in close proximity to the river has been associated with changes in the course of the river<sup>4</sup>. The Highland Lakes dams were constructed in the 1930s through the 1940s. Sediment accretion and other effects of regulated flow have not yet been reflected in the geologic record, but ecological effects including bank erosion in the Garfield, Webberville and Bastrop areas are being investigated.

In the 1980s, the environment of the lower Colorado River suffered from poor water quality,

a coating of sludge in the riverbed and excessive aquatic plant growth. Then, efforts to clean up the river coincided with a major flood, the result of which changed the river’s ecology. During the “Christmas Flood” of December 1991, which actually extended through June of 1992, modern record volumes of water flowed down the Colorado River. Extended-duration, bank-full flows scoured the riverbed and eroded the banks, even breaking through former gravel mining operations<sup>5</sup>. Many symptoms of earlier environmental problems in the river downstream of Austin were eradicated by the flood, allowing improvements made by the City of Austin (COA) to its wastewater treatment plants to have a beneficial effect. Water quality of the lower Colorado River improved so

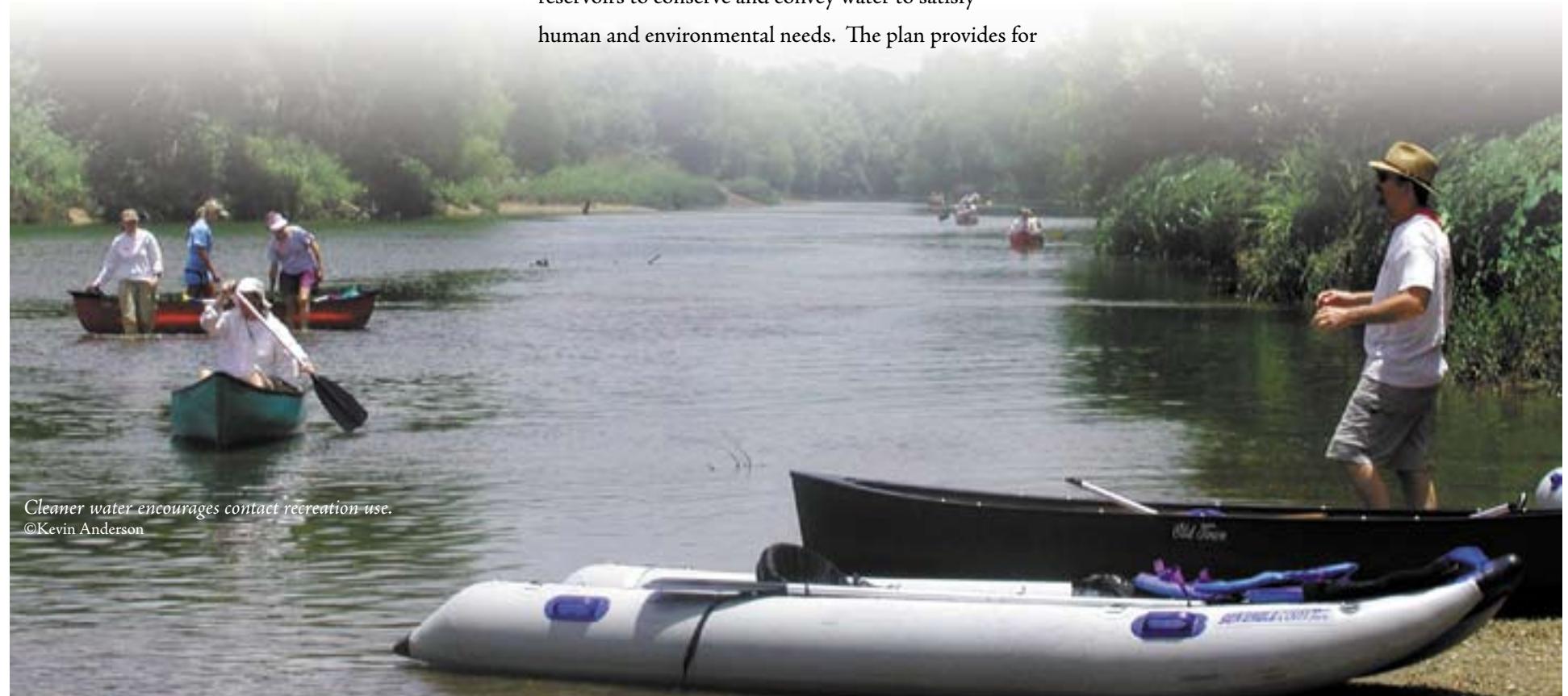


Longhorn Dam is the last of the Highland Lakes dams.  
©Kevin Anderson



## Hydrology

dramatically that the LCRA, COA and others built parks along the river in the mid-1990s and encouraged recreational use, saying 'Come back to the River'. Recreational use of the river has increased due to more access and better water quality.



*Cleaner water encourages contact recreation use.*  
©Kevin Anderson

**S**ince that time, LCRA has used a state-approved Water Management Plan for the Lower Colorado River Basin as a guideline in managing the river. The LCRA Water Management Plan (latest version in 2003) balances the needs of upstream and downstream water users, utilizing the Buchanan and Travis storage reservoirs to conserve and convey water to satisfy human and environmental needs. The plan provides for

target and critical instream flow to support aquatic life in the lower Colorado River, and freshwater inflows to Matagorda Bay. It also provides firm and interruptible water supplies to satisfy water rights for municipal, agricultural and industrial uses.

## Environmental Flows

**L**CRA releases water in predictable patterns in certain parts of the year, by hour, by day and by month. Minimum environmental (instream) flows are required at specified locations along the river, the daily flow requirements varying month by month in correspondence with the breeding, spawning and growth seasons of native aquatic species. There are two sets of instream flow needs: (1) Critical flow, meaning the minimum instantaneous flow rate for aquatic species to subsist; and (2) Target flow, meaning the optimal average daily flow rate when there is adequate inflow to the Highland Lakes to replace water released from storage (target flows are interruptible and subject to curtailment during drought). The reach of the river between Longhorn Dam and Austin's wastewater treatment plants requires a special set of instream flows, as summarized in Table 1. Flow is expressed in cubic feet per second (cfs), which is approximately 448.8 gallons per minute.

Table 1 - Instream Flow Requirements at Austin\*

Flow Requirement	Minimum in Storage	Maximum in Storage
MDF = 100 cfs	1,100,000 acre-feet	none
MDF = 75 cfs	1,000,000 acre-feet	1,100,000 acre-feet
At least 46 cfs at all times	none	none

\*Numbers in Tables 1 & 2 are a simplification of environmental flow requirements set forth in the 2003 LCRA Water Management Plan, and are used here for illustration only.  
MDF=mean daily flow in cubic feet per second.

**A**s documented in the Ground Water section, the Lower Colorado River is a gaining stream, meaning the river gains flow from groundwater contribution as it moves downstream. Knowledge of this helps in understanding and meeting environmental flow requirements. For the purpose of determining daily releases to meet target instream flows, the key location downstream from Austin is the Bastrop gauge, which has the highest required instream flow requirements of any downriver location at any given time. Since the river naturally gains flow downstream from Bastrop, the target flow requirements at Bastrop govern the flow regime. (summarized in Table 2 below).

**T**he tables in this document are abbreviated versions of environmental flow requirements and do not contain some details, for example releases to temporarily maintain subsistence flow conditions. In addition to instream flows, reservoir releases are periodically made to supplement freshwater inflows to bays and estuaries. For the purpose of assessing the Austin-Bastrop River Corridor, it only needs to be

noted that such releases would be in addition to those for agricultural and industrial demands, and in coordination with instream flow requirements. The reader is referred to the 2003 LCRA Water Management Plan for all details.

## Flow Patterns

**T**here are three natural processes to recognize when looking at flow patterns in the river downstream from Austin: travel time, attenuation and shallow groundwater-surface water interaction. The travel time from the Austin to the Bastrop stream gauges is

Table 2 - Instream Flow Requirements at Bastrop\*

Month	Critical Flow	Target Flow
January	MDF = 120 cfs	MDF = 370 cfs
February	MDF = 120 cfs	MDF = 430 cfs
March	500 cfs or greater	MDF = 560 cfs
April	500 cfs or greater	MDF = 600 cfs
May	500 cfs or greater	MDF = 1030 cfs
June	MDF = 120 cfs	MDF = 830 cfs
July	MDF = 120 cfs	MDF = 370 cfs
August	MDF = 120 cfs	MDF = 240 cfs
September	MDF = 120 cfs	MDF = 400 cfs
October	MDF = 120 cfs	MDF = 470 cfs
November	MDF = 120 cfs	MDF = 370 cfs
December	MDF = 120 cfs	MDF = 340 cfs

about 24 hours when the flow rate is 2,000 cfs, with longer travel times at lower flows and faster travel times at higher flows. As the water moves downstream, it essentially spreads out over a length of the stream channel, due to flow resistance, drag and turbulence along the streambed. Therefore, peak flow rates tend to become lower and flow duration becomes longer as the water moves downstream. Shallow ground-water-surface interaction is a complicated and temporal process involving water movement from the river to the alluvium and back to the river, sometimes referred to as bank storage. The observable effects of this interaction are the initial amounts of reservoir releases required to "raise" the river to deliver irrigation water in early spring, and the duration of time for the river to return to lower flow rates after irrigation season or after a flood.

**D**uring most winter months, releases from the Highland Lakes are minimal and most of the flow in the river at Bastrop consists of treated wastewater effluent. It should be noted that Segments 1428 and 1435 of the Colorado River below Austin have been designated for exceptional aquatic life use and associated high water quality by the Texas Com-

mission on Environmental Quality, with acknowledgement to the excellent operation by the City of Austin at its Govalle, Walnut Creek and South Austin Regional wastewater treatment plants.

**D**uring the spring and summer months, coinciding with fish spawning and growth seasons, environmental flows are maintained at higher rates. Significant releases are made from the Highland Lakes for irrigation of rice and other row crops in the coastal plains. These daily releases are "pulsed" so that hydroelectric power can be generated at peak demand periods, usually during morning and evening hours. The effect of these pulsed releases can be fluctuations in river levels and flow in the river downstream from Austin. At the Colorado River at Austin streamflow gauge near Montopolis, daily river levels can vary by as much as 5 feet, and flow rates can vary range from 100 to 4,000 cubic feet per second (cfs). River levels and flow rates attenuate with distance downstream from Austin—at Bastrop, typical flow rates range from 500 to 2,000 cfs.

**T**he impact of pulsed releases has been considered by LCRA scientists and managers and discussed

in recent revisions to the Water Management Plan. Comments by recreational users have been acknowledged. The wetted perimeter and cross-sectional area of the river varies when river levels change, and flow velocities vary with changing discharge rates. However, there have been no documented impacts from these variations upon native aquatic species. The river is a dynamic system and native species are adapted to much higher variations in flow than seen from reservoir releases on a typical summer day. The LCRA has found no adverse impacts of pulsed releases and river fluctuations on aquatic habitat. Indeed, it could be argued that fluctuating flow rates help in suspending sediment and winnowing the river bed, thus helping to control the growth of aquatic vegetation. Fine-grained sedi-



*Effects of pulsed releases on river banks*  
©Kevin Anderson

ment is transported downstream where it is ultimately deposited in the Matagorda Bay estuary.

**M**ost comments received by LCRA concerning pulsed releases have been related to inconvenience experienced by recreational users. In managing water supplies to meet competing demands, LCRA has difficulty meeting requests to "level out" the flow of the river solely for recreational use. Flow in the lower Colorado River will continue to be managed to meet municipal, industrial, agricultural and environmental needs.

**W**hile reservoir releases and natural streamflows to satisfy water demands and environmental needs are considered beneficial, excess runoff in the river created by heavy rainfall in the lower basin is considered a lost opportunity. There are no storage reservoirs in the mainstem of the Colorado River downstream of the Highland Lakes, a flow distance of over 200 miles with a total drainage area of over 3,000 square miles. Significant floods, including the 1998 event that flooded the City of Wharton, can occur without there being any releases from Mansfield Dam. Smaller events occur on a more frequent basis.

As water flows into Matagorda Bay in volumes exceeding the optimal amounts needed for estuary life, this excess runoff escapes from capture for any beneficial use. LCRA and San Antonio Water System (SAWS) have proposed to capture some of that excess water for municipal and agricultural purposes. One of the goals of the project is for it to provide benefits to both service areas, and avoid or mitigate significant environmental impacts. The LCRA/SAWS Water Project is currently in the feasibility study phase (see web page for more details)<sup>6</sup>.

## Ground Water

**T**n the six-county area along the Colorado River downstream from Austin, two major bedrock aquifers (Carrizo-Wilcox and Gulf Coast), two minor bedrock aquifers (Queen City and Sparta) and the Colorado River alluvial aquifer are exposed at the surface. All of these aquifers interact with the Colorado River.

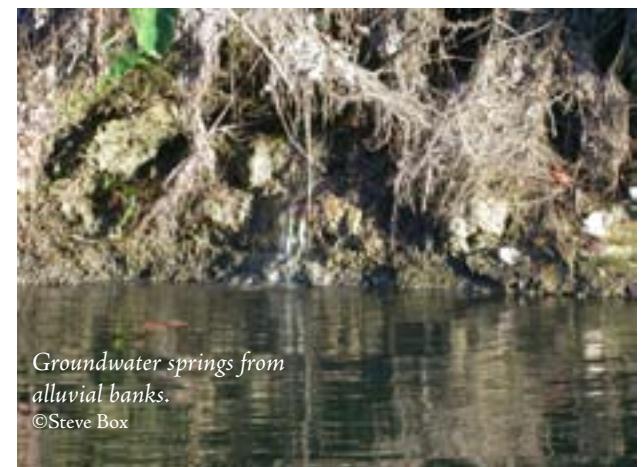
**T**he Colorado River alluvial aquifer is a laterally continuous, hydraulically interconnected series of alluvial and terrace deposits. The alluvium is variable in width and depth, but it is found at all points along the Colorado River between Austin and Wharton. The alluvium is up to 3 miles in width in the Austin-Bastrop river corridor, mostly depending on the resistance to erosion of underlying formations. Depth and thickness of the alluvium have been mapped in the Austin area; average thickness is about 30 feet, ranging from less than 10 feet to about 60 feet<sup>7</sup>.

**T**he Colorado River alluvium is a shallow, unconfined aquifer with moderate hydraulic conductivity, which is interactive with changes in stage and flow in the Colorado River. During periods of increase-

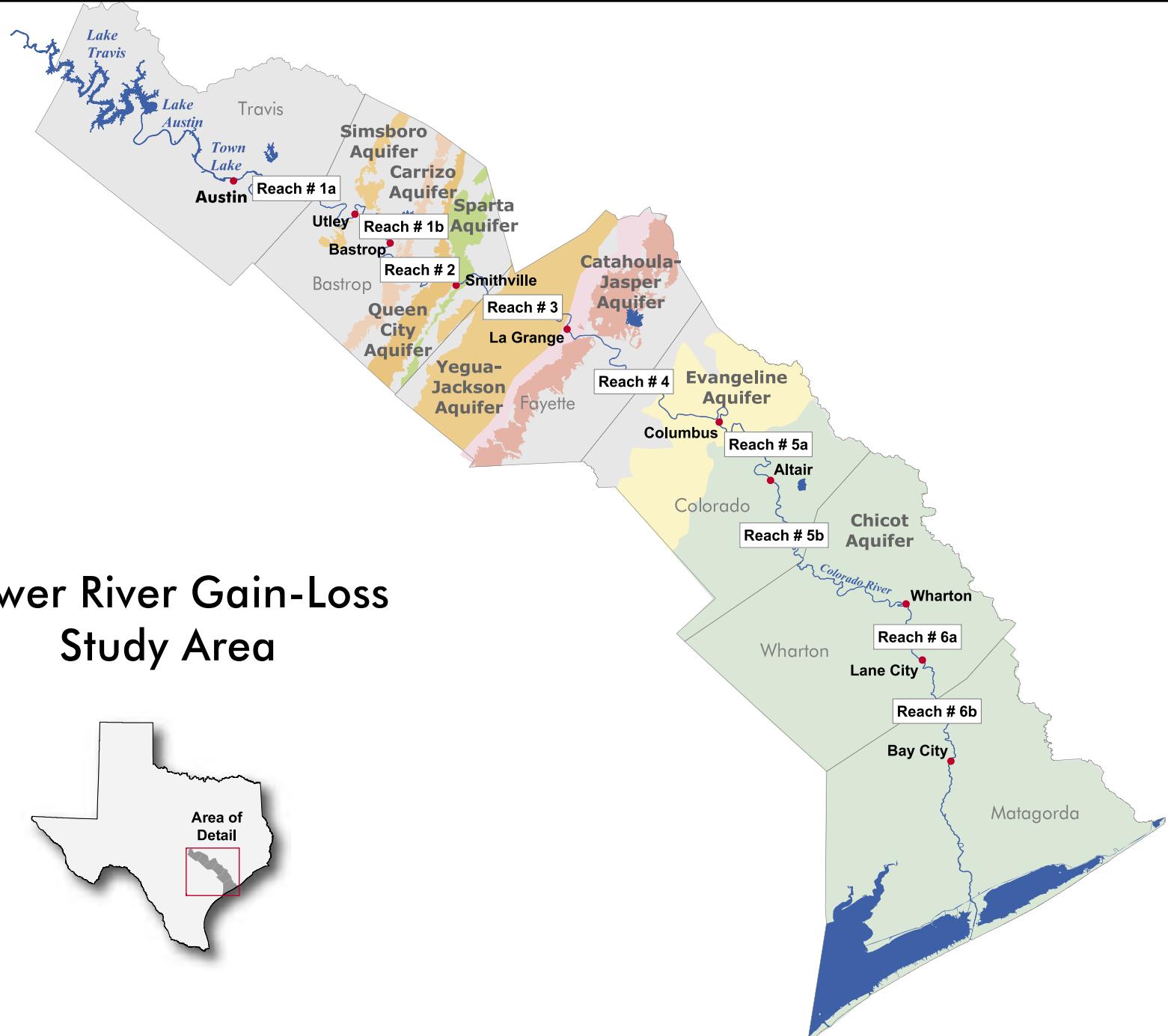
ing stage and flow in the river, there is a corresponding increase in water table elevation and water storage in the alluvium. Likewise, during periods of decreasing flow in the river, the alluvium loses water from bank storage. The Colorado River alluvium supplies drinking water for municipalities such as the city of Bastrop and for individual domestic users from private wells. Water in the alluvial aquifer is closely associated with the Colorado River, and has similar water quality characteristics as the river which is typically considered good to excellent. Since some communities and many landowners use the alluvial aquifer for water supply, it is important that shallow groundwater also be of high quality. The Colorado River alluvium is a water resource that should be recognized and protected<sup>8</sup>.

