



The Flatwater Group, Inc.

The Flatwater Group, Inc. (TFG) is a Lincoln, Nebraska based consulting firm specializing in environmental engineering, water resources engineering, restoration planning and design, and information and database management services. TFG is organized to provide high quality, cost effective engineering consulting services. We are founded on the principles of client services coupled with creative solutions, and we look to produce successful products for our clients as well as **with** our clients.

## Tiger Beetle ESA Listing

On October 6, 2005, the [U.S. Fish and Wildlife Service](#) officially listed the Salt Creek tiger beetle, found exclusively near Lincoln, Nebraska, as an endangered species. The listing, conducted under the authority of the federal Endangered Species Act, will result in new requirements for any future Federal actions that might impact the beetle, and could have other impacts for private land in and around the beetle's habitat area. The total population of the species was recently estimated at about 150 beetles.



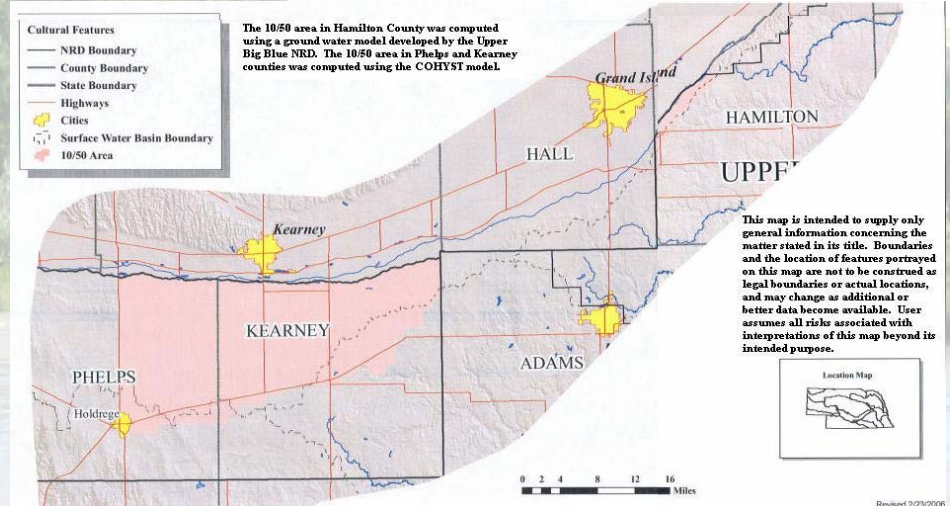
(Photo Courtesy L.G. Higley)

The [Salt Creek tiger beetle](#) has been affected by degradation of its unique habitat, which is limited to the eastern Nebraska saline wetlands and the nearby streams and tributaries of Salt Creek. Historical and ongoing residential, commercial and industrial development in the area, increased freshwater runoff, bank modifications, pollution, and artificial lighting are among the factors thought to be contributing to the beetle's decline. The tiger beetle was already listed as endangered under Nebraska's state endangered species act, and the U.S. Fish and Wildlife Service designated the beetle as a candidate species for ESA listing in 2000.

Area landowners have expressed concern that the listing might impact farming practices and development potential in locations near where the beetles are found. The federal Endangered Species Act provides measures to prevent the "take" of species or the adverse modification or destruction of its habitat, which could potentially include placing restrictions on the use of pesticides and other farming techniques within a designated habitat area. A (continued on page 2)

## DNR Releases First Annual Basin Report

The [Nebraska Department of Natural Resources](#) (DNR) on December 30, 2005 released its [first annual basin report](#), and announced preliminary determinations for new fully appropriated areas in the Platte River Basin. A new Integrated Management Plan (IMP) to achieve a balance between water demands and supplies may be required in the [Upper Big Blue Natural Resources District](#) (NRD) if the preliminary determinations are later finalized. [The Tri-Basin NRD](#), which had already begun to develop an IMP for the overappropriated Platte Basin and Republican Basin portions of its district, will now have to include provisions in the IMP for an additional part of the Platte River basin if a final determination is made for that new area.



As a result of LB 962, which became effective on July 16, 2004, DNR must conduct an annual review of all areas in the State for which an IMP is not already being developed. For the first report, this included most of the northern and eastern portions of the state.

