

Fish and Wildlife Coordination Act Report
for the
Section 206 Aquatic Ecosystem Restoration Project
North Bosque River
Stephenville, Texas



Prepared by:

Carol S. Hale
Division of Ecological Services
Arlington, Texas



U.S. Fish and Wildlife Service
Region 2
Albuquerque, New Mexico
January 2006



Section 206 Aquatic Ecosystem Restoration Project
North Bosque River
Stephenville, Texas

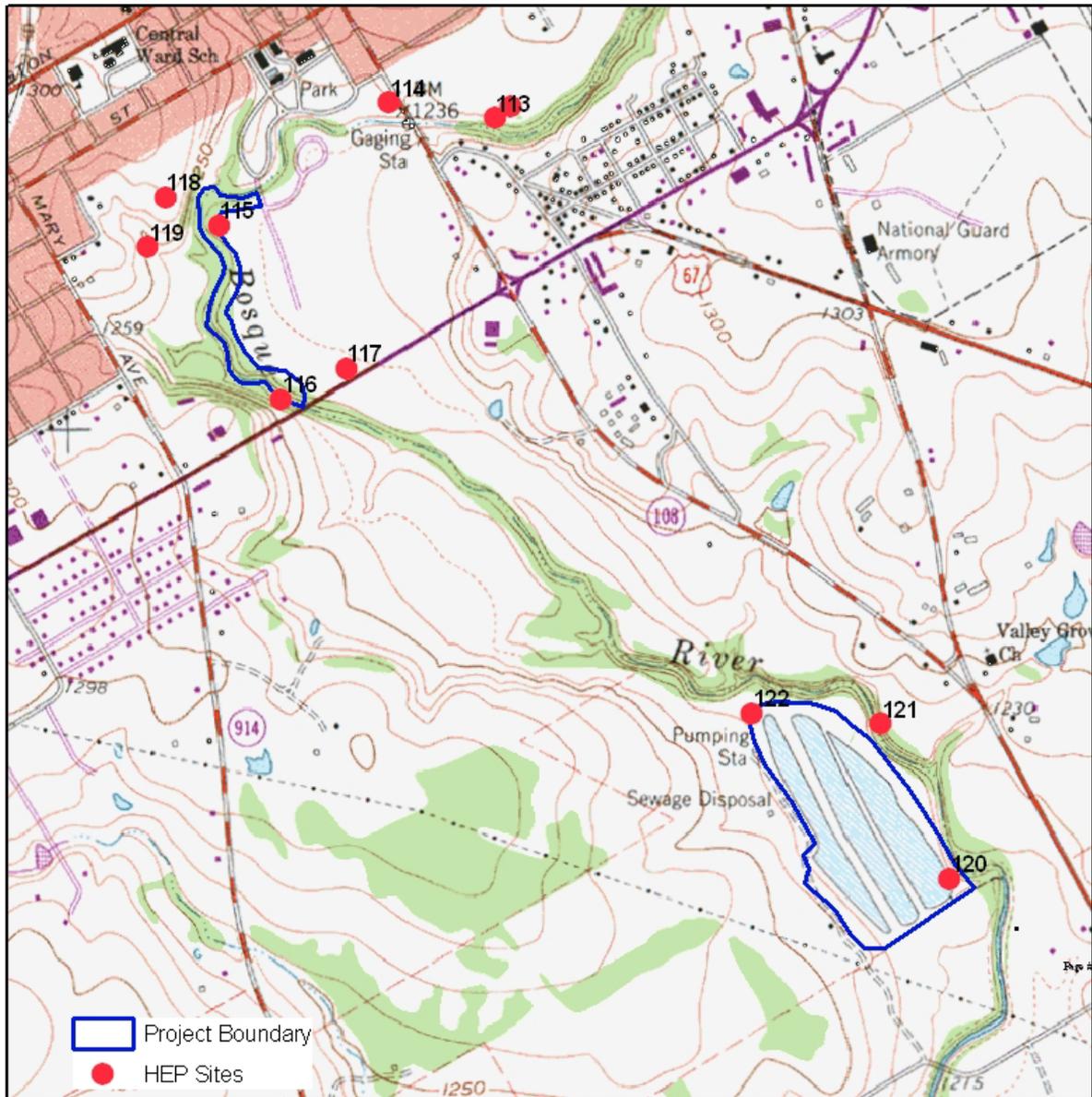
This document constitutes the Secretary of the Interior's report on the Section 206 Aquatic Ecosystem Restoration Project on the North Bosque River in Erath County, Stephenville, Texas. It is submitted by the U.S. Fish and Wildlife Service (Service) to the U.S. Army Corps of Engineers (Corps) under the authority, and in accordance with, Section 2(b) of the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) to accompany the Corps' final Detailed Project Report. It has been coordinated with the Texas Parks and Wildlife Department (TPWD) as noted in the attached letter from Mr. Danny Allen, dated December 5, 2005.