**T**he Carrizo-Wilcox is a major aquifer, which provides large quantities of water over large portions of Texas. In the stretch of river between Austin and Bastrop, the Carrizo-Wilcox aquifer outcrops at the land surface in Bastrop County. More details can be found in the Texas Water Development Board web site<sup>9</sup>.

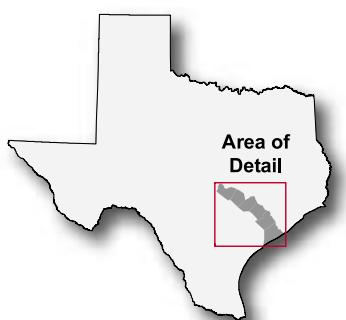
**T**o characterize groundwater-surface water interactions in the lower Colorado River valley, a low flow gain-loss study was conducted using historical streamflow data<sup>10</sup>. In the years since the record flood in 1991-1992, after which the LCRA Water Management Plan has been used as a guide in regulating low flows, the driest and lowest flow period occurred during the winter of 1999-2000. Considering patterns of reservoir releases, rainfall and runoff, the month of November 1999 had the most stable low flow conditions. Until similar low flow conditions allow for intensive field investigations in the future, November 1999 represented the period when the most reliable estimates of low flow gain-loss could be made. The study area is shown on the following map.



*Groundwater springs from alluvial banks.*  
©Steve Box



## Lower River Gain-Loss Study Area



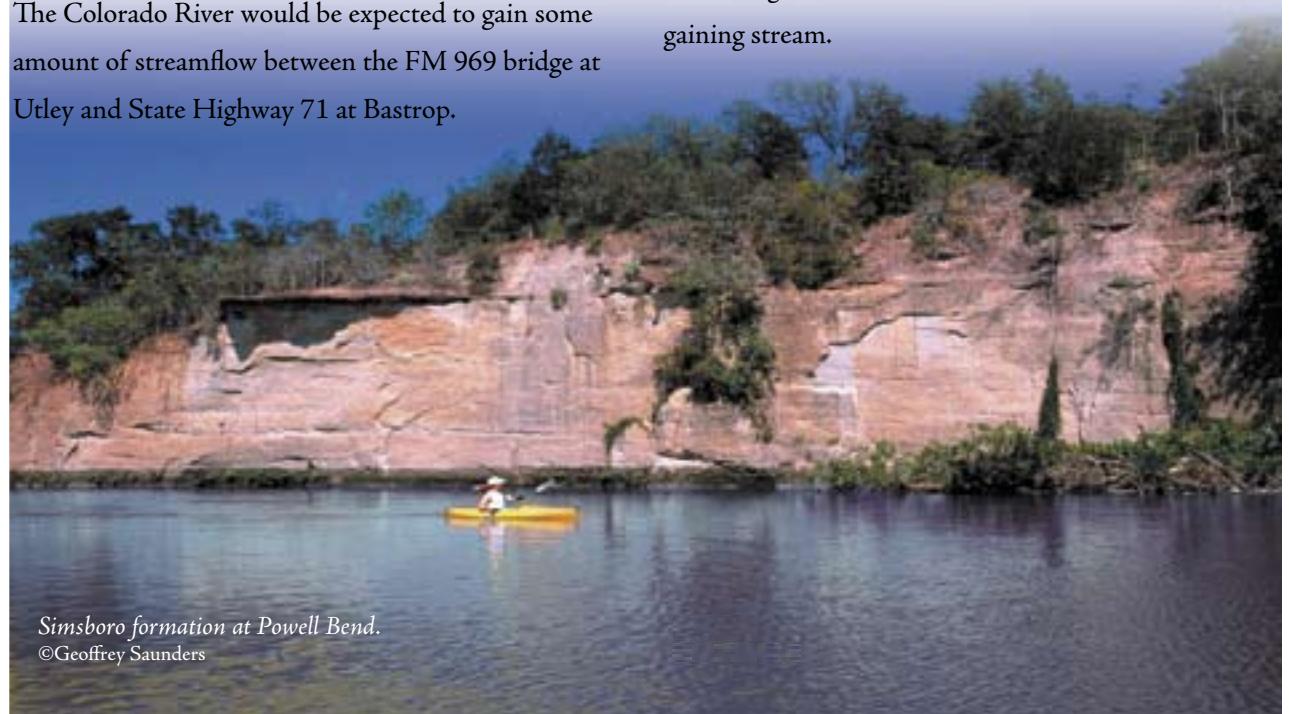
The lower Colorado River was generally found to be a gaining stream which receives groundwater contribution from major and minor aquifers. All other factors accounted for, the differences in staggered flow between mainstem gauging stations (adjusted gain-loss values) were attributed to groundwater contribution. Although there are some reaches that apparently do not contribute groundwater to the river, the net gain is approximately 200-235 cfs between Austin and Bay City under short-term drought conditions. Long-term severe drought conditions, under which groundwater aquifers may be stressed or slightly depleted, may produce somewhat less groundwater contribution to the Colorado River. However, such effects may have a lag time in years that exceeds the period of drought, and therefore may not be a factor during times of low flow.

The stretch of river between Austin and Bastrop was not found to have any measurable gain in streamflow from groundwater contribution. For most of the stream length of 53.5 miles, the Colorado River and associated alluvium overlie the Navarro and Taylor clay formations, which are essentially impermeable. Data from November 1999 actually indicated a slight net loss of streamflow of -9 cubic feet per second. This

despite the fact that a significant water-bearing unit of the Carrizo-Wilcox aquifer, the Simsboro formation, outcrops in a spectacular sandstone cliff along the river at Powell Bend, as shown in the photo below.

In addition to the Simsboro outcrop as a source of groundwater contribution, it is widely documented that Big Sandy Creek is a perennial stream supported by shallow groundwater. Big Sandy Creek enters the Colorado River just upstream of Powell Bend. The Colorado River would be expected to gain some amount of streamflow between the FM 969 bridge at Utley and State Highway 71 at Bastrop.

There are several explanations for the apparent loss of streamflow between Austin and Bastrop in the historical data. Streamflow gauge ratings typically have error in the range of 8 percent, which would account for more than the measured loss. This is an inherent problem in using indirect streamflow data that would not apply to direct field streamflow measurements, and future field investigations will be designed to eliminate the possibility of rating errors. For the time being, the Colorado River is considered to be a gaining stream.



*Simsboro formation at Powell Bend.  
©Geoffrey Saunders*

## Water Quality

In a dynamic, flowing river system, water quality is variable and characterizations are subject to change. Every two months, LCRA issues a Water Quality Index including a summary assessment of conditions at Austin and Bastrop. The index is meant to generally characterize water quality for designated uses, such as raw water supply or contact recreation. The Water Quality Index is based on a list of parameters including dissolved oxygen, bacteria (fecal coliform), nutrients (nitrogen and phosphorus), and salinity (total dissolved solids). Note that turbidity is not an index parameter for river water quality.

CRA's water quality index is intended to give the public a snapshot of overall water quality conditions. But conditions can change quickly. High water quality index ratings do not preclude the existence of bacteria that may cause infections. Swimming in a river, lake or pond carries some risk. The public needs to take precautions at all times, such as avoiding stagnant water and staying out of the water during and after rainstorms.

Generally, the Colorado River between Austin and Bastrop has good to excellent water quality for intended uses, except during very low or high flow events. During low flow, nutrient concentrations tend to become elevated. During high flow events including floods, bacteria and other contaminants can make the water unsafe for contact recreation. At those times water quality may be characterized as fair or poor, but from experience, water quality improves soon after flow conditions stabilize near normal levels.

Youth river monitors test water quality.

©Tim Fennel



### Notes from this Section

<sup>1</sup> D. Mosier and R. Ray, "Instream Flows for the Lower Colorado River: Reconciling Traditional Beneficial Uses with the Ecological Requirements of the Native Aquatic Community", LCRA Report, 1992.

<sup>2</sup> M. Blum, "Modern Depositional Environments and Recent Alluvial History of the Lower Colorado River, Gulf Coastal Plain of Texas", unpublished Ph.D. dissertation, University of Texas at Austin, 1992.

<sup>3</sup> A. Chin, "Understanding the Impacts of Dams on Texas Rivers", Texas River and Reservoir Management Society presentation, 2005.

<sup>4</sup> G. Saunders, "River Course Changes Resulting from Gravel Mining in Central Texas", Geological Society of America presentation, 2001.

<sup>5</sup> G. Saunders, "Impacts of Sand and Gravel Mining on Physical Habitat of the Colorado River and Tributaries in Central Texas", Gulf Coast Association of Geological Societies transactions, 2002.

<sup>6</sup> On the Internet, <http://www.lcra.org/lswp/index.html>

<sup>7</sup> Garner, L.E. and K.P. Young, Environmental Geology of the Austin Area: An Aid to Urban Planning. Bureau of Economic Geology Report of Investigations No. 86, University of Texas at Austin, 1976.

<sup>8</sup> Saunders, G.P., "Qualification of the Colorado River Alluvium as a Minor Aquifer in Texas", Gulf Coast Association of Geological Societies transactions, 1996.

<sup>9</sup> On the Internet, [http://www.twdb.state.tx.us/gam/czwx\\_c/czwx\\_c.htm](http://www.twdb.state.tx.us/gam/czwx_c/czwx_c.htm)

<sup>10</sup> Saunders, G.P., "Low Flow Gain-Loss Historical Data Analysis", LCRA interim report, 2005.

# The Heritage and Culture of the River Corridor



Montopolis Bridge over the Colorado River, south of Austin, 1953.

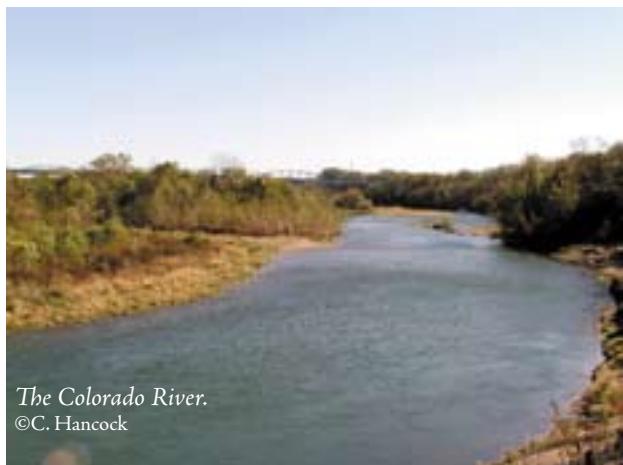
©Courtesy of TxDOT.

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Archaeology p.42  
History p.43



1935 Austin Dam Breech.  
C08484-A, Austin History Center, Austin Public Library

**E**very day thousands of folks traveling through central Texas share a common experience. As they cross over a bridge with the identifying sign of "Colorado River," they glance to the side to get a glimpse of water. For a split second they might experience a mild feeling of wonder that quickly passes as they continue on their journey. Those brief moments of awareness belie the importance of the river to our history, our culture and our ability to survive. The Colorado defines our landscape. Its presence dictated where our towns and cities are located, where our highways lie. It is a source of power that fuels our technologies. It is a barrier that has both protected and challenged. It is an essential life-giving resource that touches our lives but is often overlooked. It is a thread that connects all, human and non-human, plant and animal, past, present and future.

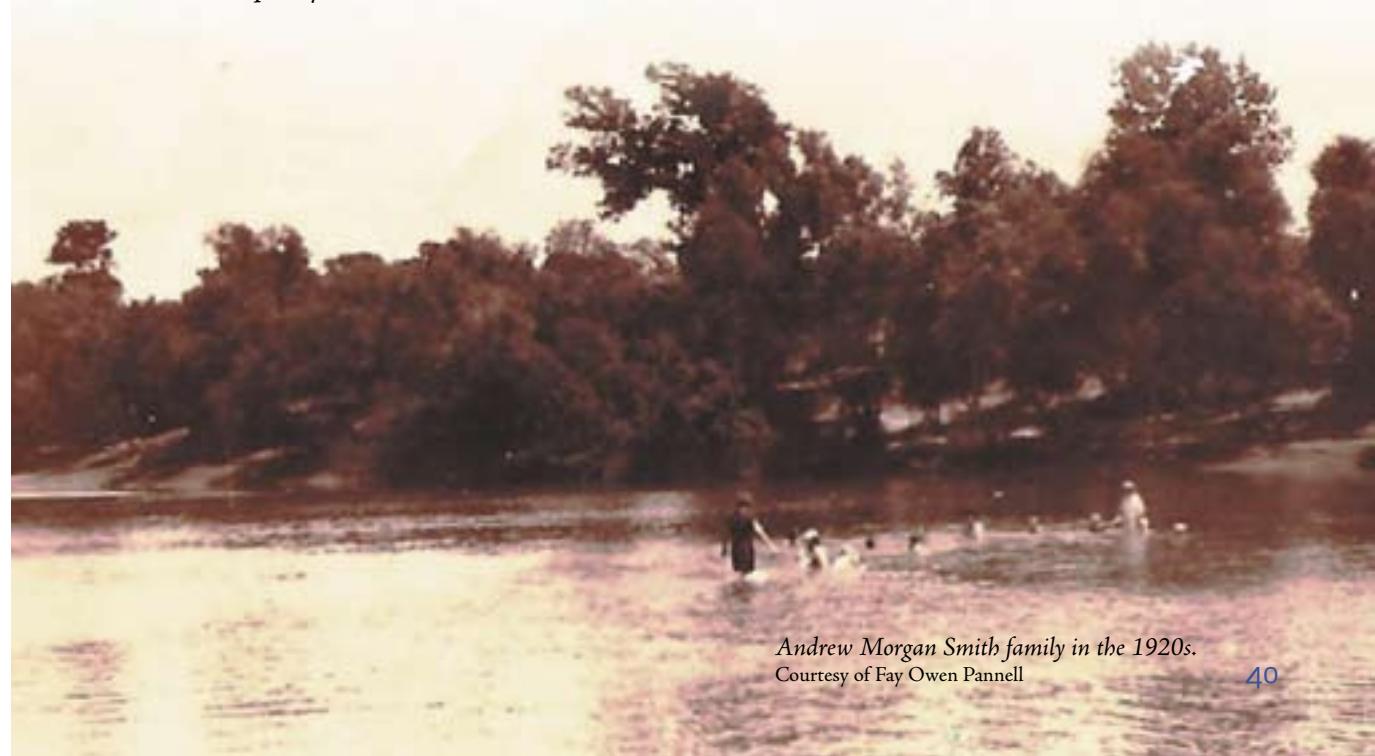


*The Colorado River.*  
©C. Hancock

**T**he Colorado River Corridor from Bastrop to Austin is rich in cultural significance. Buried deep in the alluvial sediments are the fossilized records from before the presence of humans. Settlements were erected where crossing the river was easiest. Roads paralleled its course. Homesteads were built utilizing the rich soils of the bottoms lands for agriculture with the river a handy barricade from un-wanted visitors. The river and its contributing streams have continually provided a source of power for industry. From before the time of hunter/gatherer cultures, the river has been a place of gathering. It is where one came to get a cool drink, find food, or get a break from the hot Texas sun. It is where one could quietly commune with the natural

world or join with others to celebrate the joys of life. There are many footprints along the river bank, left by those that came before. Those footprints are stories worth remembering and sharing with those that come after. They are stories of life, survival, celebration and death. They are stories that define where we have been, who we are, and where we are going.

**T**he following essays present a brief overview of the Colorado River's rich cultural heritage. This heritage is presented, for purposes of this vision plan, according to three resource categories: paleontology, archeology, and history.



*Andrew Morgan Smith family in the 1920s.*  
Courtesy of Fay Owen Pannell

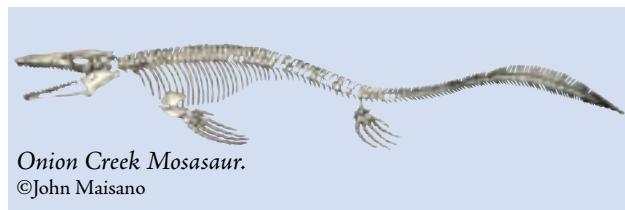
# Paleontology

Ernest L. Lundelius, Jr.

John A. Wilson Professor Emeritus In Vertebrate Paleontology

University of Texas at Austin

The area in the Austin-Bastrop River Corridor has the potential for considerable paleontological discoveries. These are primarily from three kinds of deposits. The oldest, geologically speaking, are fossils from the Cretaceous and early Cenozoic rocks that make up the "bedrock" of the area. The best-known discovery is probably the skeleton of a mosasaur, which is mounted in the Texas Memorial Museum. It came from the Taylor Formation of upper Cretaceous age exposed on Onion Creek immediately downstream from the bridge over Onion Creek on US Highway 71. Other scattered remains of this animal and a few fish have been found in the upper Cretaceous rocks in this area. It is only a matter of time until another major discovery is made.



