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Preserving the Platte

By John Van DerWalker,
Executive Director,
Platte River Whooping Crane
Maintenance Trust

From late February through late March, central Nebraska is the scene for one of earth's greatest wildlife spectacles. More than half a million Sandhill Cranes congregate to rest and feed along about 40 miles of the Platte River between the cities of Kearney and Grand Island. It is the largest known concentration of cranes in the world. The fragile riparian habitat is now threatened, as the Platte's waters are diverted for human uses upriver.

In its pristine state, the Platte River was as important to the Central Flyway as Chesapeake Bay was to the Atlantic Flyway, and the Sacramento Delta was to the Pacific Flyway. Each spring, millions of migratory birds congregated on the Platte during their northward migration. The Platte, however, was not just an ordinary stopping place for these birds. A unique combination of geological events, climate, and location made the Platte a particularly attractive and productive habitat for migratory birds.

From the confluence of the North and South Platte Rivers in western Nebraska, the Platte flows east across a broad floodplain. The Platte is a braided river. Braided rivers are created where the valley slope is relatively steep, the bed material is unconsolidated sediment, and the flow regime is characterized by annual floods which are several times greater than the average annual flows. These conditions create a very wide, shallow channel with thousands of sandbars. During flood periods, enormous quantities of sediment are transported along the bed. The entire bed may be overturned to a

depth of several feet and redistributed into large sandbars that are several hundred feet wide. As the floods recede, the flows are divided into several channels which erode these large sandbars, transforming them into a multitude of smaller bars.

During the summer when many of these sandbars are exposed, they are used as nesting and feeding sites for Least Terns, Piping Plovers, other shorebirds, and wading birds. In the early spring and fall, when flows are higher, the same sandbars are shallowly submerged and provide roosting sites for Whooping Cranes, Sandhill Cranes, ducks, geese, and many other migrating birds.

The braided channel of the Platte is only one of a combination of factors that make it so valuable to migratory birds. There are other braided rivers that cross the Central Flyway but none of them are so strategically located. The Platte lies halfway between the Gulf Coast and the Dakota and Canadian wetlands, a convenient stopover site on migration. In addition, the Platte was bordered by hundreds of square miles of grasslands interspersed with wetlands.

The floodplain of the Platte River was several miles wide and contained thousands of remnant channels cut by the river as it moved back

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Over half a million Sandhill Cranes visit Nebraska's Platte River in early spring. The river's high waters flood thousands of sandbars, where the cranes find shallow water and safely roost at night. Early morning and late afternoon are the best times to see the spectacular flights of cranes. Photo courtesy of the Nebraska Game and Parks Commission.

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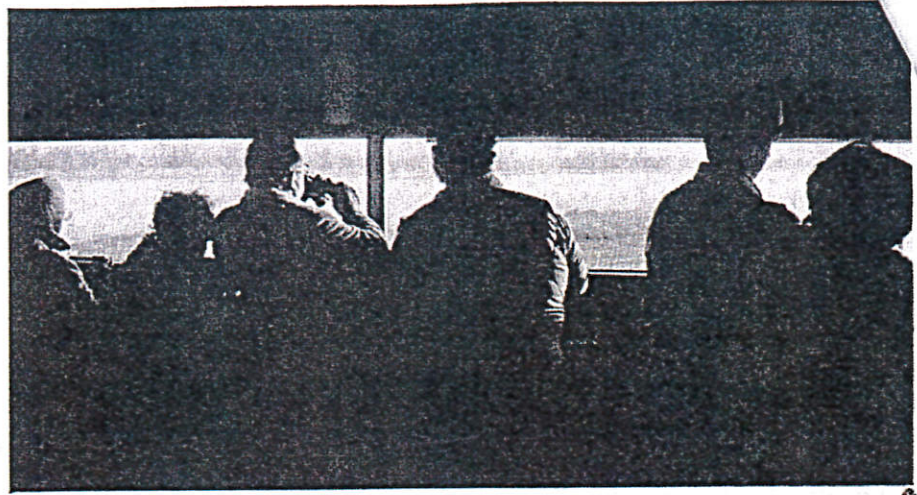
and forth across the plain. Since the entire floodplain was made up of sand and gravel covered by a shallow soil mantle, these remnant channels were hydraulically connected to the river. In the spring when the river rose, the groundwater would also rise, filling these channels and creating vast wetlands. In the summer, when the river flows were low, these wetlands were dry; sedges, grasses, and other plants would grow in them. In the winter these plants were matted down by the winds and snows. In the spring flood, the wetlands again fill with water inundating the dead plant material and initiating decomposition. This process was the base of a food chain vitally important to migratory birds. The combination of river grasslands and wetlands provided an abundant supply and variety of food and shelter. Between North Platte and Grand Island, a distance of 150 miles, there was more than a half million acres of such habitat.