The purpose of this report is to identify and evaluate anticipated impacts of implementing the proposed project on fish and wildlife resources within the project area and to recommend resource management measures. This report is based on the data collected during field investigations by the Service, TPWD, and Corps staff; information received from the Corps; and review comments from TPWD. A planning aid report and several memorandums have previously been submitted to the Corps regarding the existing environmental conditions within the project area.

The Stephenville Aquatic Ecosystem Restoration Project study is being conducted by the Corps under the authority of Section 206 of the Water Resource Development Act of 1996, as amended (22 USC 2201). Section 206 projects are intended to restore degraded aquatic ecosystems and are not required to be related to an existing Corps project; therefore, they do not require mitigation. The purpose of the study is to develop a recommended alternative to restore aquatic and riparian habitats and improve the water quality along the North Bosque River in Erath County. The Corps is assessing the potential impacts on the environment that may result from the implementation of the proposed aquatic ecosystem restoration project. The City of Stephenville is the non-Federal sponsor.

The project is located on lands owned by the City of Stephenville along the North Bosque River in the city park and at the Stephenville Wastewater Treatment Plant (WWTP) (Figure 1). Urban development and agricultural activities have encroached along both sides of the North Bosque River causing bank erosion, siltation, non-point source pollution, and wildlife habitat fragmentation. The project involves reforestation of 18.4 acres of riparian woodlands, enhancement of 5.8 acres of in-stream aquatic habitats, and creation of a 45.1 acres wetland complex. Specific actions proposed in the recommended plan include: 1) creation of 16.9 acres of high quality wetlands and 28.2 acres of improved grasslands within the abandoned sludge drying beds at the WWTP; 2) restoration of approximately 11.5 acres of riparian woodlands at the WWTP; 3) bank stabilization and in-stream habitat creation along 0.5 mile of the North Bosque River in the Stephenville City Park; and 4) restoration of approximately 6.9 acres of riparian woodlands within the city park.

Figure 1: Stephenville Aquatic Ecosystem Restoration Project



U.S. Fish & Wildlife Service

Arlington, Texas, Ecological Services Field Office

Projection: UTM Zone 14N, NAD 1983, GRS 1980
Production Date: 01/09/2016

Habitat assessments using the Service’s Habitat Evaluation Procedures (HEP) and site observations were conducted within of the study area by the Service, with participation from the Corps, on July 31, 2002. Our completed existing conditions Planning Aid Report (PAR) is included in the draft DPR appendices. The PAR includes a complete description of the study purpose, project area, existing habitat conditions, and our preliminary recommendations. However, the project boundary, acreage, and habitat units have changed since the report was completed. Figure 1 shows the current project boundary. The following information is an update since our PAR was completed.

Updated Existing Habitat Units

The project area contains only two habitats, riparian woodlands and old field/ grassland. Only four HEP sites are located within the new project boundary, Sites 115, 116, 120, and 122. The riparian woodlands within the project boundary are located completely within the park. The overall HSI value for the riparian woodlands is considered average (0.65), with 4.48 HUs available. The 56.6 acres of old field/grassland habitat is located completely within the WWTP area and considered poor valued, with an overall HSI of 0.28 and 15.7 habitat units available (Table 1).

Table 1. Habitat Suitability Index Values for the Habitats Found in the North Bosque River Aquatic Ecosystem Restoration Project Area.