Onion Creek Mosasaur.  
©John Maisano

Deposits of early Cenozoic age (Paleocene and Eocene) are exposed in the eastern end of the corridor close to Bastrop. A locality on Pope Bend in Bastrop County has produced fossil leaves from the

Midway Formation (Deussen, A. 1924. Geology of the Gulf Coastal Plain of Texas West of the Brazos River. USGS Professional Paper 126) that give an idea of the flora of Texas during the Paleocene/Eocene. There are more comprehensive papers by Berry and Ball on the plant fossils from this area. Not much has been done on these for a long time though. Good exposures of the units that have plant fossils could stimulate more studies.

The most abundant fossils to date have come from the terrace gravels along the Colorado River. The best-known example is the collection from the First Street Terrace gravel at 3rd and Congress in downtown Austin. A good representation of the Pleistocene vertebrate fauna was recovered from this site. The radiocarbon date for this site is 15,000 years. Another discovery in the same terrace deposits was a bison skull at the intersection of San Jacinto and First Street. This terrace level is present downstream to Bastrop. This is the level from which most of the gravel pits are taking gravel. There is no reason to suppose that more material is not being exhumed by these operations.

The higher terraces, the Capitol and the Asylum, are also present downstream from Austin. The ages

of these terraces are not well known. A mammoth tooth has been collected from the Capitol Terrace along Airport Boulevard in Austin. This indicates that the age of the Capitol Terrace gravel is no older than 1.3 million years. That is about the age of the oldest reliably dated mammoth remains in the coterminous United States. Nothing useful from the standpoint of age is known from the Asylum Terrace, the highest and oldest of them. Some vertebrae fossils that can be demonstrated to be in place in sediments of this terrace could shed some useful light on its age.

The planned route of SH 130 that will go through just east of Austin Bergstrom Airport will surely cut through the terraces and the Cretaceous. All should be monitored as the excavation for this highway takes place.



Mammoth Skull.  
©C. Hancock

# Archeology

This description is based on a search of the Texas Historical Commission's web-based Archeological Sites Atlas, based on a physical description of the study area provided by Mr. Clark Hancock. Included are sites from portions of Travis and Bastrop Counties, involving parts or all of the Austin East, Montopolis, Webberville, Manor, Utley, Bastrop SW, Bastrop, and Lake Bastrop USGS 7.5 minute quad sheets

A total of 463 recorded archeological sites are currently known for the area in question. 10 National Register Districts are within or near the defined area as well. For both sites and National Register properties, the numbers may shift higher or lower pending adjustments to the boundaries as I defined them for this search. Described as a whole, these sites span all chronological periods known for the state, from Clovis (ca. 10,000 BC) through to historic times. The physical remains of 12,000 or more years of human history are thus represented within the area.

T it should be stressed that, in my estimation, this site total represents less than 5% of the actual number of sites present within the area of concern. Several reasons are offered for this estimate. First, systematic archeological inventory of sites is a labor-intensive and potentially expensive undertaking, and has been applied to only a small fraction (less than 1%) of the area in question. Second, much of the area consists of landforms typified by rapid deposition of flood deposits from the Colorado River. This has certainly been the case for most of the Holocene period. In such cases it will be typical that many archeological sites are deeply buried within creek and river terraces, and are therefore

extremely well preserved and scientifically/historically valuable, but are invisible at the ground surface. In these depositional situations, site depths from 0.5 to 5 meters from modern surface should be fairly common.<sup>11</sup>

P ublic landowners in the subject area should be aware that archeological sites on public lands—whether these sites are currently known or unknown (recorded or unrecorded)—are protected by the Antiquities Code of Texas. Public landowners should consult with the Texas Historical Commission (THC) regarding planned projects that may impact archeological sites within their lands. Contact Mark Denton of the THC at 512.463.5711 for more information on the Antiquities Code and protection of sites owned by the state or political subdivisions of the state.

P rivate landowners can also request assistance from the Commission for inventory and/or assessment of archeological sites on their land. This assistance is offered by the THC at no charge to the landowner, and with no obligation. Private landowners wishing free assistance can call Dan Potter, Regional Archeologist, at 512 463 8884.



An archeologically significant old house.  
©Kevin Anderson

# History

Clark Hancock

Exhibits & Collection Coordinator, Austin Nature & Science Center, Parks & Recreation Department, City of Austin

The Austin Bastrop River Corridor has seen great changes over the years. The evidence is buried in the landscape and contained within the journals of our history. It is there if we take the time to look. The first written records are from the chronicles of Spanish explorers like that of the Espinosa-Olivares-Aguirre Expedition of 1709.

"We came to the river, which has a guard on either side of luxuriant trees, nut trees (nogales), ash trees, poplars (cottonwood), elms willows, mulberries and wild grapevines much taller and thicker than those of Castile. It has sand banks which mark how high it rises, a quarter of a league wide. The water is of the best we have found."<sup>12</sup>

On the eastern edge of the Corridor is the City of Bastrop, the Bastrop County seat. It is the site of one of the oldest European settlements in Texas. In 1804, the Spanish established a presidio or fort at this location named Puesta del Colorado. The purpose was to protect the Colorado River crossing of El Camino Real, the King's Highway, also known as the Old San Antonio Road. In 1823 the Baron de Bastrop attempted to establish a colony but failed. In 1827, Stephen F.

Austin received permission to try again and established what has been called Austin's Upper or "Little" Colony, with Bastrop as its cornerstone.<sup>13</sup>

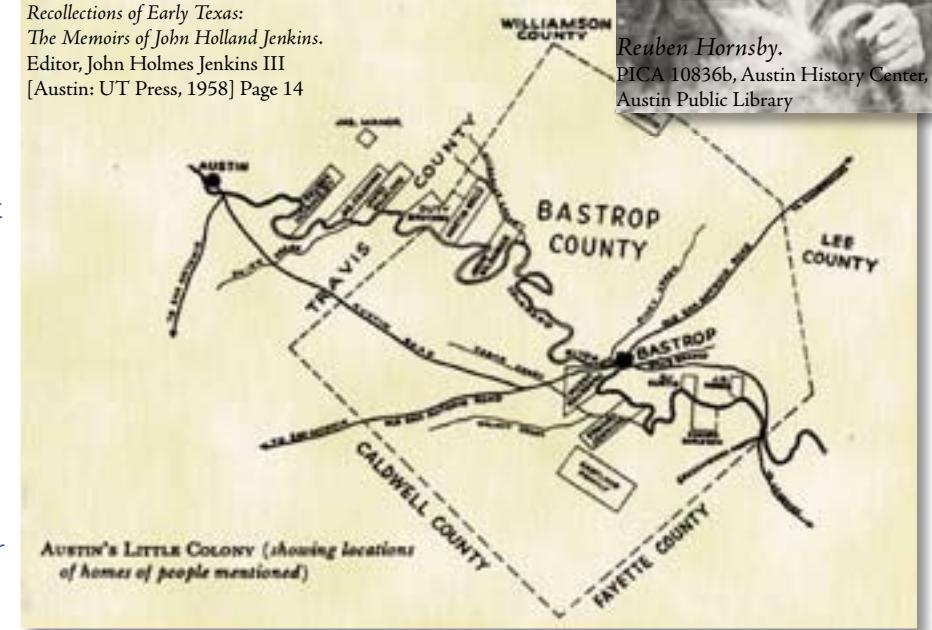
"[In the spring of 1832] Stephen F. Austin with some settlers set out from his Upper Colony, headquartered at Mina (now known as Bastrop) to survey a half dozen homesteads along the Colorado River. By late day, Josiah Wilbarger, John Walters, Joseph Duty, William Webber, and a man named Barker had chosen land for their farms, according to Miss Eva Hornsby, a descendant of one of the men accompanying Austin. Only Reuben Hornsby could find no land to suit him, and caused the party to ride on while he sought the extraordinary place where he would make a new home. At last they entered territory that intrigued Hornsby, land far out into the wilderness. Up over a rolling hill went Austin's party to investigate; perhaps here would be something to satisfy their

finicky companion. Below them, when they topped the hill, lay the most delectable valley anyone could remember seeing, luxuriant and emerald-green, where a horseshoe bend of the Colorado hooked into a lowland waving with a sea of wild buffalo rye grass. Laying down his gun, Hornsby turned to his friends. "Boys, this suits me fine," he said. "You can go on home if you like".<sup>14</sup>



Reuben Hornsby.  
PICA 10836b, Austin History Center,  
Austin Public Library

*Recollections of Early Texas:  
The Memoirs of John Holland Jenkins.*  
Editor, John Holmes Jenkins III  
[Austin: UT Press, 1958] Page 14



These early settlers did not have it easy. Until the 1850's, this was the frontier, that edge between the immigrant culture of the settlers and the hunter/gatherer societies of the Indians. The primary inhabitants settlers encountered were small, loosely organized groups of hunter-gatherers that were called the Tonkawa. More powerful tribes of Comanche, Kiowa, and Lipan Apache also were around.<sup>15</sup> Many of these tribes accepted the newcomers but others held a different view. Most notably were the Comanche who saw the settlers as interlopers. Their attacks were common; the first recorded one being on a survey party that included the first settler in the Colony, Josiah Wilbarger. Wilbarger miraculously survived even after being scalped and left for dead.<sup>16</sup> Others were not so lucky.

To deal with this constant threat of attack some of the early settlers built forts where they and their neighbors could gather in time of danger. These would become community centers. One such fort was built by Dr. John F. Webber in the area known as Webber's Prairie and more recently as Webberville. Dr. Webber had moved his family to the frontier to escape the prevalent attitude toward his marriage to an ex-slave. His fort provided protection and haven for

all that needed it. As Noah Smithwick later recalled "Webber's house was always open to any one who chose to avail himself of its hospitality, and no human being ever went away from its doors hungry if the family knew it."<sup>17</sup>

*A*s the frontier moved farther west, more folks moved into the area bringing with them the influences of the “peculiar institution” of slavery. Facing social ostracism that would later manifest in violence during the period of the Civil War, the Webbers moved on leaving their name as a reminder of their quest for tolerance.<sup>18</sup>

**S**ituated at a natural ford of the Colorado, Weberville was destined to become an economic and social center for the area. The ford allowed a cut-off from the Old San Antonio Road to connect with the



©C. Hancock

major Bastrop to Austin thoroughfare. It was also the site of a ferry and later served as a landing for the two riverboats that navigated the Colorado from 1846 to the Civil War.<sup>19</sup> Its reputation may best be described through a name it was known as for a time, Hell's Half Acre.<sup>20</sup>

*A*ccording to Worth S. Ray in 'Austin Colony Pioneers,' Webberville

'was the embodiment of the 'wild west' town, located on the open prairie and largely free from interference by a local constabulary, and practically run 'wide open' in accordance with the modern idea. People on the frontier, like people everywhere else in the world, demanded a certain amount of social freedom, and thought it was necessary to happiness. Every man stood firmly together for the protection of their homes from marauding Indians or other loose elements, but there were no 'blue laws' in force. In the town of Webberville to hamstring the young emigrant who wanted to have a good time. If there was anything doing at all it would be found in Webberville'<sup>21</sup>

What attracted settlers to this area were the rich alluvial plans, the "bottomland", that promised agricultural success, the stands of timber along the river, and the abundance of wild game.

You would like to know something of our present circumstances picture to yourself a tract of land somewhat resembling a horseshoe—on the one side the Colorado, a river that if it had been discovered by the French would have undoubtedly named "LaBelle Riviere"—it is truly a beautiful river. ... The bank reaches nearly a mile on the river when it slopes off to a bottom which ordinarily does not overflow. The bluff is lightly timbered with oak, pecan, & prairie grass. The bottom is heavily timbered with cottonwood, elm, mulberry, huckleberry, & the heaviest kind of wild rye which grows about knee high & very rank. This kind of bottom extends some distance up the river, but on this tract of land reaches a little over a half a mile—which makes the tract 1 1/2 miles in width—the bank on this side is rather bluff-on, opposite side it is a little lower, in the opposite curve of the river a sand bar juts out which so contracts the river at the upper line, that it makes a ripple of falls—the like of which the river abounds with—here is our

bathing place & it is truly a luxury to enjoy a good swim. As for fishing, I can't skip that. I have made some of the prettiest hauls that have been made about here; although the largest fish hasn't weighed over 15 lbs. & soft shell turtles 12 lbs, yet they [are] delicious quality of the kind. It is far superior to your mud cats—the river abounds in most all kinds—too numerous to mention. Our house is situated about 3/4 of a mile from the river & about 100 feet above its bed.—We have made the house in a Cedar hollow several - springs of first rate water—have at present several head of cattle & about 12 acres of corn which looks delightful & some of which is 'ripe'—had roasting ears sometime ago—have made our own Rye which we grind in a corn mill by hand & makes although not the whitest, yet bread that we are glad to get. Have also water, musk & honey melons nearly ready for the table, asparagus, sage, lettuce, turnips, onions, beets, carrots—some of which we have used, but our garden seeds did not do as well as expected as we planted too late—a late fall garden does better than a late summer one, near the house are several vines loaded with grapes which will be ripe in about a month—have also the Spanish persimmon—Blue Texas Plum & Turkey Plum—the latter grows on bushes like the Gooseberry but

more in clusters—red when ripe & very pleasant—For about half a mile farther back from the house the land is timbered with Live-Post & Blackjack oaks—Hickory-Pecan & Cedar—we have now reached the outskirts of the timber which lines the Colorado for about the same distance on both sides of the banks & connects the great Prairie which rolls into waving plains as far back as the eye can reach. Now & then you can see a timber of the larger class studded around with the muskete [sic]—a low thorny tree some of which grow with the trunk very large resembling the cherry.



Nash's Ferry, near present-day Utley.  
©Betty Barton



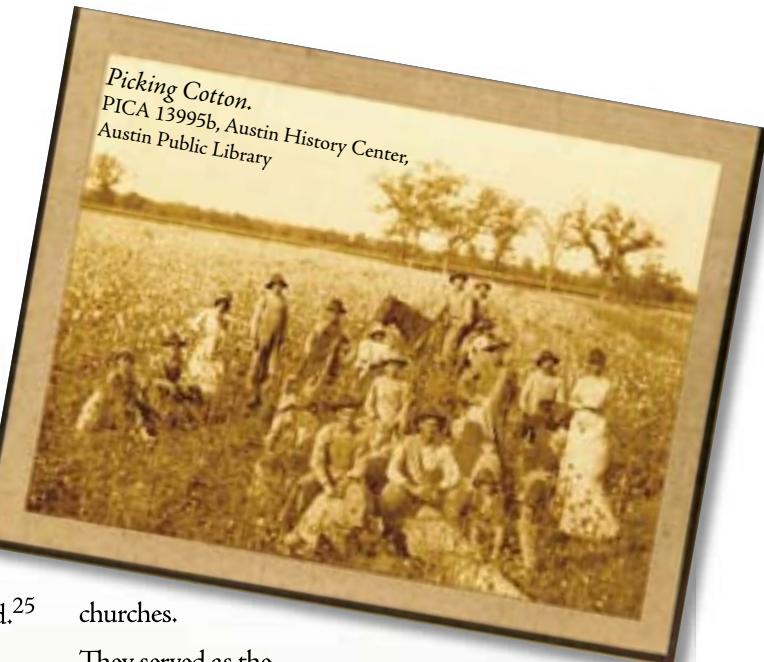
Montopolis' old courthouse, pictured in this photograph from 1937, is said to be the first historic courthouse in Travis County. It has since been demolished.

PICA 04663b, Austin History Center, Austin Public Library

The settler's initial focus was on subsistence but the entrepreneurial spirit was strong. In 1839, Jessie Tannehill and a few investors laid out plans for a town they christened Montopolis near a river crossing west of Hornsby's. Even further west, a small hunting camp that had been given the name Waterloo had been designated the sight of the new capital and was renamed Austin.<sup>23</sup> By the early 1850's, James Wilbarger, a son of Josiah, established the community of Utley between Webberville and Bastrop. Named for his wife's family, this was the "site of his commissary and trading post for plantations in the area."<sup>24</sup>

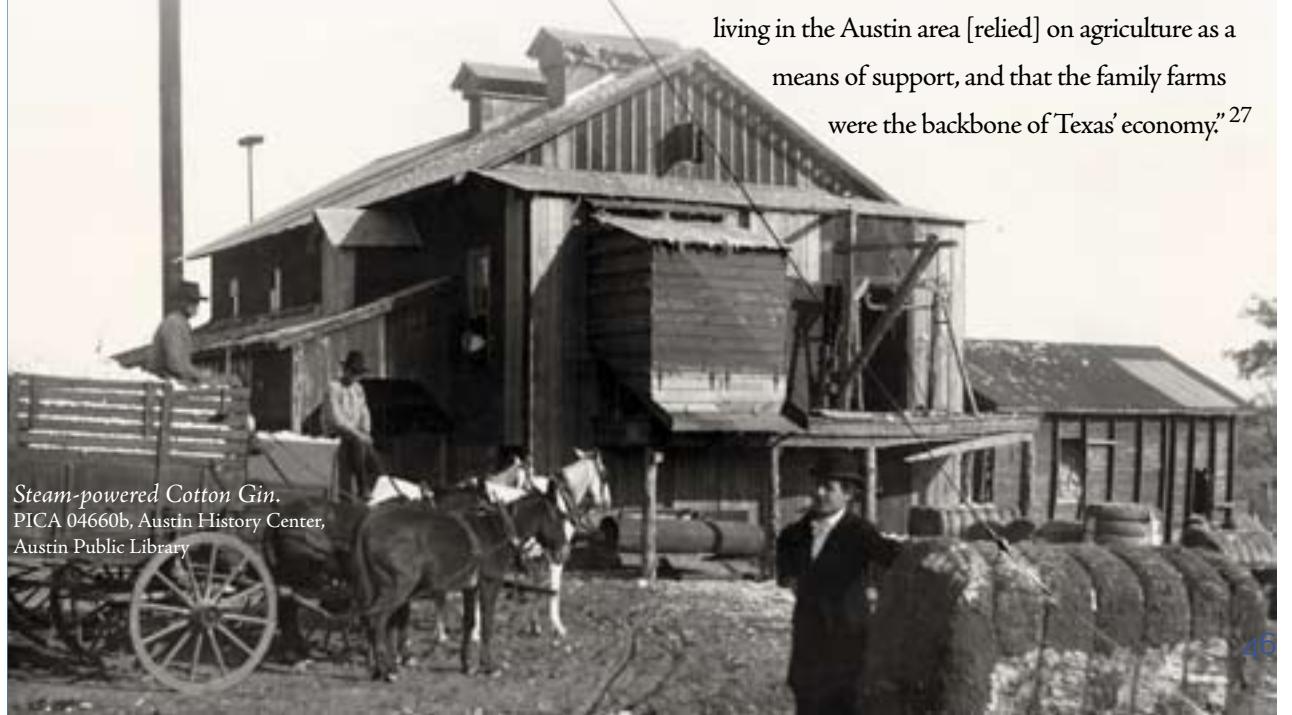
After the Texas Revolution and the threat from the Comanche lessened, this area began to prosper economically mainly through the cultivation of cotton. Plantations were established primarily using African slaves as labor. After the Civil War, the plantation system was replaced with tenant farms and sharecropping. Improvements in technology in both the plow and ginning increased production. In the mid 1870's, the community of Del Valle was established.<sup>25</sup> Around 1880, Garfield was formed.<sup>26</sup> All these were farming communities. They were the site of steam operated grist mills, cotton gins, stores, post offices, schools and

*Picking Cotton.*  
PICA 13995b, Austin History Center,  
Austin Public Library



churches.