The new preliminary determinations confirm DNR's earlier assessment on October 5, 2005, which indicated that only a few areas in the Platte River basin upstream of Columbus would be subject to a new fully appropriated determination. Following a preliminary determination, stays on new groundwater and surface water development are implemented for the respective areas. These stays remain in effect at least until they are lifted by DNR or the NRD, the respective area receives a final determination that the area is in fact not fully appropriated, or until an IMP is approved either jointly by both DNR and the NRD or through an Interrelated Water Review Board dispute resolution process.

The report includes a summary of the methods used to decide whether a basin was fully appropriated, as well as maps showing the preliminary boundaries of the affected areas. These maps were modified in February when DNR obtained new results from the [COHYST](#) groundwater model, which is the preferred tool for delineating hydrologically connected areas. For both the preliminary and final determinations, DNR is using the controversial 10-50 rule adopted last year, which defines where a groundwater pump, operating over a 50-year period, would capture at least 10 percent of its pumped amount from waters which otherwise would have reached a stream. Many of the NRDs had argued for the use of a 28-40 line instead, which would have reduced the area subject to the stays and other restrictions. Other groups, however, such as surface water districts and environmental organizations, had argued for even more expansive determinations, and DNR indicated that the 10-50 line represented a compromise between the various interests.

The next step in the fully appropriated determination process will involve public hearings within the affected areas, scheduled for March 23 and 24 in Minden and Aurora, respectively. Any interested party may provide testimony at the hearings concerning the determinations, the extent of the hydrologically connected area, and whether stays should be retained or discontinued. Within 30 days of the final public hearing, DNR will make a final determination on whether each area is fully appropriated.

Aside from the new determinations, the report also highlighted the need for better data on hydrogeologic features throughout the state. In several of the basins analyzed in the report, DNR indicated that there was insufficient hydrogeologic data available to determine the hydrologic connection between aquifers and streams. This information is critical for delineating hydrologically connected areas and predicting the lag effect that new groundwater pumping may have on streamflows in the future. The report also pointed out that COHYST or similar numerical models are not yet available for all basins in the state.

An electronic copy of the full report can be obtained at the following web address: [www.dnr.state.ne.us/LB962/AnnualReport\\_2006/](http://www.dnr.state.ne.us/LB962/AnnualReport_2006/)

### Tiger Beetle ESA Listing (continued)

“critical habitat” area has not yet been identified for the tiger beetle, but USFWS indicated that a proposed rule concerning critical habitat would be published in the near future – possibly early summer 2006. A two-year study has recently been completed by the University of Nebraska, in cooperation with USFWS and the Nebraska Game and Parks Commission, which provides additional information on the beetle’s biological and habitat requirements – information which should be helpful in determining the critical habitat area. Once a proposed rule for the critical habitat area is published in the Federal Register, there will be a 60-day public comment period, followed by the publication of a final rule incorporating and responding to those comments.

## Shoemaker Marsh Update

In June of 2003, the [City of Lincoln](#), in conjunction with the [Saline Wetlands Conservation Partnership](#), purchased the area now known as [Frank Shoemaker Marsh](#), a 160-acre plot about three miles north of Lincoln on the west side of 27th Street. The site, formerly privately owned, includes about fifty acres of rare saline wetlands – a unique ecosystem found exclusively in the Lincoln area. Home to the state endangered saltwort plant and the now federally endangered Salt Creek tiger beetle, along with a variety of waterfowl and plant communities, Shoemaker Marsh is a valuable conservation asset with a strong educational potential for the City of Lincoln.



Unfortunately, streambed degradation has threatened channel stability along the Little Salt Creek, which meanders through the Shoemaker Marsh site. This instability is complicated by the fact that the Salt Creek tiger beetle lives within the salt-encrusted soil along the channel banks. In addition, the wetland areas on the site have filled in over time while expanding

headcuts have drained parts of the wet areas, reducing habitat area and modifying the dendritic flow networks that once were common on the property. Access to the site is also limited by the absence of managed trails and viewing areas, and crossing the creek to reach the western portion of the site is only possible over an unstable rock crossing at the edge of the creek’s western meander.

In response to the present conditions, The Flatwater Group was contracted to develop concepts and plans to restore and revitalize the Shoemaker Marsh site. [TFG’s efforts](#) were guided by the work of the Shoemaker Marsh Core Committee, which identified a set of primary goals in a 2004 Design Memorandum. These goals included enhancing and restoring degraded wetland systems, preventing further stream degradation within the project boundaries while maintaining known habitats (including those of the Salt Creek tiger beetle), and complementing the restored wetland systems with native upland plant species.