River Habitats Degraded

Today most of that habitat is gone. Many species that depended on the river and its wetlands have seriously declined. Five are officially listed as endangered or threatened: the Whooping Crane, Interior Least Tern, Piping Plover, Eskimo Curlew, and Bald Eagle.

The loss of habitat on the Platte is the result of water development for irrigation and hydropower. Over 7 million acre feet of reservoir storage have been built on the North and South Platte Rivers. The average annual pristine flow in the Platte was about 3.5 million acre feet. Two full years of flow can now be stored. As a result of this development, 70% of the river flow is diverted and consumed before it ever reaches the central Platte. Spring flood flows have declined from an average of 20,000 cubic feet per second to 4,000. Average flows have declined from 4,000 to 1,000 cfs. Occasionally, summer flows fall to near zero.

These declines in flow have caused drastic changes in the character of the river. Without spring floods, sandbars are not eroded. They become stabilized with annual grasses and forbs. Over time, cottonwood and willow trees dominate the annual vegetation. In some areas, the Platte channel which was more than a mile wide, has become a cottonwood and red cedar forest with only narrow rivulets flowing through it. While the new forest provides habitat for deer and song birds, those species adapted to the wide, open Platte have lost habitat. Reduced spring flows have also reduced the ground water levels on the adjacent wetlands



The Platte River Trust maintains an observation blind where visitors gain a close look at a crane roost site, on a stretch of river now managed by the Trust. Each year, an estimated 10,000-15,000 people come to central Nebraska to watch the cranes. Photos courtesy of the Grand Island Daily Independent.

and grasslands, enabling conversion to cropland. Approximately 70% of the river channel and 73% of the wetland/grassland complex have been destroyed.

The loss of Platte River habitat has received increasing attention in the last decade. Private conservation organizations, the Nebraska Game and Parks Commission, and the U.S. Fish and Wildlife Service (FWS) have all helped protect the remaining habitat. The National Audubon Society purchased the Lillian Annette Rowe Sanctuary located on the river near Kearney, Nebraska in 1974. Audubon continues to be a major player in efforts to protect the river. The FWS, U.S. Bureau of Reclamation, and Nebraska Game and Parks Commission have studied the river extensively, helping to define the values of the Platte to wildlife, and to quantify flows needed to maintain the remaining habitat.

As a result of these early studies, FWS declared a portion of the Platte critical habitat for the Whooping Crane. FWS has also reviewed proposals for additional diversions in accordance with the Endangered Species Act. Until recently, FWS issued jeopardy opinions for all projects that would further deplete Platte River flows. In the last case, however, FWS did not give a jeopardy opinion, a significant departure from previous positions. The Service's intent, insofar as protecting instream flows in the Platte, is now uncertain.

The Nebraska Game and Parks Commission has also conducted studies for quantifying the flows required to maintain the habitat. Using the best available data, they have described a flow regime against which they measure the effects of proposed diversions. Water development proposals that would reduce flows below this regime have received jeopardy opinions.

Platte River Trust Protects Crane Habitat

A relatively new private organization is the Platte River Whooping Crane Habitat Maintenance Trust, Inc. This non-profit corporation was formed in 1979 as part of a court approved settlement of the Grayrocks Dam controversy. In this case, the State of Nebraska and the National Wildlife Federation objected to the construction of the Grayrocks Dam on the Laramie River, a Wyoming tributary to the North Platte River. The project was sponsored by six consumer owned utilities in the Upper Missouri Basin. Basin Electric Power Cooperative, the project manager for the group, had begun to build Grayrocks to store water for cooling a large coal-fired power plant. The reservoir was located 270 miles upstream from the Big Bend reach of the Platte which was designated critical habitat after construction had begun.

The State and the Federation argued that this project would deplete the flows of the Platte and damage irrigation and wildlife resources in Nebraska. The court issued an injunction prohibiting further construction of the dam and enjoined certain Federal loan guarantees for portions of the rest of the project. The injunction caused the parties to enter into negotiations which led to a settlement agreement approved by the court.

The agreement included the formation of a Trust with the purpose of restoring and managing migratory bird habitat in the Big Bend reach of the Platte. The Trust is administered by three trustees, one from each party to the suit. The six consumer-owned utilities funded the Trust with a one time payment of \$7.5 million. The purpose of the Trust is to "protect and maintain the physical, hydrological, and biological integrity of the Big Bend area so that it may con-

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continue to function as a life-support system for the Whooping Crane and other migratory species which utilize it. The projects and activities which the Trust may fund include . . . management of the critical crane habitat, the acquisition of land or interests in land, the conduct of scientific studies . . . as well as the acquisition of all types of rights in or to water or water storage."