They served as the community centers for an economy based solely on agriculture. The 1870 Census showed "most people living in the Austin area [relied] on agriculture as a means of support, and that the family farms were the backbone of Texas' economy."<sup>27</sup>



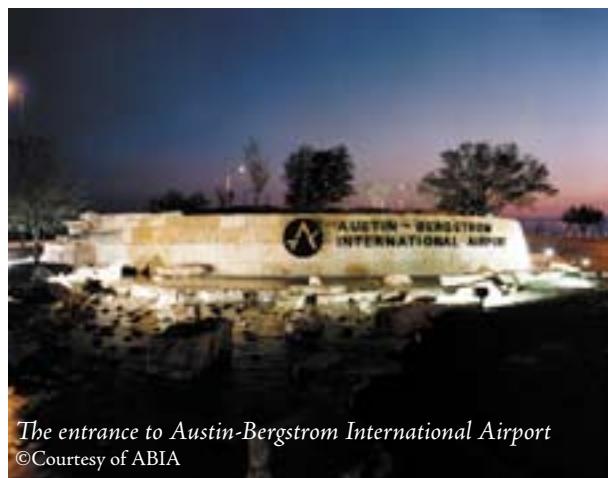
Steam-powered Cotton Gin.  
PICA 04660b, Austin History Center,  
Austin Public Library

**B**ut other events of the 1870's foreshadowed the decline of the agrarian value of the Corridor. In 1869 and 1870 floods devastated the area. In 1871 the railroad bypassed Webberville passing instead through Manor. The 20th Century witnessed the consolidation of post offices and schools as the rural population dropped with folks moving to the cities.

**T**he latter half of the century has seen a re-growth. The uncertainty of agrarian return from the land has been replaced by its value for housing and industry. In 1942, the construction of the Del Valle Army Air Field, later named Bergstrom, brought new vitality. In the 1990's the military base closed to be replaced by an international airport. Housing and commercial developments are ap-

pearing bringing the largest human population ever seen to this area. The gravel and sand that have been deposited over eons is being removed to be used as construction materials contributing to our communal prosperity.

**A**nd the river flows through it all. Once respected and feared for an unpredictable nature, its power and value are harnessed for human endeavors. But it is still here, reinventing itself every few years through flood, providing habitat for diverse species, bringing life and carrying away waste, a great natural resource.



The entrance to Austin-Bergstrom International Airport  
©Courtesy of ABIA



above left:  
*Reuben Hornsby's Home.*  
PICH 04772b of Austin History  
Center, Austin Public Library

at left: *Flooding in Austin.*  
PICA04036 of Austin History  
Center, Austin Public Library

below left: *Hunter's Bend  
Plantation House.*  
PICH04772 of Austin History  
Center, Austin Public Library

below: *Hunter's Bend Gin.*  
PICA04662 of Austin History  
Center, Austin Public Library

### Notes from this Section

- <sup>11</sup> Potter, Dan. Central Texas Regional Archeologist, Texas Historical Commission
- <sup>12</sup> "The Overlooked Entrada: The Espinosa-Olivares-Aguirre Expedition of 1709" by Anibal Gonzales. Sayersville Historical Association Bulletin, Number 2 Fall 1982.
- <sup>13</sup> "Bastrop, Texas". The New Handbook of Texas. Edited by Ronnie C. Tyler, Douglas E. Barnett and Boy R. Barkley. Texas State Historical Association (June 1, 1996) as viewed at <http://www.bastropTexas.net/history/bastrop.htm> (accessed July 23, 2005).
- <sup>14</sup> The Texas Public Employee, August 1968 as viewed at <http://www.hornsbybend.com/Texas%20Public%20Employee.htm> (accessed July 23, 2005)
- <sup>15</sup> Walnut Creek District Park, Archeological Testing at the Wells Site 41TV368 City of Austin, Travis County, Texas by Warren M. Lynn, Principal Investigator. TAP No. 261. Austin: Parks and Recreation Planning Associates, Inc., 1981. <http://fryr.tripod.com/cfhistwalnutcrarcheology.html> (accessed July 23, 2005).
- <sup>16</sup> "Mrs. Hornsby Dreamed Right" By J. Frank Dobie. Austin American Statesman. Jan 5, 1963 as viewed at [http://www.webberville.org/vow/history/mrs\\_hornsby\\_dreamed.html](http://www.webberville.org/vow/history/mrs_hornsby_dreamed.html) (accessed July 23, 2005).
- <sup>17</sup> "Chapter 17", The Evolution of a State or Recollections of Old Texas Days by Noah Smithwick. Gammel Book Company, 1900 as viewed at <http://www.oldcardboard.com/lstj/olbookssmithwic/otd17.htm> (accessed July 23, 2005).
- <sup>18</sup> Handbook of Texas Online, s.v. "WEBBER, JOHN FERDINAND," <http://www.tsha.utexas.edu/handbook/online/articles/GG/hrg6.html> (accessed July 26, 2005).
- <sup>19</sup> "The Austin Story: Webberville" by Curt Bishop. Austin American Statesman, 1961 (From Austin History Center) as viewed at [http://www.webberville.org/vow/history/austin\\_story-webberville.html](http://www.webberville.org/vow/history/austin_story-webberville.html) (accessed July 23, 2005)
- <sup>20</sup> "Webberville once 'Hell's Half Acre'" by Audrey Bateman, Waterloo scrapbook. Austin American Statesman, August 6, 1982 as viewed at [http://www.webberville.org/vow/history/wb\\_hells\\_half\\_acre.html](http://www.webberville.org/vow/history/wb_hells_half_acre.html) (accessed July 23, 2005).
- <sup>21</sup> "Letter from George W. Grover to Charles H. Grover, June 16, 1840". A Traveller From Nissouri Sees Honesby Bend in 1840 as viewed at (accessed July 23, 2005).
- <sup>22</sup> Handbook of Texas Online, s.v. "TANNEHILL, JESSIE CORNELIUS," <http://www.tsha.utexas.edu/handbook/online/articles/TT/fta8.html> (accessed July 25, 2005).
- <sup>23</sup> Handbook of Texas Online, s.v. "WATERLOO, TX," <http://www.tsha.utexas.edu/handbook/online/articles/WW/hvw13.html> (accessed July 25, 2005).
- <sup>24</sup> Handbook of Texas Online, s.v. "UTLEY, TX," <http://www.tsha.utexas.edu/handbook/online/articles/UU/hnu6.html> (accessed July 25, 2005).
- <sup>25</sup> Handbook of Texas Online, s.v. "DEL VALLE, TX," <http://www.tsha.utexas.edu/handbook/online/articles/DD/hld14.html> (accessed July 26, 2005).
- <sup>26</sup> Handbook of Texas Online, s.v. "GARFIELD, TX," <http://www.tsha.utexas.edu/handbook/online/articles/GG/hrg6.html> (accessed July 26, 2005).
- <sup>27</sup> Pioneer Farms 2005 Almanac & Calendar. Board of Governors of the Jourdan-Bachman Pioneer Farms, 2005.

# People and the River Corridor Today



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Educational Resources p.69

Jurisdictional Authority p.73



*The river and the new generation.*  
©C. Hancock

*“Rivers must have been the guides which conducted the footsteps of the first travelers. They are the constant lure; when they flow by our doors, to distant enterprise and adventure; and, by a natural impulse, the dwellers on their banks will at length accompany their currents to the lowlands of the globe; or explore at their invitation the interior of continents.”*

*Henry David Thoreau*

*A*nd so it has been along the Colorado River that people have traveled, explored, settled, and developed enterprise. From the aboriginal nomad cultures, the rise and decline of an agricultural-based economy, to the current combination of suburban/commercial land use, the Austin Bastrop Colorado River Corridor has seen many changes to its human population and to its landscape.

*T*he following essays present a brief overview of the Colorado River's "people resources." This information is presented for purposes of this vision plan, according to six resource categories: population and demographics, land uses, transportation, recreation, educational resources, and jurisdictional authorities.



*Afternoon on the river.  
©Kevin Anderson*

# Land Uses

Molly Scarbrough  
Community Planner

## Current Land Use Trends

The Colorado River snakes its way with many bends and turns for over 60 miles between Austin and Bastrop. Historically land uses along this winding river corridor were agriculturally based, with clustered human settlements along the river in what is now the Montopolis neighborhood (Austin), Webberville and Bastrop.

The Austin metropolitan region is now one of the fastest growing in the U.S.<sup>28</sup>, and is expected to double in population in the next 20-40 years.<sup>29</sup> Although growth is primarily expected along the IH-35 corridor, rural areas in eastern Travis and western Bastrop Counties are also expected to grow rapidly as

In 2000, there were 30,209 housing units in the study corridor with a 93% occupancy rate. The median home value was \$73,800, 59% of the median value of the Austin Metropolitan Region. The average household size was three with a median household income of \$33,714, 79% of the region's median.

people look for more affordable housing.<sup>30</sup>

With the increased regional housing demand, market pressure and the resulting higher land prices are leading to the conversion of rural and agricultural lands to developed uses. The highest conversion rates are along major roadways radiating in and around Austin<sup>31</sup>. In the study area, new residential subdivisions are extending east from Austin and west from Bastrop primarily along Highway 71. Local public policies encourage growth east of I-35, and the construction of the new Highway 130 will further increase accessibility and development pressure east of Austin, including the river corridor study area.

Typically, higher density housing remains concentrated in existing urban areas, with lower density development in the outlying areas. This is true in the study area where closer to Austin the development tends to be small lot affordable housing, with larger lot subdivisions to the east.

Envision Central Texas, a community-based effort to articulate a vision in anticipation of the expected growth, has found that the community's preferred growth pattern is higher density development

around city centers and maintaining natural areas and agriculture in the outlying areas. This desired vision is in contrast to the current development trends seen along the river corridor, with the on-going conversion of agricultural lands to large-lot subdivision outside of city boundaries.

## Existing Land Uses in the Study Area

Although the study area includes the eastern-most portion of Austin, the City of Webberville, and the eastern side of Bastrop, most of the study area lies in the Extraterritorial Jurisdictions (ETJ) of

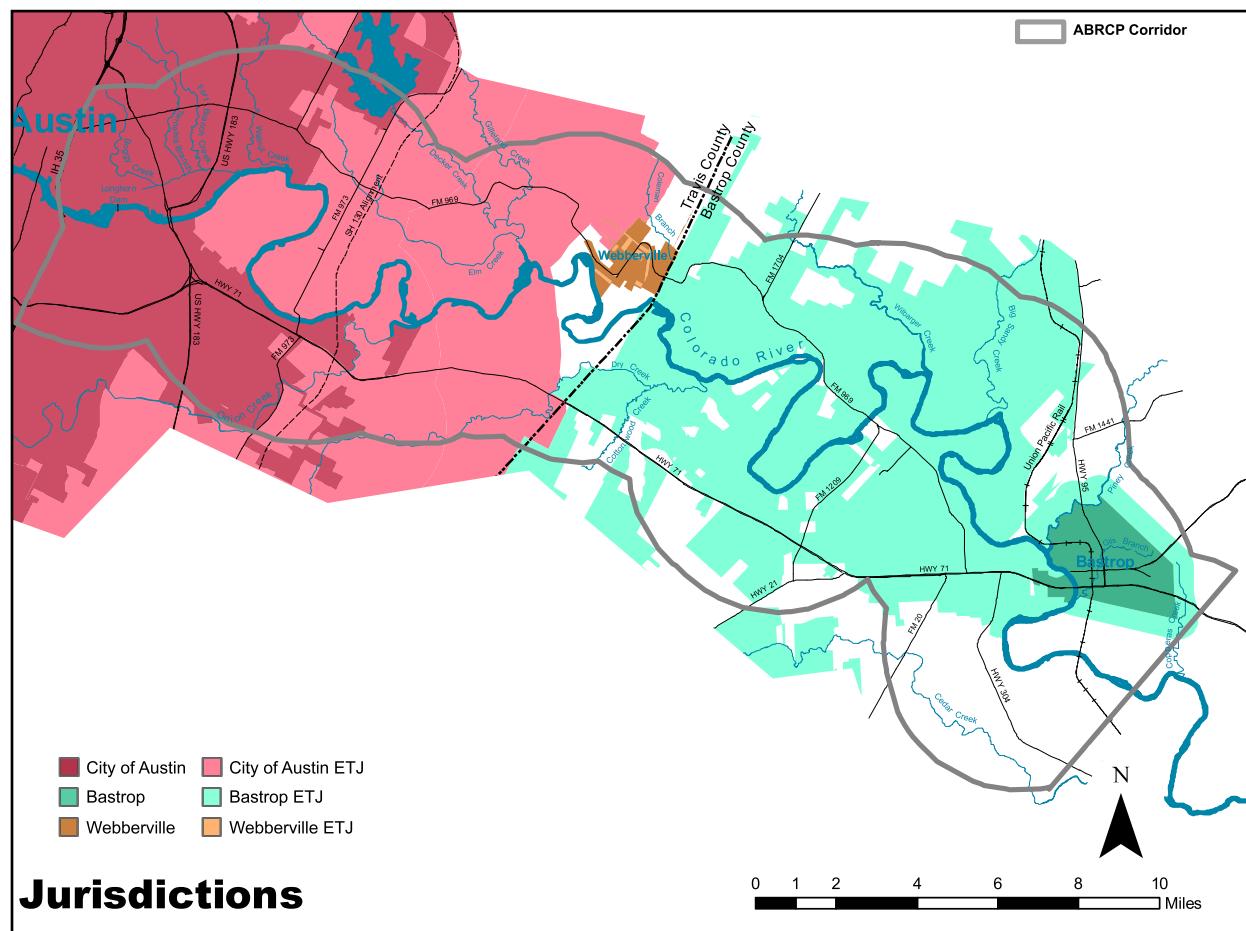
Austin and Bastrop

(see Jurisdictions Map at right). The land uses reflect



©Kathryn Nichols

this, with more dense development and variety of land uses within the city boundaries, and generally less-dense development and open space in the ETJ and county lands. Austin and Bastrop regulate land use through zoning only in the city limits; zoning does not extend into the ETJ.



Land uses in the study area currently form a fairly even mix of urban/suburban uses (primarily residential), agriculture, gravel mining operations, and large public uses, including the Austin-Bergstrom International Airport, wastewater treatment facilities, public parks, nature preserves and public school facilities.

However, this mix is changing rapidly as both gravel operations and new housing subdivisions are expanding into the agricultural areas.

## Residential and Commercial Land Uses

As noted previously, residential land uses are primarily located within city limits of Austin, Webberville and Bastrop, and along the major roadways Highway 71 and 969 in the cities' ETJs. Most are single-family residential homes, with some multi-family apartments within the city limits, and some mobile homes in the rural areas. A few new subdivisions are currently under construction in the Austin and Bastrop ETJs, including Austin's Colony, a smaller lot affordable housing development off of Highway 969, approximately 2 1/2 miles east of Hornsby Bend and The Colony, a large lot residential subdivision off of Highway 71 approximately 6 miles west of Bastrop. Additional permits have also been filed for new subdivisions to the east of the airport in the Austin ETJ. As residential uses increase in the ETJs, the demands on public services, including parks, schools, police and fire

services will also increase. Within the City of Austin jurisdiction, including the ETJ, as new residential subdivisions are built, they will contribute to the Austin parks dedication and acquisition fund.

**O**utside of the urban commercial districts in Bastrop and Webberville, commercial uses in the study area are limited airport-related businesses and restaurants/small-scale retail along major roadways. A major new commercial development area proposed is the Interport site, located between the river, Highways 71, 973, and near the proposed alignment for Highway 130. This will be the largest commercial development on the east side of the airport in Travis County.

**T**n Bastrop County, a new destination tourist attraction is proposed next to LCRA's McKinney Roughs Nature Preserve approximately 13 miles east of Austin and 7 miles west of Bastrop. The Hyatt Regency Lost Pines Resort and Spa will include 491 hotel rooms, an Audubon-certified golf course and interpretive trails on 656 acres along the Colorado River.