In December of 2005, TFG submitted a [60% design submittal](#) for Shoemaker Marsh, which included design plans and specifications to meet the objectives of the 2004 Design Memorandum by restoring and enhancing the site. The specific design elements included in the plan focus on three primary areas: wetland improvement; in-stream improvement; and pedestrian, upland and other improvements. Highlights of the wetland-related elements include developing three separate but integrated wetland cells using low-head earth embankments, excavation of the soil sediments that have filled in the wetlands over time, and the possible addition of new control structures to increase management flexibility with respect to water levels. In-stream elements include new grade control structures to prevent further channel degradation within the site, and limited stream bank reshaping conducted on a small scale to prevent harm to tiger beetle habitat along the banks. Other improvement activities would include a new pedestrian bridge, a new primitive trail system, overlook piers, and vegetative management to remove undesirable plants and establish new native upland grass populations.

Feedback on TFG’s 60% Design Submittal was received from the Shoemaker Marsh Core Committee and several other interested parties in mid-January 2006. TFG is currently modifying the design plans and specifications to accommodate those suggestions and is developing a final set of plans for Shoemaker Marsh restoration. Final plans and specifications are anticipated by March of 2006, and construction and other restoration activities are expected to commence around May, 2006.

## Platte River Cooperative Agreement

Work continues on the development of a Program for the Platte River to address federal [Endangered Species Act](#) (ESA) issues related to certain existing and new water-related activities. The three states of Nebraska, Wyoming, and Colorado have been consulting with the Department of Interior for several years to respond to certain ESA issues in the Platte River basin upstream of the confluence with the Loup River and establish a plan for compliance. Certain federal water projects and activities throughout the Platte River basin, which includes portions of all three states, have been determined by the [U.S. Fish and Wildlife Service](#) (USFWS) to impact one threatened and three endangered species: the piping plover, interior least turn, pallid sturgeon, and whooping crane, respectively. In 1997, a [Cooperative Agreement](#) was signed by the three states and the U.S. Department of Interior to develop a basin-wide approach to benefit the “target” species and their habitat through new infrastructure projects and management policies.



To oversee the development of the plan, known as the [Platte River Recovery Implementation Program](#) (Program), the Cooperative Agreement established a 10-person [Governance Committee](#), made up of representatives from the three states, the U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, water users, and environmental organizations. The Governance Committee has met dozens of times since it was formed, and completed a [draft “Platte River Recovery Implementation Program”](#) in December, 2003. That same month, the U.S. Bureau of Reclamation completed a [draft Environmental Impact Statement](#) (EIS) analyzing the draft Program developed by the Governance Committee as well as other action alternatives.

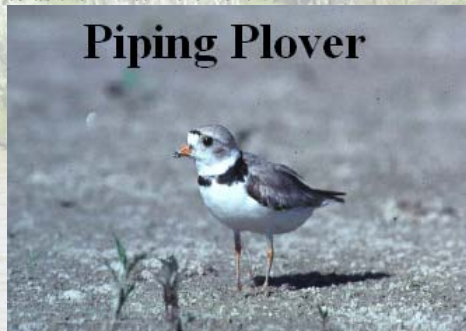
The draft Program developed by the Governance Committee, which continues to evolve, consists of three main parts: a Water Plan, a Land Plan, and an Adaptive Management Plan. The Water Plan is perhaps the most extensive of the three components, and includes several key parts:

1. Plans for each of the states to prevent and/or mitigate new depletions to USFWS “target flows” since the signing of the Cooperative Agreement in 1997
2. [Federal Energy Regulatory Commission](#) license requirements for the management of Nebraska’s Environmental Water Account, used to enhance streamflows through releases from [Lake McConaughy](#)
3. Descriptions of Colorado’s Tamarack project and the proposed [Pathfinder Dam](#) modification in Wyoming

(continued on page 3)

4. Descriptions of thirteen additional Water Action Plan projects that, together with the McConaughy, Tamarack, and Pathfinder projects, would provide enough water to reduce shortages to USFWS target flows by 140,000 acre feet per year on average

The Land Plan would guide the acquisition, restoration, and maintenance of around 10,000 acres from the Lexington to Chapman reach to benefit the target species. The Adaptive Management Plan is designed to test various hypotheses regarding the species and their habitat, determine the response of the target species and their habitat to Program actions, and make adjustments if necessary based on those assessments. The focus of all of these efforts has been on the first 13 years following Program approval – a period referred to as the “First Increment”.