The initial work of the Trust focused on describing the present habitat conditions and the dynamics of the system. This work is described in the book *Migratory Bird Habitat of the North Platte and Platte Rivers in Nebraska*, published in 1985. Using this information, the Trust developed two programs.

The first program was a plan for land acquisition. This plan envisions 10 habitat complexes or mini-refuges located at eight-mile intervals along the Big Bend reach of the river. Each complex would have a minimum of 1,000 contiguous acres of grassland, wetland, and river channel. The river channel would be at least 1,000 feet wide and a mile long. This basic unit would be surrounded by a 1/2-mile buffer zone where human activities incompatible with the wildlife habitat goals would be prohibited. In addition to the 1,000 acres in the basic unit, there would be at least 1,500 additional acres of grassland and wetland located within three miles of the river channel. These grassland/wetland units would each be at least 160 acres in size. In total, the plan calls for a minimum of 25,000 acres of habitat in the Big Bend reach.

To date, the Trust has purchased land in 5 of the 10 units it hopes to develop. The largest

unit, located near Grand Island, Nebraska, contains five miles of river and approximately 4,500 acres of grasslands and wetlands. The Trust has also cleared the vegetation from approximately six miles of river. These areas are now major roost sites for cranes.

The second major effort initiated by the Trust was the quantification of flows required to maintain the desired river channel morphology and habitat conditions. Working in cooperation with government agencies, the trust has helped develop computer programs that predict the amount of habitat available at any given flow. Habitat models for cranes, terns, plovers, and forage fish have been developed. Using this information, it is possible to develop annual flow regimes that will provide the habitat needed for these species. The Trust has also conducted research on tern and plover reproduction, vegetation management of grasslands and wetlands, and conversion of croplands to grasslands.

The completion of the Trust's land acquisition program will ensure the physical availability of habitat. The viability of this habitat, however, depends on the maintenance of instream flows. Under Nebraska state law, the Trust is not allowed to apply for an instream flow right. It is possible to obtain a right to store water in a reservoir for later release into the stream. The Trust has joined with two other parties in an application to build a 300,000 acre-foot off-stream storage reservoir. Irrigation and hydropower return flows would be stored in this reservoir and released into the river when the natural flows were below the levels needed to maintain the habitat. Without a state agency holding an instream water right, however, there

is no guarantee that this stored water would stay in the stream.

The Trust has taken two further actions to maintain adequate instream flows in the Platte. A petition has been filed with the Federal Energy Regulatory Commission (FERC) asking them to implement new operating criteria for the Kingsley Dam on the North Platte River upstream from the confluence of the North and South Platte Rivers. This 1.7 million-acre-foot storage reservoir controls 80% of the flow of the Platte. Its operation largely determines the flow regime in the Big Bend reach of the river. At present, the reservoir is operated exclusively to benefit irrigation and hydropower. No consideration is given to maintaining instream flows. The petition is appropriate at this time because the existing license for this facility expired in 1987, and FERC is currently considering the terms for a new license.

The Trust has also filed a motion in the Supreme Court of the United States for leave to intervene as a plaintiff in a suit Nebraska brought against Wyoming. In this suit Nebraska claims that Wyoming has developed water and proposed to develop additional water allocated to Nebraska under the terms of a 1953 Supreme Court decree. Nebraska alleges this development will damage wildlife values in the North Platte drainage and irrigation and other economic uses in Nebraska in general. The Trust's motion was made to insure the Court is aware of the need for instream flows in the Big Bend reach of the river.

The Platte has been seriously degraded. Proper management of the remaining water flows and habitat reclamation, however, can provide adequate habitat for the migratory birds of the Central Flyway. The land resources can be reclaimed and managed by private conservation organizations. Management of instream flows is controlled by the states of Colorado, Wyoming, and Nebraska. To date, these states have taken no action to protect instream flows. In fact, each state has recently approved or undertaken the diversion of more water from the river. If this trend continues, the Platte will soon be lost.

Visitor Information Available

If you wish to visit the Platte River during the spring or want more information, you can contact the Trust at (308) 384-4633 or Audubon at (308) 236-7574. For local maps and a brochure describing the spectacular migration, contact the Buffalo County Convention and Visitors Bureau, P.O. Box 607, 2001 Avenue "A", Kearney, Nebraska 68848 [(308) 237-3101] or the Hall County Convention and Visitors Bureau, P.O. Box 1486, 309 West 2nd, Grand Island, Nebraska 68802-1486 [(308) 382-9210]. Ask for the "Crane Watch" brochure.



Early in the morning, hundreds of thousands of Sandhill Cranes leave their river roost sites to feed in nearby wetlands, grasslands, and farmlands. Here the cranes glean corn from fields harvested the previous autumn.