## Agriculture

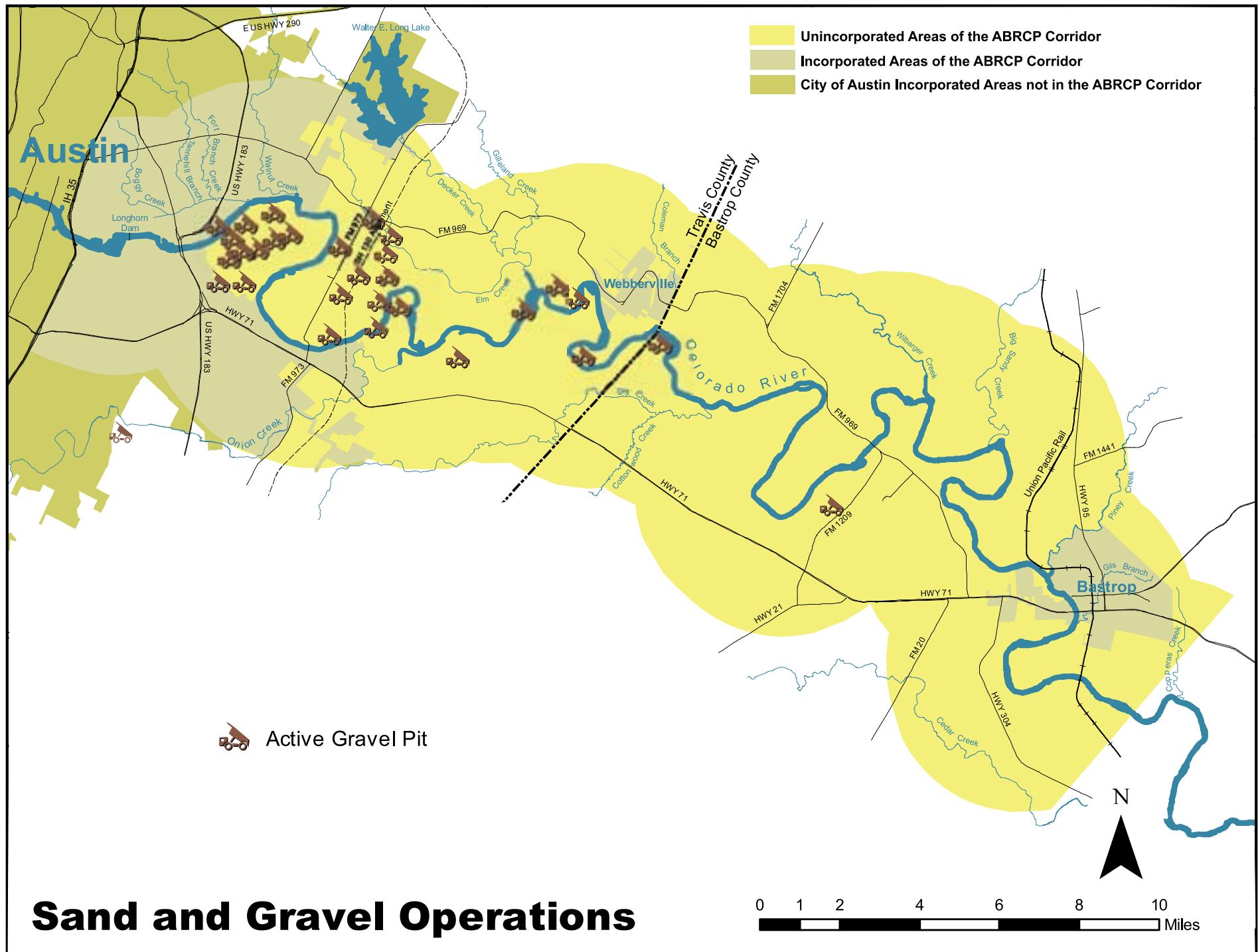
**M**ost of the open lands between Austin and Bastrop are still occupied by working farms and ranches. Agricultural uses in the area primarily consist of cattle ranches, orchards, tree nurseries, and turf farms. Several small organic farms growing a variety of produce also operate in the area, some of whom participate regularly in the Austin Farmer's Market. Larger tracts of land are still located along the river where the river is furthest from Highways 71 and 969 and roadway access is limited.



## Sand and Gravel Mining

**T**he predominant commercial land use in the study area is sand and gravel extraction. Just in the "Dog's Head Bend" section of the river (north of the airport) there are currently over 2,000 acres of gravel quarries. These operations are an historical human use of the river corridor, an inevitable result of the growth of the region, and they provide the essential materials for new roadways, housing and other construction. However, because the gravel beds are found in the alluvial soils along the river and the process of extraction is inherently disruptive, these operations are transforming the landscape of the river corridor (see map on next page).





The process of gravel extraction involves the removal of all topsoil and vegetation and leaves large open pits where the sand and gravel have been removed. In many cases, inactive gravel pits fill with water, forming large ponds and becoming unplanned wetland and open water habitat. Quarries near the river's edge may only have a high berm separating the open water pond and the river, potentially affecting the course of the river when the berm erodes. In some cases, the quarries may be filled with construction debris or other materials.



The reclamation requirements of sand and gravel mining are minimal. The industry is controlled by the Texas Commission on Environmental Quality which primarily issues air quality permits for the mining operations (see Section on Jurisdictional Au-

thorities for more information). The City of Austin is exploring additional requirements which would require a greater set back from the river.

Gravel pit operators own some properties and have long-term mining leases on others. For this reason, it is difficult to know exactly which properties are planned for gravel extraction in the future. However, existing active gravel operations and former pits that have been filled with water can be seen clearly on aerial maps. The majority of gravel operations are located just east of Austin and around Webberville, although they appear to be expanding eastward.

### Public Land Uses

The largest public land use in the area is the Austin-Bergstrom International Airport, located only a quarter mile south of the river on Highways 71 and 183. The airport has a significant influence on development in the immediate area. Several airport-related commercial uses have developed on the north side of the airport, including off-airport private parking facilities. The noise contours of the airport follow a north-south alignment, which limits development potential in those areas. Primary uses in the noise-af-

fected areas are sand and gravel mining, the Hornsby Bend Biosolids Management Plant and other City of Austin wastewater facilities, and airport related business and commercial development.

Three school districts operate in the study area: the Austin Independent School District (ISD), Del Valle ISD, and Bastrop ISD. As a result of the new airport, several Del Valle ISD schools were relocated to more rural lands east of the airport, out of the flight path. This relocation increases the desirability for housing development to the east of the airport, and subdivision permits have already been filed for this area.



The City of Austin owns several major public facilities in the study area, including Hornsby Bend Biosolids Management Plant, the South Austin Regional Water Treatment Facility, and the Sand Hill

Energy Center power plant. A new composting plant is also proposed off of Highway 973 near Highway 969. The Hornsby Bend site has the most direct relationship with the river, stretching 3.5 miles along the river, north

of the airport. Hornsby Bend is responsible for treating and reusing all of the City's biosolids (sewage sludge) and all yard trimmings. It also includes the Center for Environmental Research, a partnership between the



Birdwatching at Hornsby Bend.  
© Kevin Anderson

Austin Water Utility, the University of Texas and Texas A&M University. The 1,200 acre Hornsby Bend site has also become a popular bird-watching site, harboring over 370 species of birds and an abundance of other wildlife. The Cities of Austin, Webberville, and Bastrop, Travis County and LCRA operate several public parks and preserves in the study area

Currently approximately 7.6 miles of riverfront are protected through public parks and preserves, out of the approximately 120 miles of river bank (60 river

miles x 2 banks) in the study area. See the Recreation Section for more information about these resources.



#### Parks and Preserves

Roy G. Guerrero Colorado River Park	1.5 mi.
Colorado River Preserve	0.5 mi.
Onion Creek Preserve	0 mi.
Travis County Southeast Metro Park	0 mi.
Big Webberville Park	0.25 mi
Little Webberville Park	0.50mi
McKinney Roughs Nature Preserve	1.25 mi.
Fisherman's Park	0.6 mi
Bob Bryant Park	0.75mi
Colorado River Refuge	1.5 mi.

**Total:**

#### Approximate Number of River Miles on Colorado River

**7.6**

#### Jurisdiction

City of Austin
City of Austin
City of Austin
Travis County
City of Webberville
City of Webberville
LCRA
City of Bastrop
City of Bastrop
Pines and Prairies Land Trust

#### Notes from this Section

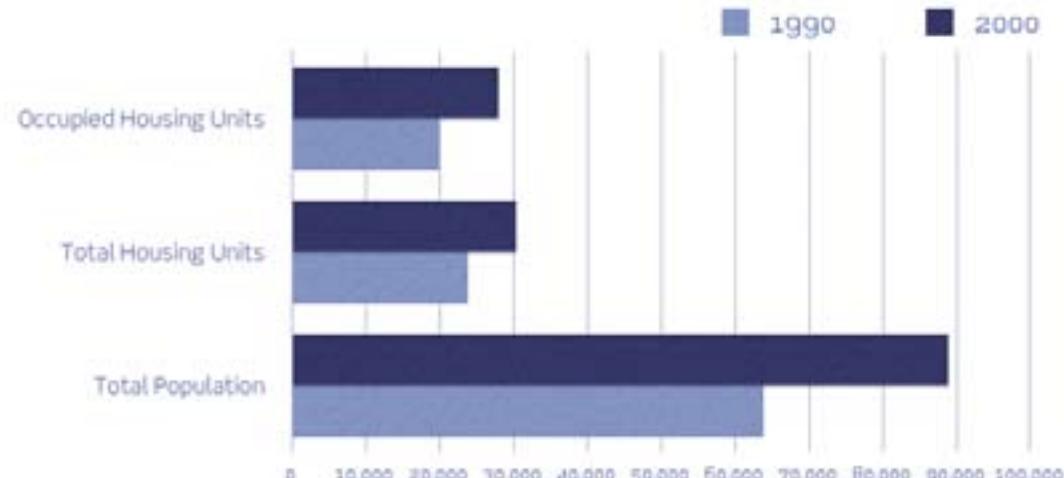
<sup>28</sup> The Central Texas Sustainability Indicators Project Annual Report 2004, Austin, TX, p. 9

<sup>29</sup> Capital Area Planning Council, "Capital Area Future Population Projections (1990-2030)", downloaded from the website: [http://www.capco.state.tx.us/Information\\_Clearinghouse/data/tabular\\_data/2005-2-17\\_capital\\_area\\_future\\_population\\_projections.pdf](http://www.capco.state.tx.us/Information_Clearinghouse/data/tabular_data/2005-2-17_capital_area_future_population_projections.pdf), April 15, 2005.

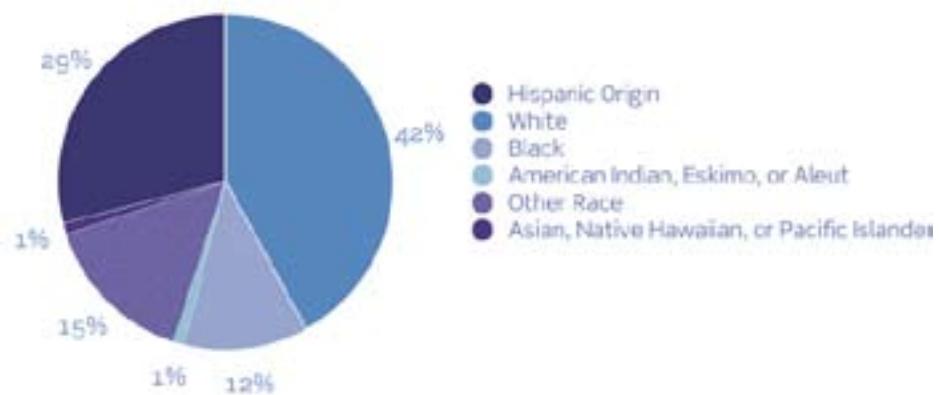
<sup>30</sup> The Central Texas Sustainability Indicators Project Annual Report 2004, Austin, TX, p. 11

<sup>31</sup> The Central Texas Sustainability Indicators Project Annual Report 2004, Austin, TX, p. 82

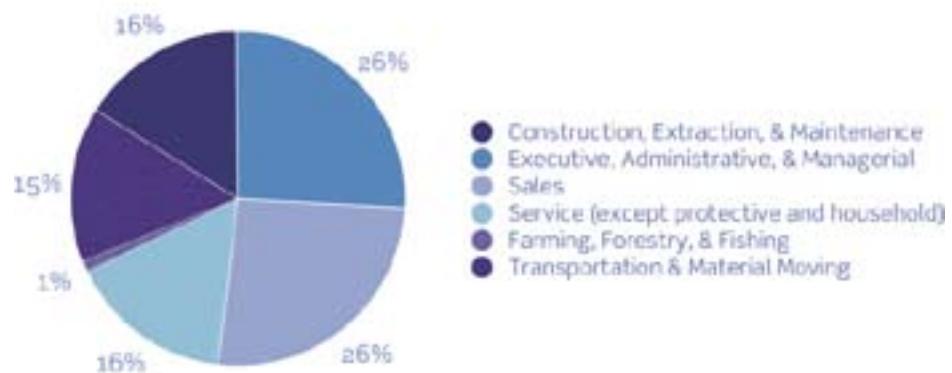
## Census Graphs and Data



*Corridor Population and Housing 1990-2000*



*2000 Census Corridor Resident Race and Ethnic Background*



*2000 Census Corridor Resident Occupation Summary*

\*All above information from 2000 Census tracts 9.02, 21.08, 21.10, 22.05, 22.06, 23.03, 23.11, 24.16, 9501, 9503, 9504, & 9505.

# Transportation

The Encyclopedia Britannica defines transportation as "the movement of goods and persons from place to place and the various means by which such movement is accomplished. The growth of the ability—and need—to transport large quantities of goods or numbers of people over long distances at high speeds in comfort and safety has been an index of civilization and in particular of technological progress."

Technological progress is undoubtedly seen along the Austin to Bastrop river corridor and poses its own unique challenges. The following provides an inventory of the current transportation facilities within the Austin to Bastrop river corridor and a presentation of the issues involved as transportation facilities are expanded and adapted to meet the public's changing needs.

## Road and Bridge Inventory

While the Colorado River once posed a barrier to the movement of people, goods, and services, modern-day civil engineering opened up the opportunities for travel back and forth across the river. Today there are 5 bridges, for vehicular traffic, crossing the Colorado River between Longhorn Dam in Austin

and the eastern limits of the City of Bastrop, and one bridge for the Union Pacific Rail at the easternmost end of the corridor. A sixth bridge for vehicles is under construction for State Highway (SH) 130 (See Transportation Map on facing page).

Road building is a high priority in the Austin metropolitan area (AMA). There is demand to address both existing traffic problems and to build the roads needed to accommodate the forecasted doubling of the population over the next 25 years. Road building will be particularly intense in the eastern part of the county, through which the Colorado River flows, because the City of Austin (COA) has designated this area as its desired development zone.

Roads impact rivers most directly by crossing them, and bridges have a twofold, direct, impact on rivers: they are access points to the river for recreational uses, and they may threaten environmental quality. Bridges, for example, may constrict wildlife corridors that should ideally extend the length of the river. When sensitively designed, bridges may also serve an aesthetic purpose, complementing the natural beauty of a scenic river.

### Crossing the Colorado River

Although it was possible to ford the Colorado River at some low-water locations, crossing the flood-prone river proved to be a constant challenge for early Austin settlers. In

January 1846, Sam Stone opened the first ferry

"about one mile below Austin"

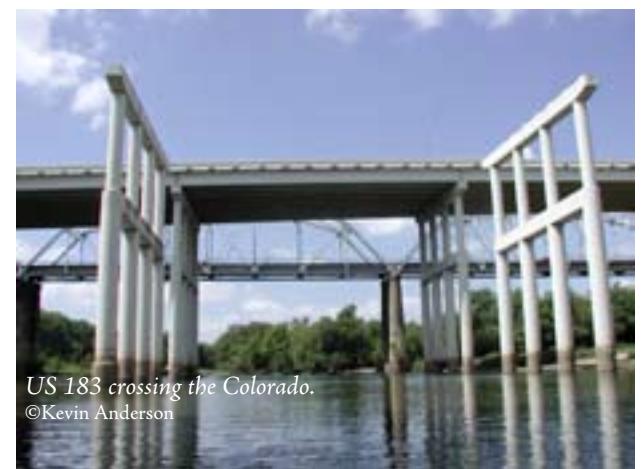
and promised travelers that "...by crossing at this ferry, considerable distance is saved between Austin and San Antonio, and travelers will at the same time always be sure of a safe passage.