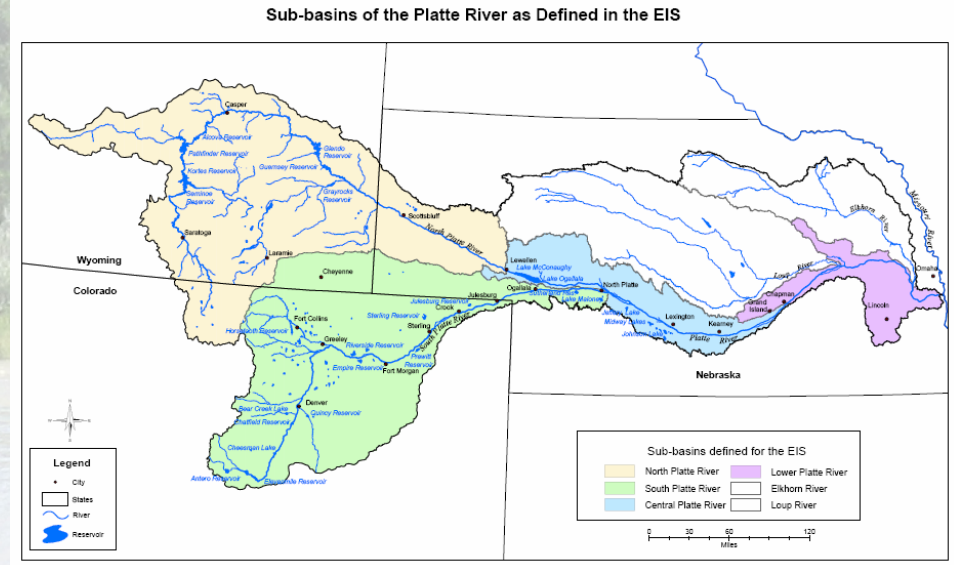


The timeline created after the signature of the Cooperative Agreement in 1997 originally called for the development and approval of a Program in three years. Now, over eight years later, a final draft of the Program has just been approved by the Governance Committee. A series of extensions for the Cooperative Agreement has been passed over the years, and the current Cooperative Agreement is being extended through the end of September of 2006. Currently, the States and the Department of Interior have set up a new timeline for major Program milestones in the future:


- March 2006 – complete final Environmental Impact Statement (EIS)
- April or May 2006 – issue final biological opinion and federal record of decision (ROD)
- By September 2006 – obtain decisions on Program approval or disapproval from each of the 3 Governors
- October 1, 2006 – initiate Program activities, if all parties approve

One major obstacle in moving toward Program implementation has involved obtaining adequate funding. The Cooperative Agreement and its attachments specified that “federal contributions and the collective state contributions should be as equal as possible”. The most recent estimate for the total cash requirement for the Program’s first increment is about \$187 million, which would seem to place a cash burden of over \$90 million on the states – a substantial amount under even the best of fiscal conditions. The Cooperative Agreement also, however, allows for contributions of a type other than cash, which has been the subject of recent negotiations between the

states and the Department of Interior. According to the latest agreement, the states would use a combination of cash and in-kind contributions in order to meet their “fair share”. \$30 million in cash would be obtained from the states of Colorado (\$24 million) and Wyoming (\$6 million). \$10 million would be credited to the states for land contributions in the Cottonwood Ranch property near Overton and Wyoming’s Deer Creek property. Finally, and most significantly, \$120 million would be credited to the states for the three state water projects (the Environmental Water Account in Nebraska, the Pathfinder modification in Wyoming, and the Tamarack Project enhancements in Colorado). In total, this would represent a state contribution of \$160 million, including the \$30 million in cash from Colorado and Wyoming, balanced against \$157 million in cash contributions from the federal government.



Obtaining the \$157 million in federal appropriations will still be a significant challenge, and moving both authorization and appropriation language through Congress in time for the FY 2007 funding cycle (which starts on Oct. 1, 2006) may be optimistic – especially considering that federal and state decisions regarding approval of the Program will not be made until well into 2006. The parties to the Cooperative Agreement will continue to meet to put the finishing touches on certain documents, none of which are viewed as critical to the preparation of the final EIS or the final biological opinion.



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