Species	Riparian Woodland 6.9 ac	HUs	Old Pasture/ Grassland 56.6 ac.	HUs
Carolina Chickadee	0.89	6.1		
Barred Owl	0.93	6.4		
Raccoon	0.54	3.7		
Wood Duck	0.68	4.7		
Red-tailed Hawk	0.33	2.3	0.33	18.7
Fox Squirrel	0.54	3.7		
Hairy Woodpecker				
Green Heron				
Eastern Cottontail			0.005	0.3
Eastern Meadowlark			0.50	28.3
Scissor-tailed Flycatcher				
Average HSI and HUs	0.65	4.48	0.28	15.7

ALTERNATIVES UNDER CONSIDERATION

There are two action alternatives are being considered for the North Bosque River Aquatic Ecosystem Restoration project:

Stephenville Park Restoration: The primary restoration measures proposed for the park are riparian corridor restoration, stream bank stabilization, and in-stream habitat enhancement. Native trees, shrubs, grasses, and aquatic plants would be planted in the riparian corridor in four zones, varying in composition and width, running parallel with the river. Emergent aquatic plants of 2-inch plugs, would be planted along the edges of existing and proposed pooled areas of the Bosque River. Trees and shrubs that are tolerant of permanent saturation would be planted within five feet of the stream bank. Plantings would consist of live stakes or seedlings. Three- to five-gallon containerized hard and soft mast-producing trees and shrubs would be planted from the outer edge of the bank vegetation to approximately 150 feet in width. Ten randomly placed open spaces within the riparian corridor would be planted in native grasses and other herbaceous plants to provide habitat diversity.

More in-stream habitat would be created by installation of low-water cross veins and/or rock weirs, native rock riffle beds, and placement of root wads. Various methods of bank stabilization would be used such as terracing, geosynthetic liners, gabion/gabion mattress, live fascine, brush mattress, fiber roll, and/or bank seeding.

Stephenville WWTP Restoration: A wetland complex would be created in the old drying beds of the Stephenville WWTP. A water reuse system would be developed to use water from the WWTP for the wetland. Gravity flow and existing piping would move the water. The drying beds would be excavated, and existing interior berms of the drying beds would be removed. Some repairs and modifications to the existing exterior berms would need to be completed to create an emergency spillway during high water levels. Small islands and levees would be constructed inside the wetland cell to create nesting and resting habitat and allow inflowing water to meander through the cell. Water depths within the cell would vary from 1 to 7 feet. Depths would be managed using a flash-board-riser water control structure. Native aquatic plants, shrubs, and trees would be planted in and around the wetland complex.

Recreational amenities such as a parking lot, benches, wildlife viewing stations, and informative signs would be installed along a hike and bike trail, which would be constructed using natural materials along the western berm of the wetland. Wood duck boxes would be installed within the wetland complex.

Recommended Plan: The Corps' Recommended Plan consists of a combination of both alternatives, including habitat restoration, water quality improvement work, and establishment of recreational amenities.

ALTERNATIVES IMPACTS ANALYSIS AND DISCUSSION

It is difficult to predict what will happen in the future for the project area. However, using historic land use trends and the calculated HSIs, predictions of habitat conditions with or without the project can be expressed in terms of HUs.

The following basic assumptions, regarding changes in the habitats, were made for the future with or without project conditions:

- Existing wildlife habitats will change, if not diminish. Their quality could improve with time or deteriorate depending on natural events or changes in land use.
- As the riparian and upland woodlands age, the size and maturity of individual trees and stands and the height of herbaceous vegetation would increase.
- Non-native invasive plant species could be a problem in all habitats.

The two action alternatives were compared with the impact predictions associated with the future without the project analysis for the 50 year project period using AAHUs and acres.

Alternative 1 (No action): The habitats in the project areas would be allowed to progress into a condition dependant upon climate and human impacts to the surrounding lands. There would be no habitat restoration work or bank stabilization.

Habitat fragmentation and erosion problems would continue, perhaps increase. Management of the WWTP would probably remain the same. Grasslands would degrade slightly as johnson grass took over. Periodic mowing would most likely continue at the WWTP to discourage shrub invasion and conversion into woodlands. The riparian woodlands in the park would continue to be degraded due to vegetation being trampled by humans which contribute to erosion problems. Without reforestation management there would be no tree recruitment. In 50 years, it is estimated that the riparian woodlands in the park would yield 3.62 HUs and the grasslands at the WWTP would yield 19.22 HUs (Table 2).

Alternative 2 (Stephenville Park Restoration): Restoration of the riparian corridor and in-stream habitat and recreational features within the Stephenville City Park would be completed as described above. Approximately 6.9 acres of existing riparian woodland would be enhanced. The habitat value would not change within one year after the restoration measures are implemented, however as the new trees and shrubs mature and produce additional hard and soft mast and cover the HSI value would increase to approximately 0.82 in 10 years and 1.0 in 50 years, yielding 6.5 AAHUs (Table 3). This is an increase of 2.88 AAHUs in 50 years.