<http://www.ci.austin.tx.us/library/ahc/begin/trans.htm>

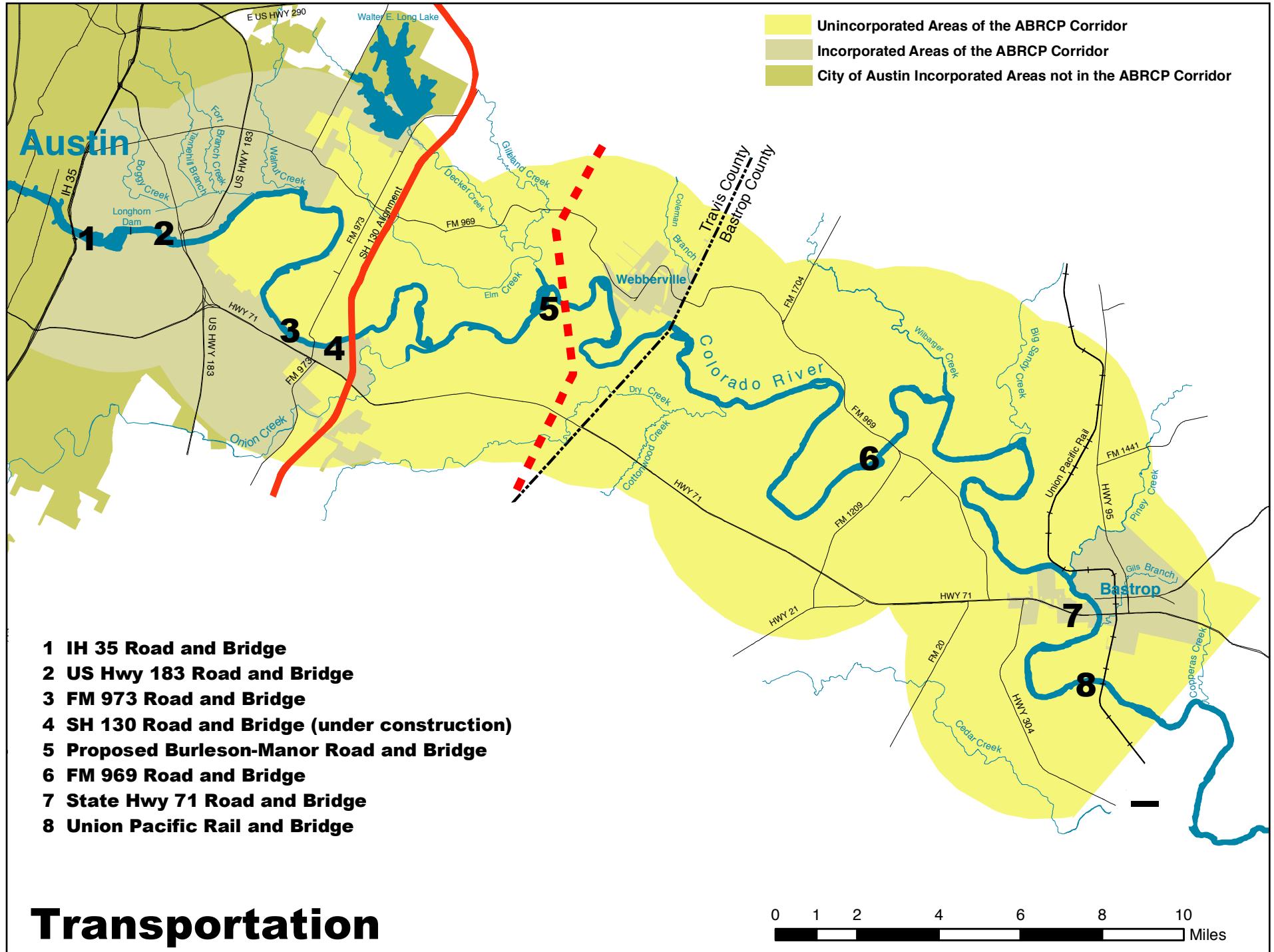


Going to Market

 [Austin Treasures](#) Online Exhibits from the Austin History Center  
Austin History Center Home | Austin Treasures Home



US 183 crossing the Colorado.  
©Kevin Anderson



## Transportation

## Road and Bridge Issues

The Capital Area Metropolitan Planning Organization (CAMPO)—comprised of state, city, county, and TxDOT representatives—is the agency responsible for compiling the transportation plan for the AMA, a plan in which road projects are identified and prioritized. The inventory of existing facilities and a description of projects in the CAMPO 2030 Transportation Plan are described below.

### Burleson-Manor Road

One more bridge is currently planned (but not funded) for the Colorado River corridor area to accommodate anticipated growth in the eastern part of the county. This project entails extending Burleson-Manor Road south to cross the river at the point shown on the Transportation Map.

### FM 973 Road and Bridge Project

Texas Department of Transportation (TxDOT) has funds to improve FM 973 from the City of Manor to Pearce Lane (south of State Highway 71), a project that includes replacing the existing bridge across



*Bridges can provide river access; for example, this ramp at FM 969.  
©Kathryn Nichols*

the Colorado River. Right-of-way for this section is being acquired for a 6-lane, major arterial, divided road (MAD-6), and will include at least a 6-foot wide shoulder for bicycle use. The bridge will be constructed to this MAD-6 standard, but the road will be constructed as a MAD-4 at this time.

As noted in the recreation discussion below, many people access the river at bridge crossings, and the FM 973 crossing is a popular place for getting to the river. The extent to which the new FM 973 Bridge will enhance or limit this type of use is not known at this time. Construction is scheduled to start September 2008.

### SH 130 Project

SH 130 is expected to have a dramatic impact on eastern Travis County by stimulating both a) commercial and residential development along the road corridor and b) mining of the aggregate rich deposits in the Colorado River's floodplain.

As a design-build project, there have been few opportunities for public input on the design of this bridge so the extent to which it addresses public aesthetic, functional, and environmental interests is not clear.



*SH130 Bridge under construction over the river.  
©Kevin Anderson*

**T**he SH 130 bridge does not include bicycle/pedestrian facilities because funding has not been allocated to the project for this use.

**A**lthough not formalized there have been discussions to construct a boat ramp in the right-of-way of SH 130, under the bridge crossing the Colorado.



*SH 130 crosses the Colorado.*

©Lone Star Infrastructure /  
Beacon Aviation

## Caldwell Lane Project

**V**oters approved funds in 2005 bond package to address the riverbank erosion problem near Caldwell Lane that is noted above. These funds will be used to match Army Corps of Engineer (ACE) funds from the Emergency Stream Bank Protection Work program. Improvements are tentatively scheduled to start in the fall of 2007.

## Texas Transportation Corridor (TTC)

**T**he TTC is a planned transportation corridor that is to roughly follow the alignment of IH 35, an alignment established through statewide feedback in 2004. It is expected to take 50 years to complete, with construction of segments to be prioritized according to transportation needs. Since the TTC is to be aligned with existing highways, railways, and utility corridors, it is possible that some of TTC may be constructed in the ABRCP area. TTC progress may be followed on [www.dot.state.tx.us/vtr/rtb/rtb2005/056-05.htm](http://www.dot.state.tx.us/vtr/rtb/rtb2005/056-05.htm) or [www.keeptexasmoving.com](http://www.keeptexasmoving.com).



*Bastrop truss bridge.*  
©Kevin Anderson

# Recreation

Wendy Scaperotta

Senior Planner, Transportation and Natural Resources  
Travis County

The free flowing part of the Colorado River begins past the Longhorn Dam in Austin and meanders over 290 miles on its way to the Gulf of Mexico. In centuries past, the Colorado served as a transportation corridor. Today the Colorado River serves primarily as a water resource for local communities and agriculture, as wildlife habitat, and for recreation. Typical recreational opportunities on the Colorado River include canoeing, kayaking, motor boating, fishing, and nature observation. The river itself is owned by the State of Texas, but access to the river can be through both public property and private property. Public access is fairly limited.

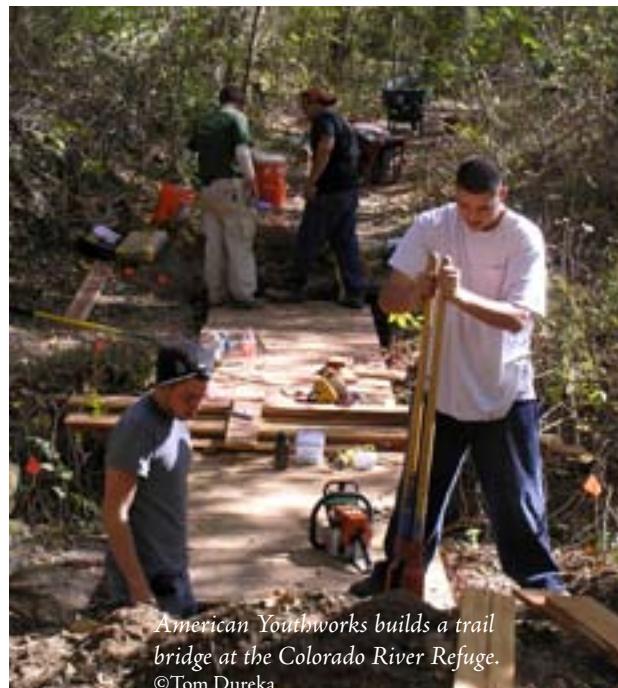
Recreation resources on the Colorado River are available from a variety of different public and private providers. Public providers include the City of Austin, Travis County, the Lower Colorado River Authority (LCRA), and the City of Bastrop. The Pines and Prairies Land Trust will soon have facilities on the river downstream of Bastrop. There are also private providers such as Cook's canoe livery in Weberville and Rising Phoenix Adventures in Bastrop. Some residential developments along the river, such as Austin's Colony and The Colony, are providing private

Butch Smith

Planner, Parks and Recreation Department  
City of Austin

parks along the river for their residents. The Woodbine Resort next to the McKinney Roughs Preserve will have an orientation towards the river for its guests (See the Parks and Recreation Map on the facing page for more details).

One could begin a canoe trip near Austin and travel over 50 miles down river to Bastrop. Along the way, the LCRA has identified seven access points. The two closest to Austin at Highway 183 and FM 973 are

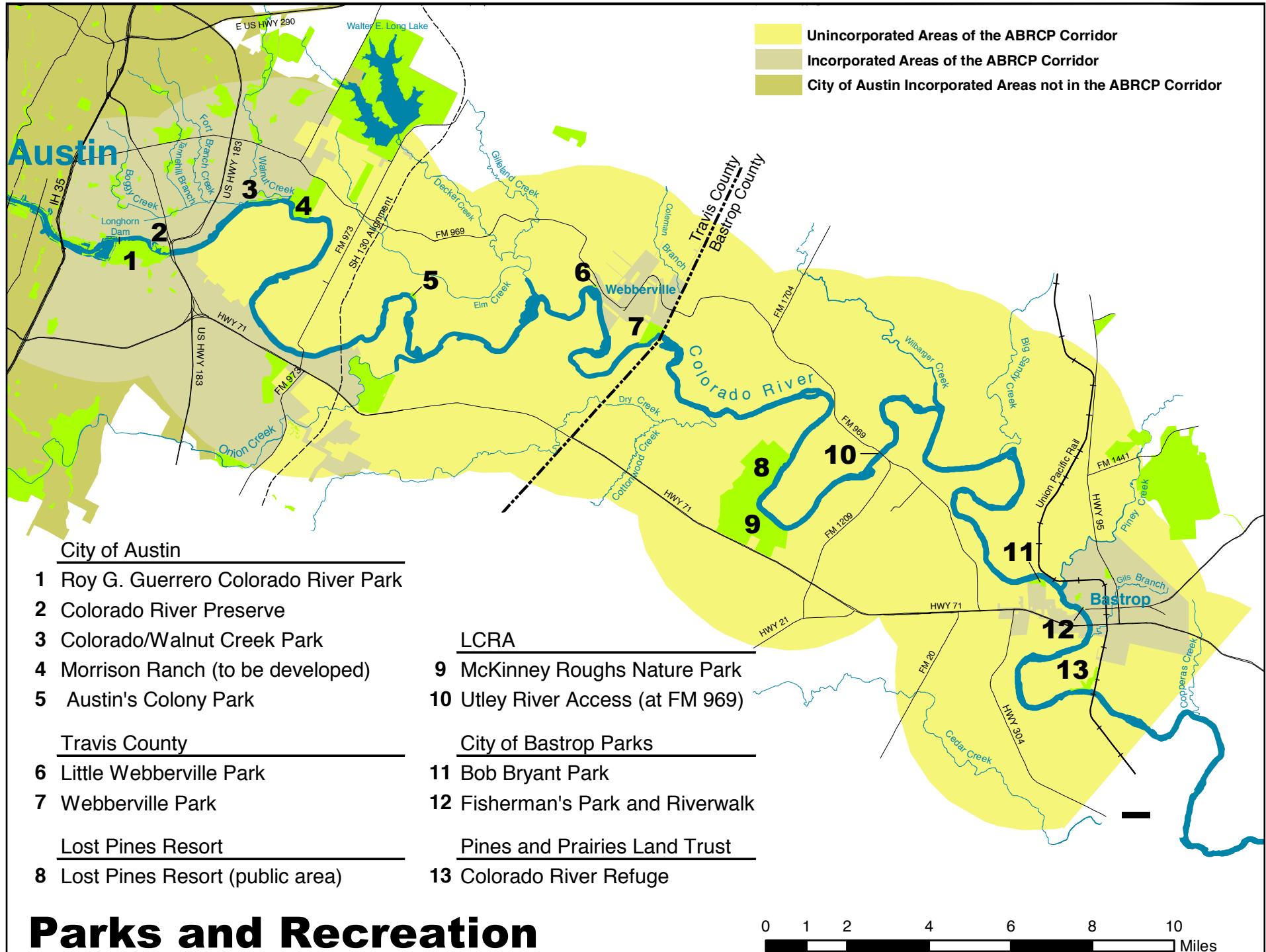


American Youthworks builds a trail bridge at the Colorado River Refuge.  
©Tom Dureka

## Outdoor Recreation Needs in Eastern Travis County

Recreational opportunities are an integral part of life in the Austin-Bastrop corridor. Since the early go's the Austin metropolitan region has enjoyed numerous "best places to..." rankings from such notable magazines as Forbes, Fortune, and Travel and Leisure. One of the characteristics that helps the Austin area rank so well among other regions of the U.S. is its world-class outdoor recreation opportunities.

However, recent land use studies reveal that the inventory of public land available for recreation is greater in the western portion of Travis County than in the eastern portion. Recently (Spring 2006) the Trust for Public Land (TPL) conducted a "greenprinting" process for Travis County. TPL defines "greenprinting" as "making strategic, informed, decisions about land conservation priorities." (The results of this greenprinting process are presented in Appendix B: Travis County Greenprinting Process) TPL organized its conservation priorities into four categories: Water Quality and Quantity, Rare and Sensitive Environmental Features, Cultural Resources, and Recreational Opportunities. In all four categories, and especially in the category of Recreational Opportunities, the eastern portion of Travis County was determined to have the highest concentration of conservation priority areas, or the "areas that offer highest conservation benefit." TPL plans to raise public awareness of the need for future land conservation efforts in eastern Travis County and to place an emphasis on the Colorado River corridor and its tributary creeks.



unimproved access points. The balance of the access points include improved sites at Little and Big Webberville Parks, McKinney Roughs Preserve (with permission only), FM 969, and Fisherman's Park in Bastrop. Distances between river access points range from a short distance of 4 miles to a long distance of 14 miles. The average distance between river access points is 9 miles which is longer than the desired range of 5 miles.

The various parks along the river offer a variety of typical recreation facilities including picnicking, field sports, and nature trails. The Riverwalk close to downtown Bastrop is a paved and lighted trail that follows the Colorado River for about one-half mile. No public parks currently offer overnight camping, but islands and sand bars within the river can be legally used by multi-day floaters who want to spend the night on the river.



*Fishing at Webberville Park.*  
©Kathryn Nichols



*Recreating on the Colorado.*  
©Kevin Anderson



*Biking at the Colorado River Refuge at Bastrop.*  
©Kathryn Nichols



*Enjoying the cool Colorado.*  
©Kevin Anderson

Several entities offer paddling activities along the river. In order to encourage increased usage of the Colorado, the LCRA has produced an invaluable publication called the Colorado River Trail that offers detailed information about “running the river” from Austin to the Gulf of Mexico. At the McKinney Roughs Preserve, LCRA offers guided raft trips for educational purposes. The non-profit Chautauqua Foundation offers a “river school” whose purpose is to expose school-age children to the wonders of the river through canoe trips.

The Texas Parks and Wildlife Department is in the beginning stages of promoting “paddling trails” in Texas that could include the Colorado River. The purpose of this effort is to improve river access, and to bring more recreational users to the local waterways. This effort could include partnerships such as an “adopt an access” program.

Both LCRA and the Texas Parks and Wildlife Department offer grant programs that could be used to improve recreational opportunities on the Colorado River. The City of Austin, Travis County, and the City of Bastrop continue to acquire recreational properties along the Colorado River. In the future, these new parks will provide additional and improved recreational opportunities.



*The Bastrop Riverwalk.*  
©Kevin Anderson

# Scenic Resources

Roy Mann  
Principal,  
The Rivers Studio, LLC

The Colorado River downstream of Longhorn Dam, between Austin and Bastrop's downstream municipal boundary, constitutes a significant scenic resource and one that does not exist west of Town Lake, in the middle reaches and headwater regions of the river. For it is here, where the Colorado enters the Blackland Prairie and works its way into the Coastal Plains, that the visitor can discover the unique curvatures of the mature meandering river and the landscape features and visual textures that are particular to it.

With Longhorn Dam being the last of the impounding barriers, the visual uniqueness of this free-flowing reach of the Colorado, unfolds to the visitor. The Colorado's scenic resources include sand bars and other shoals, sand deltas, creek mouths, wooded flood berms, rock outcrops, long views of the river and its bends, riffles, waterfowl and other bird nesting habitats, wildlife resting and feeding sites, and other visual presentations.

Many of these assets are seen in the foreground from canoes or riverside trails and access points, either by themselves or against the background vistas of scenic bluffs and other high ground, farmed or

forested, in the middle-ground or background of the viewshed. Along riverside trails and even more so from canoes, the foreground and middle-ground portions of viewsheds are of dominant importance, with glimpses of songbirds, raptors, majestic bald cypresses and black willows appearing and accessible to visual enjoyment in a slowly unfolding, dynamic presentation.

**[view·shed]** - The landscape or topography visible from a geographic point.



**F**rom bluffs along the river, such as the red rock bluffs on the Colorado's left bank in Bastrop, expansive views of the river, floodplain forest, and farmed and ranched lands stretch to the horizon. To the extent that such floodplain vistas can remain in agricultural or other unbuilt uses, the bluffs from which they are seen will continue to serve as significant scenic resource viewing points.

**T**he development of a scenic resource inventory for this reach of the Colorado would enable planners, landowners, public officials, and the public at large to better understand where vistas of significance might deserve consideration in development rights purchases, scenic easement acquisitions, and other negotiations with property owners – as well as guide

private and public owners in deciding where environmental tourism, nature photography tours, canoe floats, and other activities tuned to scenic resources might best thrive.

**T**o conclude, (A) Scenic resource protection within the immediate riparian corridor should be taken into account together with habitat, flood protection, and other environmental factors in the environmental planning and policy determinations relative to the Colorado. (B) Within the broader corridor, planning for parkland, trails, and other public uses should take scenic resource protection – both foreground and background components of the river viewshed, into account in determining desirable locations and dimensions of such assets. (C) Also within the broader corridor, middle-ground and background vistas of special scenic areas should be considered by both developers and public authorities as large-scale projects away from the river itself are considered.



# Educational Resources

Kathryn Nichols  
Community Planner, National Park Service  
Rivers, Trails, and Conservation Assistance

Educational opportunities within the vicinity of the Austin/Bastrop River Corridor are provided by school districts and higher educational institutions, and through programming offered by parks, non-profits and research facilities.

## Public Schools

The following Public Schools Map depicts the location of public schools within the three districts that are found in the corridor: Austin, Del Valle, and Bastrop Independent School Districts. Within approximately three miles of the river, there are 14, 6, and 7 schools in the three respective districts.

The graphic includes the two schools of higher education within the corridor: Austin Community College - Riverside Campus and Huston Tillotson University. ACC's Riverside Campus is located adjacent to the Colorado River Park. It offers associate degrees and technical certificates. Instructional programs such as biology, geology, geography, chemistry, and horticulture could avail themselves of Colorado River resources to enhance the learning experience. Huston Tillotson University is a coeducational liberal arts and sciences college offering

Emily Young  
Environmental Planner,  
Austin Water Utility

undergraduate four-year degrees. Historically, the school was an all black college, but now the school functions as multi-racial.

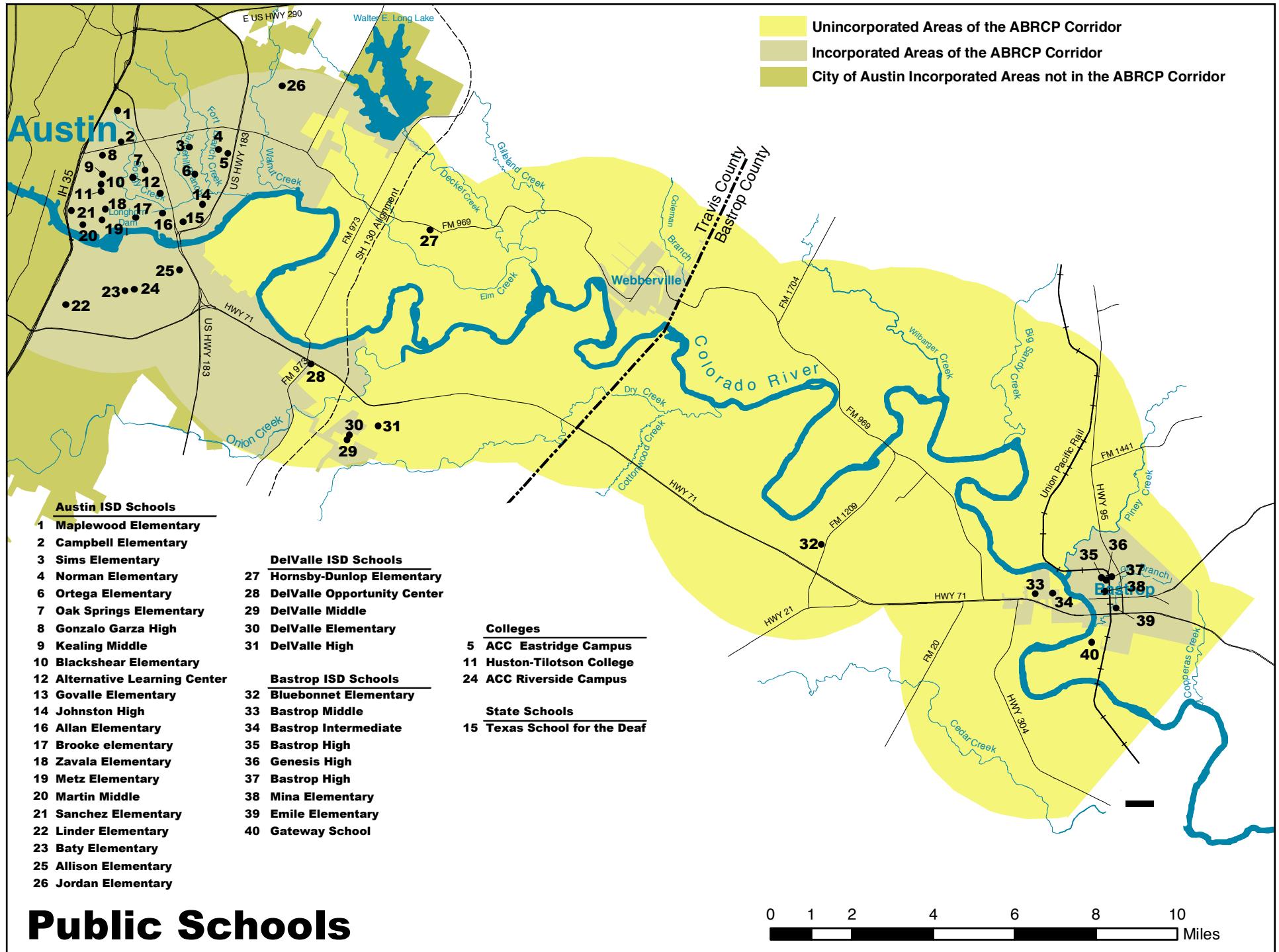
## Other Educational Facilities with Programs

Educational facilities separate from the school districts and within the vicinity of the Austin-Bastrop River Corridor include the Austin Water Utility's Center for Environmental Research and the Lower Colorado River Authority's (LCRA) McKinney Roughs Nature Park. These learning centers and facilities provide children and adults with hands-on natural science education opportunities outside the classroom.



The purpose of the Center for Environmental Research (CER) is to support research and education about urban ecology and sustainability. The CER, located at the Hornsby Bend Biosolids Management Plant, was created as a formal partnership between the City of Austin, the University of Texas at Austin, and Texas A&M University. Beyond the partner institutions, most other higher education institutions in the Austin area utilize the CER for classes and field trips. As a community service, the CER auditorium and classrooms are used by a wide range of organizations for environmental workshops, training, and classes throughout the year. CER, along with its partners, conducts many public field trips along the river at the Hornsby Bend property. Two local environmental organizations have their offices there, and a state-wide organization, the Texas Riparian Association, is hosted by the CER.

McKinney Roughs Nature Park is home to the Mark Rose Natural Science Center. After opening in 1998, the center quickly became the centerpiece of the LCRA's natural science program. The center offers nature programs throughout the year for students ages four to 18. Children can observe live



animals in their habitat, catch and classify insects, or spend the day rafting the Colorado River. Children can acquire wilderness survival skills in the Junior Naturalist Program.

**A**nother program at McKinney Roughs, the Academy in the Roughs, allows student groups with adult chaperones to immerse themselves in two to five-day Texas Essential Knowledge and Skills (TEKS) based academic enrichment programs. Three different



*Students learn about aquatic life.  
©Clark Hancock*

program topics are offered, including Texas frontier history, riparian ecosystems, and studies of the food chain. A leadership program involving group dynamics is offered to teens.

## Educational Programs

**A** variety of non-profit entities offer additional educational programming in the Corridor vicinity. The Austin Youth River Watch is an environmental after-school mentoring program that

engages young people in water quality monitoring. School counselors and science teachers in Austin high schools, primarily in East Austin, identify students that could benefit from this academic enrichment program. Students conduct water quality testing at several locations on the Colorado River as well as in creeks that feed the river.

**P**ODER, People Organized in Defense of Earth and Her Resources, focuses on environmental and social justice issues, primarily those that affect East Austin. PODER adopted the Roy Guerrero Colorado River Park to monitor the park and insure protection of the natural habitat. Each fall the organization co-sponsors the Festival de la Plantas held at Colorado River Park. The festival is a celebration of local plant life and regional cultures that use plants. PODER also regularly co-sponsors river clean-ups on the Colorado.

**A**s discussed in the Recreation section, the Chautauqua Foundation provides educational paddling trips on the river to fourth through sixth graders. The River School is based on a philosophy that outdoor experiences on the river will keep kids healthy and kids will grow up to keep the river healthy. The



*Clean-up events*  
©Doyle Mosier

Chautauqua Foundation works primarily with students from Austin elementary schools.

In Bastrop, the Pines and Prairies Land Trust (PPLT) has begun educational programming at its Colorado River Refuge. Even before the proposed trails are completed, PLLT has hosted interpretive hikes along the river. Additionally, PPLT offers a variety of stewardship opportunities at the refuge, including clean-ups and riparian restoration.

Finally, the Austin-Bastrop River Corridor Partnership itself has committed to providing education about the river. The format of the monthly Partnership meetings includes a presentation on some

aspect of the river by one of the partner organizations or an invited expert. Topics have included geography, bird species documented in the corridor, floodplain mapping, sand and gravel mining operations, Region K Water Planning, and water quality monitoring, to name a few.

# Jurisdictional Authorities

Kathleen Ligon  
Graduate Intern  
Lower Colorado River Authority

Emily Young  
Environmental Planner,  
Austin Water Utility

A number of federal, state and local agencies have regulatory authority over activities in the study area that could affect the natural environment. The agencies listed below have a number of responsibilities outside of their regulatory authority; in addition to enforcing laws and regulations, many of these agencies do planning and research, provide environmental education, sponsor voluntary partnerships and programs, and offer financial assistance to different entities. More information on environmental regulations and regulated activities, and other services and resources provided by these agencies, can be found by visiting their web sites.

agencies and other federal agencies. More information on the EPA can be found at [www.epa.gov](http://www.epa.gov).

The US Army Corps of Engineers (USACE) protects water resources primarily through the Rivers and Harbors Act and the Clean Water Act, regulating dredge, fill, and other activities in the Colorado River and other water bodies, including wetlands. More information on the USACE can be found at [www.usace.army.mil](http://www.usace.army.mil).

The US Fish and Wildlife Service (USFWS) enforces the Endangered Species Act, the Migratory Bird Treaty Act, and other laws, treaties and regulations to help conserve protected resources. It regulates activities that have the potential to harm endangered and threatened species, and issues permits for the "take" of these species. More information on the USFWS can be found at [www.fws.gov](http://www.fws.gov).

## Federal Jurisdictions

The Environmental Protection Agency (EPA) is the comprehensive federal environmental agency. More than a dozen major statutes or laws form the legal basis for EPA programs, including the Endangered Species Act, the Clean Water Act, the Clean Air Act, the National Environmental Policy Act, the Pollution Prevention Act, the Resource Recovery and Conservation Act, and others. Much of EPA's authority to regulate these and other laws has been delegated to state

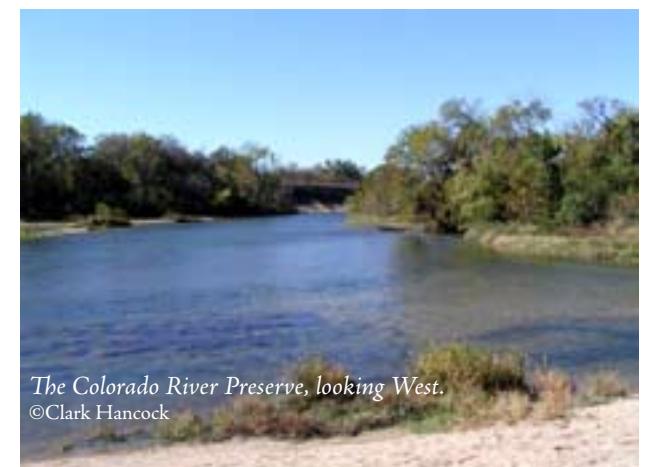
## State Jurisdictions

The Texas Commission on Environmental Quality (TCEQ) is the primary environmental agency for the state of Texas. The TCEQ enforces a

number of state and federal laws and regulations, with many of its powers delegated from the Environmental Protection Agency. The TCEQ regulates air emissions; wastewater and stormwater discharges; and hazardous, radioactive, industrial, medical and municipal solid waste disposal. The agency also works to ensure the safety of public drinking water, sets standards for air and water quality, and issues water rights permits. For more information, visit [www.tceq.state.tx.us](http://www.tceq.state.tx.us).

Other state agencies responsible for environmental protection include:

- *The Railroad Commission of Texas (RRC)* oversees the Texas oil and gas industry, gas utilities,



pipeline and rail safety, safety in the liquefied petroleum gas industry, and the surface mining of coal, lignite and uranium. More information on the RRC can be found at [www.rrc.state.tx.us](http://www.rrc.state.tx.us).

- *The Texas Water Development Board* forecasts water supply needs and provides funding for water supply and conservation projects. It has no regulatory authority. More information on the TWDB can be found at [www.twdb.state.tx.us](http://www.twdb.state.tx.us).

- *The Texas General Land Office (GLO)* manages “submerged” lands and other state-owned property. The GLO leases drilling rights for oil and gas production on state lands and oversees the state’s Oil Spill Prevention and Response Program. More information on the GLO can be found at [www.glo.state.tx.us](http://www.glo.state.tx.us).

- *Texas Parks and Wildlife Department (TPWD)* manages wildlife habitat, parklands, and historic areas. The Department has authority for managing fish and wildlife resources in all Texas counties, and issues hunting and fishing licenses and boat registrations. TPWD also is responsible for listing state threatened and endangered species. More

information on the TPWD can be found at [www.tpwd.state.tx.us](http://www.tpwd.state.tx.us).

- *The Texas Department of Transportation (TxDOT)* regulates the safety of sand and gravel mines. (Note: The actual mining and reclamation of sand and gravel is not regulated under State law. If the sand or gravel operations will affect ground water, have a surface-water discharge or create a point-source air discharge, the operation may be regulated by the TCEQ.) More information on TxDOT can be found at [www.dot.state.tx.us](http://www.dot.state.tx.us).

## Regional Jurisdictions

*T*he Lower Colorado River Authority (LCRA) is a conservation and reclamation district that provides energy, water and community services to the people of Texas. LCRA generates electricity and sells it wholesale to city-owned utilities and cooperatives that serve more than 1.1 million people. LCRA also builds and operates transmission projects through a nonprofit corporation, manages the waters of the lower Colorado River, operates parks, and helps communities with economic development. LCRA operates on revenues

from the sale of electricity, water and other services. It cannot levy taxes and receives no tax money. More information on LCRA can be found at [www.lcra.org](http://www.lcra.org).

*T*he Capital Area Council of Governments (CAPCOG) is a non-regulatory state agency that provides environmental enforcement training and maintains an environmental crime reporting hotline for the region. More information on CAPCOG can be found at [www.capcog.org](http://www.capcog.org).



LCRA manages water.  
©Clark Hancock

## Local Jurisdictions

**T**ravis County issues development, septic system, driveway and utility permits outside the corporate city limits in Travis County. It also operates parks and nature preserves and manages floodplains. More information on Travis County can be found at [www.co.travis.tx.us](http://www.co.travis.tx.us).

**B**astrop County issues development permits and manages public services outside the corporate city limits in Bastrop County. More information on Bastrop County can be found at [www.co.bastrop.tx.us/ips/cms/](http://www.co.bastrop.tx.us/ips/cms/)

**T**he City of Austin issues building and development permits, and has a comprehensive environmental regulatory program. More information on the City of Austin can be found at [www.ci.austin.tx.us](http://www.ci.austin.tx.us).

**T**he City of Bastrop issues building and development permits, and enforces select environmental ordinances, including tree protection. More information on the City of Bastrop can be found at [www.cityofbastrop.org](http://www.cityofbastrop.org).

**T**he Village of Webberville (incorporated in February 2003) has enacted initial development regulations. More information on the Village of Webberville can be found at [www.webberville.org/village\\_commission/](http://www.webberville.org/village_commission/).



*View from the  
Colorado River  
Refuge.  
©Tom Dureka*

## John Graves Scenic Riverway *A Pilot Program*

Currently there are no quarry setback requirements and the only permits required by TCEQ are for the protection of air quality within the immediate vicinity of the quarries. Numerous bills were filed during the 79th Legislative session providing watersheds protection against environmental impacts of quarrying. Only one bill passed thru the legislature during the most recent session. Senate Bill 1354 relating to the protection of water quality in a portion of the watersheds in Brazos River threatened by quarry activities was signed by the Governor. The bill requires quarries within the 100 year floodplain or one mile of a navigable stream or lake in a watershed to obtain permits for proposing discharges into a segment of the Brazos River below Possum Kingdom in Palo Pinto County to the Parker-Hood County line. General permits are required for proposing discharges from quarries in this watershed further than one mile from the protected water bodies.

This bill also authorizes TCEQ to implement and enforce water quality measures for the segment of the Brazos River basin. Prohibition of new or expanding quarries within 1500 feet of the water is required under the passed bill. A plan for the restoration of the water body to its original condition is required for all permitted quarries in the segment of the watershed and evidence of sufficient bonding or proof of financial resources to accomplish the restoration of the water quality is needed. A plan for land restoration will be required for applicants wishing to obtain a permit within 200 to 1500 feet from the river. A final report of the results of the implementation of SB 1354 will be sent to the governor and other politicians in December 2008, serving as a pilot program for other rivers impacted by quarries.

# Appendix A

## Workshop Participants

The following individuals helped create the Vision for the Austin-Bastrop River Corridor by participating in the two workshops that determined the key Issues, created the Vision Statements, and recommended the Objectives and Actions to implement the Vision.