Table 2. Estimated Future Terrestrial Habitat Acres and AAHUs Without Project.

Study Zone		Riparian Woodlands			Emergent Wetland			Grassland/OldField		
	TY	Acres	HSI	AAHU	Acres	HSI	AAHU	Acres	HSI	AAHU
WWTP	1							56.6	0.28	
	10							56.6	0.31	
	50							56.6	0.36	19.22
Park	1	6.9	0.65							
	10	6.9	0.64							
	50	6.9	0.45	3.62						
TY 50 Totals		6.9		3.62				56.6		19.22

Table 3. Estimated Future Terrestrial Habitat Acres and AAHUs With Project.

Study Zone		Riparian Woodlands			Emergent Wetland			Grassland/OldField		
	TY	Acres	HSI	AAHU	Acres	HSI	AAHU	Acres	HSI	AAHU
WWTP	1	0.00	0.00		16.9	0.54		28.2	0.55	
	10	11.5	0.65		16.9	0.76		28.2	0.89	
	50	11.5	1.00	10.29	16.9	1.00	15.93	28.2	1.00	27.03
Park	1	6.9	0.65							
	10	6.9	0.82							
	50	6.9	1.00	6.5						
TY 50 Totals		18.4		16.79	16.9		15.93	28.2		27.03

Approximately, 5.82 acres of in-stream aquatic habitat would be created and water quality improved by enhancing the riparian zone. The Service did not assign a HSI values or AAHU amounts to in-stream habitats.

Alternative 3 (Stephenville WWTP Restoration): Riparian and emergent wetland habitat, as described above, would be created from existing grasslands within the Stephenville WWTP project area. The recreational amenities associated with the WWTP project would be established. Approximately, 16.9 acres of emergent wetlands would be created at the WWTP for a 100 percent increase of wetland habitat within the current project boundary. Planted aquatic vegetation establishes quickly and within one year, the new wetland should have at least an average HSI value of approximately 0.54. As vegetation in and around the wetland grows and produces more food, and the trees and shrubs mature, providing reproductive and roosting cover,

the HSI value would increase to 0.76 in 10 years and 1.0 in 50 years, yielding approximately 15.93 AAHUs (Table 3).

Approximately, 11.5 acres of trees and shrubs would be planted on existing grassland in and around the wetland complex to create riparian woodland habitat. The HSI value of the newly created riparian woodland habitat would be 0.0 in the first year, because the trees and shrubs would be too young and could not provide good riparian woodland habitat structure. Within 10 years, the woodland may provide some trees, but they would not provide the amount of mast and structure that a mature forest could provide. It is estimated that the HSI for the created riparian woodland at the WWTP within 10 years would be approximately 0.65. As the woodland matures within 50 years, it could become excellent riparian woodland habitat, yielding 10.29 AAHUs.

Approximately 28.2 acres of existing grassland would be planted with a mixture of native grasses and forbs, and managed to provide excellent grassland habitat within 50 years, yielding 27.03 AAHUs. This is an increase of 7.81 AAHUs within 50 years.

Recommended Plan: The recommended plan would yield an increase of 11.5 acres of riparian woodland habitat with an increase of 13.47 AAHUs, for a total of 18.4 acres and 16.79 AAHUs. It would also yield an increase of 16.9 acres of emergent wetland habitat with 15.93 AAHUs within 50 years. The total number of grassland habitat acres would decrease by 28.4 acres, but the number of AAHUs would increase within 50 years by 7.81 considering the proposed enhancement measures. The recommended plan would yield an approximate total of 59.75 AAHUs within the project area in 50 years, a 62 percent increase compared to the estimated total of AAHUs without the project.

Summary of Findings and Fish and Wildlife Service's Position

We believe this reforestation and wetland creation/restoration project would improve habitat diversity, quality, and quantity, thus benefiting a variety of resident and migratory wildlife species, especially wetland dependant species such as waterfowl, migratory shorebirds, and non-game passerine birds. Reforestation and improvement of the riparian corridor would substantially increase the amount of vital reproductive and migratory neotropical bird habitat. In addition, this project would assist in meeting the goals and objectives of the North American Waterfowl Management Plan and the Partners in Flight program. For these reasons, we support implementation of the Recommended Plan proposed for the Stephenville Section 206 Aquatic Ecosystem Restoration Project.