May 21, 2004

Carl Altman-Kaough *Bastrop County Environmental Network* • Kevin Anderson *Austin Water Utility, Center for Environmental Research* • Katherine Avalos *National Park Service, Rivers, Trails & Conservation Assistance* • Harris Baker *Austin Colony* • Marian Balke *Lower Colorado River Authority* • Rene' Barrerra *Austin Nature Preserves System, PARD* • Jeff Bauknecht *Austin Paddling Club* • Joe Beal *General Manager, Lower Colorado River Authority* • Steve Bonner *National Park Service, Rivers, Trails & Conservation Assistance* • Valarie Bristol *The Nature Conservancy* • Sam Byars *Armbrust and Brown, LLP* • Nancy Charbeneau *Texas Riparian Association* • Jackie Chuter *City of Austin Planning & Zoning* • Neal Cook *Cook's Canoes* • Maj. Rolly Correa *Texas Parks and Wildlife, Law Enforcement* • Marta de la

Garza Newkirk *National Park Service, Rivers, Trails & Conservation Assistance* • Tom Dureka *Pines & Prairies Land Trust* • Gene George *Austin citizen* • Mary Carolyn George *Austin citizen* • John Gosdin *Lower Colorado River Authority* • Clark Hancock *City of Austin, Austin Nature & Science Center* • Jeff Holberg *City Manager, City of Bastrop* • Julie Hooper *Colorado River Foundation* • Tammy Jarocki *Capital Area Master Naturalists* • Priscilla Jarvis *Bastrop Audubon Society* • Jeremiah Jarvis *Pines & Prairies Land Trust* • Paul K. Johnson *Land Design Process* • Jessica Kelley *American Youth Works, Environmental Corps* • Chuck Kellogg *Aqua Water Supply* • Allan Kugler *Jimmie Ann Vaughan Company* • Benjamin Larkin *Trust for Public Land* • Sylvia Leon-Guerrero *University of Texas, Community & Regional Planning* • Ronnie Lindsey *Bastrop County Health & Sanitation* • Daniel Llanes *PODER* • Mike Lyday *Austin Watershed Protection* • Roy Mann *The Rivers Studio* • Liz McLamb *University of Texas, Community & Regional Planning* • Diane Miller *Envision Central Texas* • Steve Mills *Sabine Investments Co., Inc.* • Bill Montgomery *Bastrop Audubon Society* • Capt. Audie Nelson *Texas Parks and Wildlife, Law Enforcement* • Joe Newman *Bastrop Economic Development Corp.* • Kathryn Nichols *National Park Service, Rivers, Trails & Conservation Assistance* • Barbara

Parmenter *University of Texas, Community & Regional Planning* • Cecil Pennington *City of Bastrop Planning Department* • Will Pickens *Larson Burns & Smith* • Robert Potts *Westcave Preserve* • John Prager *Groups United Against Rural Destruction* • Joanne Richards *University of Texas, Admissions* • Geoffrey Saunders *Lower Colorado River Authority* • Wendy Scaperotta *Travis County TNR, Planning and GIS Program* • Molly Scarbrough *EDAW, Inc.* • Tom Scott *Mayor, City of Bastrop* • Jody Slagle *Austin Water Utility* • Butch Smith *City of Austin, PARD* • Ron Smith *Texas Parks and Wildlife, Rivers Program* • Bob Springer *Lower Colorado River Authority, Community & Economic Development* • Barbara St. Aubrey *Austin citizen* • Don Trepagnier *Rios Verdes News* • Patricia Wallace *South River City Citizens* • Elisabeth Welsh *Austin Youth River Watch* • Susan Wendel *Bastrop Chamber of Commerce* • David Williams *Lower Colorado River Authority* • Patricia Wilson *University of Texas, Community & Regional Planning*

## November 13, 2004

Danielle Adams *Bastrop citizen* + Devin Adams *Bastrop citizen* + Carl Altman-Kaough *Bastrop County Environmental Network* + Raul Alvarez *City of Austin Council Member* + Kevin Anderson *Austin Water Utility, Center for Environmental Research* + Daniel Apodaca *Riverwatch* + Katherine Avalos *National Park Service, Rivers, Trails & Conservation Assistance* + Harris Baker *Austin Colony* + Marian Balke *Lower Colorado River Authority* + Jeff Bauknecht *Austin Paddling Club* + Gary Bellomy *Land Design Studio* + Pastor Henry Biar *Prince of Peace Lutheran Church* + Monty Blackmon *City of Bastrop Public Works* + Steve Bonner *National Park Service, Rivers, Trails & Conservation Assistance* + Valarie Bristol *The Nature Conservancy of Texas* + Bill Brooks *Horned Lizard Conservation Society* + Norisse Bryant *Bastrop Parks Board* + Sam Byars *Armbrust and Brown, LLP* + Don Calvert *Bastrop Parks Board* + Rachel Campfffer *CAMPO* + Jim Carrillo *Half Associates* + John T. Cline *Rising Phoenix Adventures & Training* + Neal Cook *Cook's Canoes* + Janice Culp *Riverside landowner* + Jerry D. Culp *Riverside landowner* + Tom Dureka *Pines & Prairies Land Trust* + Mary Ann Earley *Bastrop Parks Board* + Stephen England *TXI, Inc.* + Bruce Evans *Raba-Kistner Consultants* + Lucy Galbraith *CAPCOG* + Delores Goodrich

*Capital Area Master Naturalists* + Jill Green *Riverside landowner representative* + Julia Gregory *Capital Area Master Naturalists* + Clark Hancock *City of Austin, Austin Nature & Science Center* + Cami Hardee *Woodbine Development Corp.* + Shelia Hargis *Travis Audubon Society* + Sara Hilgers *Hornsby-Dunlap Elementary* + Margaret Hill *Capital Area Master Naturalists* + Jeff Holberg *City Manager, Bastrop* + Don Holden *Riverside landowner* + Judy Holden *Riverside landowners* + Julie Hooper *Colorado River Foundation* + Walter Hoysa *Longaro & Clarke* + Jeremiah Jarvis *Pines & Prairies Land Trust* + Paul K. Johnson *Land Design Process* + Chuck Kellogg *Aqua Water Supply* + Sandra Chipley Kellogg *Bastrop Parks Board* + Allan Kugler *Jimmie Ann Vaughan Company* + Lou Kugler *Bastrop citizen* + Lisa Lamb *Austin Contractors & Engineers Assn.* + Kathleen B. Ligon *Lower Colorado River Authority* + Daniel Llanes *PODER* + Robert Long *Boardmember, LCRA* + Mike Lyday *Austin Watershed Protection* + Jack Maguire *Riverside landowner* + Margaret Maguire *Riverside landowner* + Roy Mann *The River Studio* + Patricia McCoy *Lower Colorado River Authority* + Larry Mellenbruch *Riverside landowner* + Diane Miller *Envision Central Texas* + Theresa Murray *Citizen* + Joe Newman *Bastrop Economic Development Corp.* + Kevin Neri *Transit*

*Mixed Concrete* + Rob Newman *Corps of Engineers, Environmental Planning* + Kathryn Nichols *National Park Service, Rivers, Trails & Conservation Assistance* + Carolyn Oatman *Riverside landowner* + Catherine O'Connor *Co' design* + Jonathan Ogren *University of Texas Geography Program* + Cecil Pennington *City of Bastrop Planning Dept.* + Will Pickens *Larson Burns & Smith* + Nancy Rabensburg *Bastrop Parks Board* + Joanne Richards *University of Texas, Asst. Dean of Admissions* + Geoffrey Saunders *Lower Colorado River Authority* + Wendy Scaperotta *Travis County Transp. & Natural Resources* + Molly Scarbrough *Texas Land Trust Council* + Emily Schieffer *LopezGarcia Group* + Sandy Schutz *J-V Dirt and Loam* + Tom Scott *Mayor, City of Bastrop* + Barbara Sides *Riverside landowner* + William Sides *Riverside landowner* + Jody Slagle *Austin Water Utility* + Butch Smith *City of Austin, PARD* + Ron Smith *Texas Parks and Wildlife, Rivers Program* + Barbara St. Aubrey *Austin citizen* + Mike Stewart *Texas Aggregate & Concrete Assn.* + Ramon Suarez *Land Design Studio* + Don Trepagnier *Rios Verdes News* + Patricia Wallace *South River City Citizens* + Elisabeth Welsh *Austin Youth River Watch* + Susan Weems Wendel *Bastrop Chamber of Commerce* + David Williams *Lower Colorado River Authority* + Barbara Wolanski *Bastrop Parks Board* + Daniel Woodroffe *TGB Partners*

# Appendix B

## Travis County Greenprint for Growth

The Trust for Public Land (TPL), a nonprofit land conservation organization, in partnership with the City of Austin, Travis County, and the University of Texas School of Architecture, coordinated the Travis County Greenprint for Growth, a project designed to help citizens and government officials prioritize lands to be conserved and to develop strategic plans for land use and conservation.

The project was initiated by TPL in an effort to implement a regional vision addressing growth in Central Texas to preserve quality of living, natural and recreational resources, and economic prosperity. “The Trust for Public Land, like many land conservation organizations, supports balanced economic development,” says TPL Texas Director Nan McRaven.

The project employs TPL’s GIS mapping technique known as greenprinting. The greenprinting program mixes GIS technology, local demographic and geographic data, and community input to create a visual analysis of the community’s land and its conservation priorities, defined by community representatives. The result is a dynamic map - or greenprint - that highlights the lands whose protection could meet the

multiple conservation priorities identified by the community. There are four major steps to the greenprinting process:

1. Community leaders determine what land protection issues are important.
2. Stakeholders rank the community’s land protection goals.
3. TPL builds the GIS analysis combining local data and land protection goals to create a map illustrating the areas that, if protected, would support the community goals.
4. Working with TPL, the community uses the model to shape local program goals and develop the long-range plan.

The greenprint maps for eastern Travis County are presented here. (Electronic images of the full Travis County Greenprint for Growth are available from TPL upon request.)

The Travis County Greenprint for Growth is available to the City of Austin, Travis County, and cities within the county to assist with local land

conservation planning efforts. TPL hopes to continue this effort, in partnership with Envision Central Texas, for Williamson, Hays, Bastrop, and Caldwell Counties to ultimately greenprint the entire five-county central Texas area.

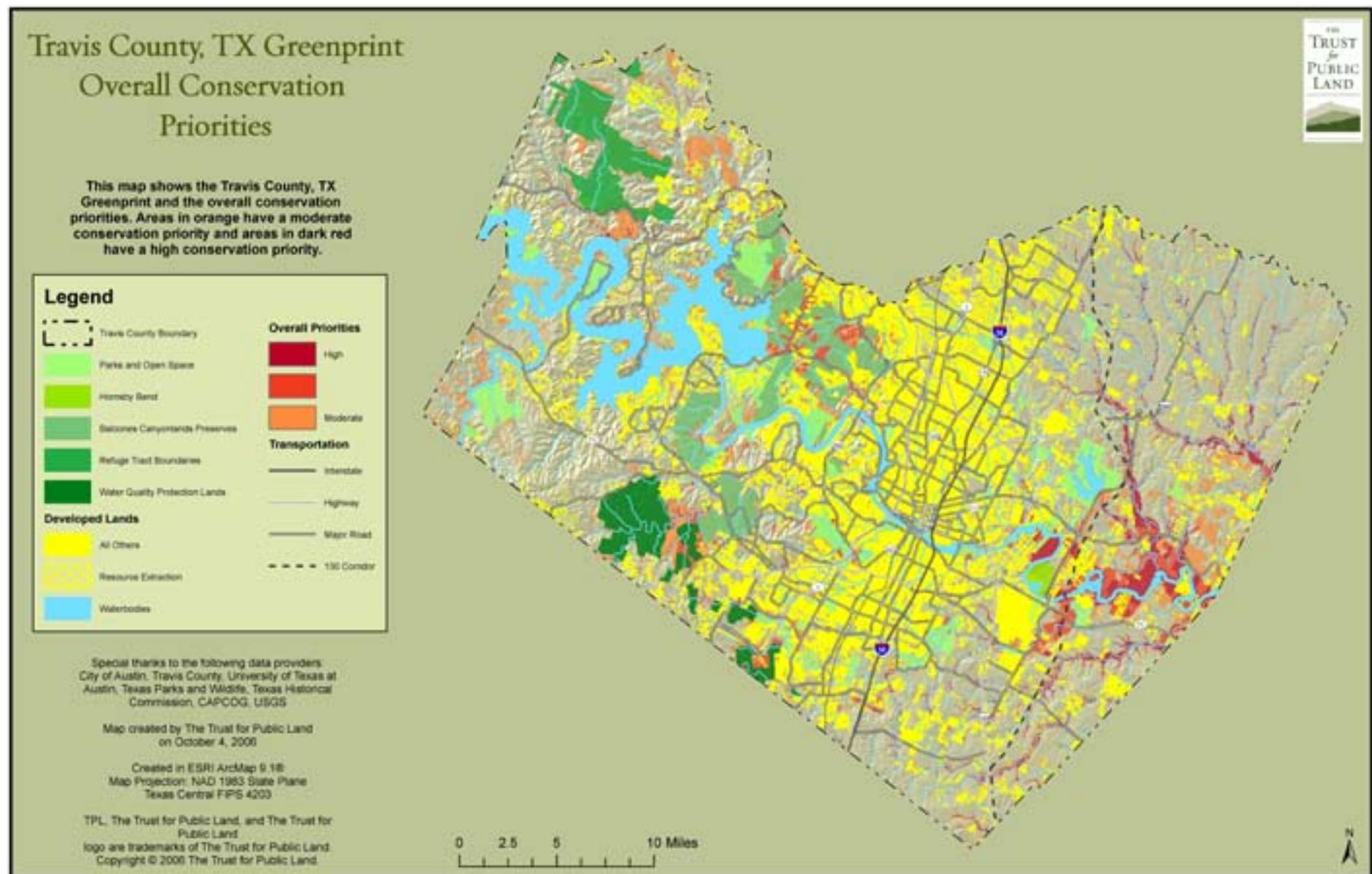
For information about the Travis County Greenprint for Growth or for more information about the Trust for Public Land contact:

Anjali Kaul: 512.478.4644 or 512.917.2525; or

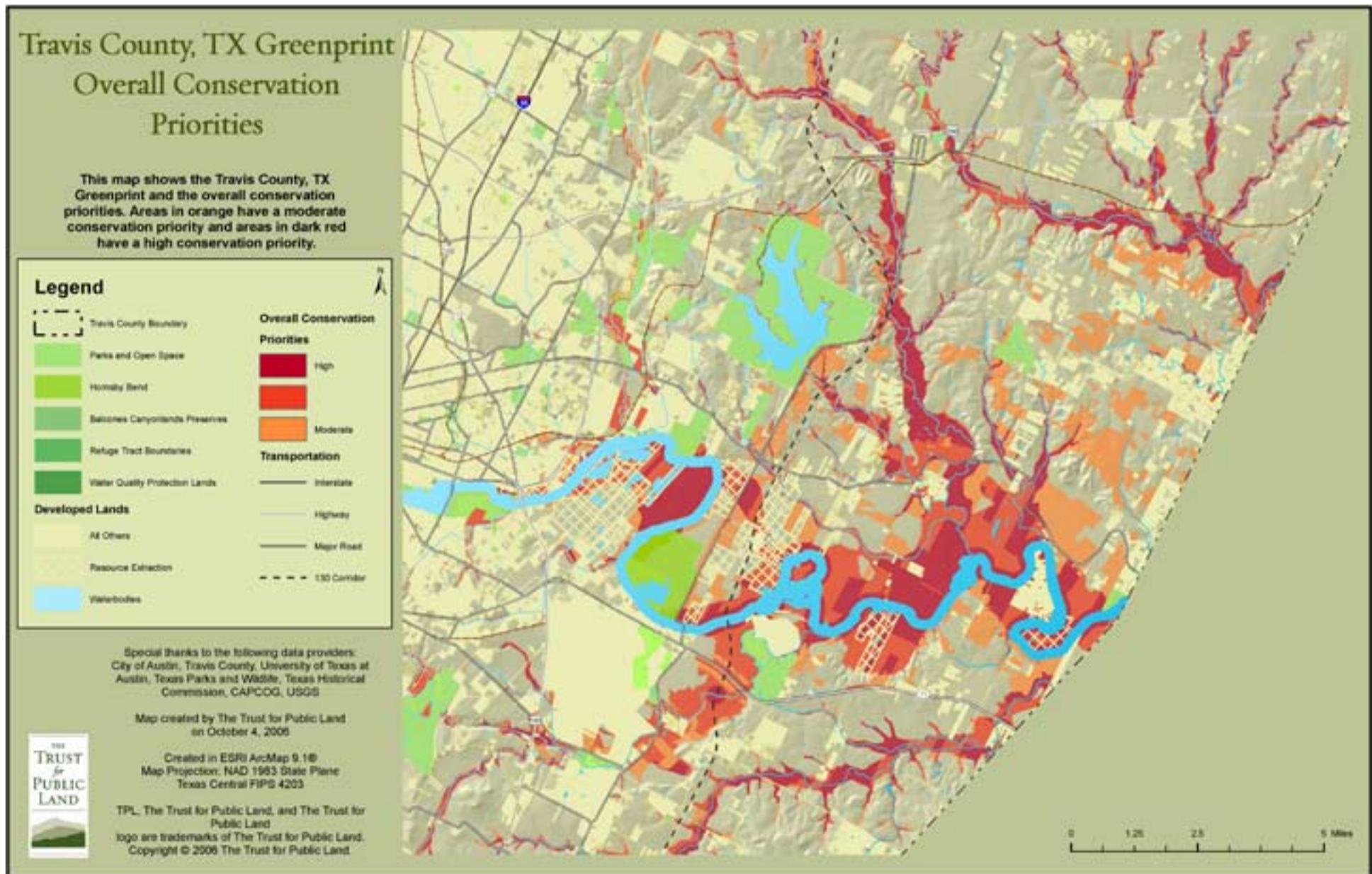
James Sharp: 512.983.2289; or

Nan McRaven: 512.423.9023

# Travis County Greenprint



# Rivers & Greenways: Eastern Travis County





## Austin-Bastrop River Corridor Partnership

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