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HISTORY AND ECONOMIC IMPACT OF CRANE-WATCHING IN CENTRAL NEBRASKA

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Abstract: The first documentation of the Platte and North Platte rivers' importance to sandhill cranes (*Grus canadensis*) dates from the late 1800's. Except for a few ornithologists, it was not until the mid-1970's that crane-watching became popular. During the last 10 years, this interest has become a multi-million dollar tourist industry that attracts people from around the globe who seek to witness this vernal spectacle of half a million cranes. More than half of the former riverine habitat has been abandoned by the cranes, largely because of irrigation and hydropower projects that drain the river and enable forests to grow in the riverbed. In an era of economic impacts with an emphasis on cost-benefit analyses and public-trust considerations, this tourist industry adds a new dimension towards the protection of the remaining habitat for cranes and other waterbirds in Nebraska.

Key Words: crane, crane-watching, economics, Platte River

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The development of irrigated agriculture in the Platte River Valley began in 1850 and continued largely unabated through 1980. Consequently, the vast wetlands and broad, open river channel that once characterized the valley have been drastically altered, taxing the ability of a guild of species, which have adapted to a prairie river environment over thousands of years, to survive (Currier et al. 1985, Sidle et al. 1989). Species such as the prairie wolf (*Canis lupus*), bison (*Bison bison*), and eskimo curlew (*Numenius borealis*) vanished, and others crowded into fragmented habitats. Sandhill cranes and whooping cranes (*Grus americana*) are species whose distribution has changed concomitant with riverine and wetland habitat loss (Lingle 1987, U.S. Fish and Wildlife Service, unpubl. data).

As the water development era wound down, a realization that there are finite limits on natural resources manifested itself in the form of environmental awareness and concern. At the same time, the American public has experienced an overall trend towards decreased leisure time; however, the amount of leisure time spent on recreational activities has remained constant (Alexander 1987). One such activity that is rapidly gaining popularity is spring crane-watching along the Platte River. The gathering of cranes and waterfowl in central Nebraska is one of the continent's most spectacular and accessible natural phenomena. This paper chronicles the increase in interest to view cranes from a few dedicated scientists in the first half of this century to the current multi-million dollar tourist industry attracting visitors from around the world.

Visitation information was provided by the following people: K. Strom, National Audubon Society; T. Kuzelka, Wings Over the Platte; G. Hunt and K. Skaggs, Ft. Kearney; and R. Jasnoch, Crane Watch. Special thanks go to J. Fontanez and her Platte River Profile Team from Walnut Jr. High School, Grand Island, for use of their 1991 crane-watcher survey results. M. Loeb of the Public

Works Department of Grand Island provided the vehicle counter. A. S. Wenner and K. L. Bildstein critically reviewed the manuscript.

STUDY AREA AND METHODS

The importance of the Platte and North Platte rivers in Nebraska (Fig. 1) as spring staging areas for sandhill cranes is well known (Lewis 1974, Frith 1974, U.S. Fish and Wildlife Service 1981). What is not well known is the economic impact of crane-watching on local economies and the evolution of crane-watching itself. I examined certain time periods and listed the major events within these periods that I feel significantly impacted interest in and awareness of watching cranes. In addition, a concentrated effort was undertaken to determine the number of crane-watchers during the 1991 spring staging period. Vehicle counters, questionnaires, and tabulation of visitor lists compiled from various programs were used to quantify the economic impact derived from this activity.

A vehicle counter was placed on the Platte River Road southwest of Grand Island on the following dates: 11–25 March, 29–31 March, and 1 April (Fig. 1). The counter tallied the number of vehicles crossing in both directions each hour.

RESULTS AND DISCUSSION

1830 – 1970

With the passage of hundreds of thousands of immigrants along the Oregon and Mormon trails from 1830 to 1866, the omission of cranes in numerous diaries is puzzling until one considers the fact that the immigrants did not pass through the area until May and were gone by August. Thus their migration did not coincide with that of the cranes. These trails became defunct after the Union

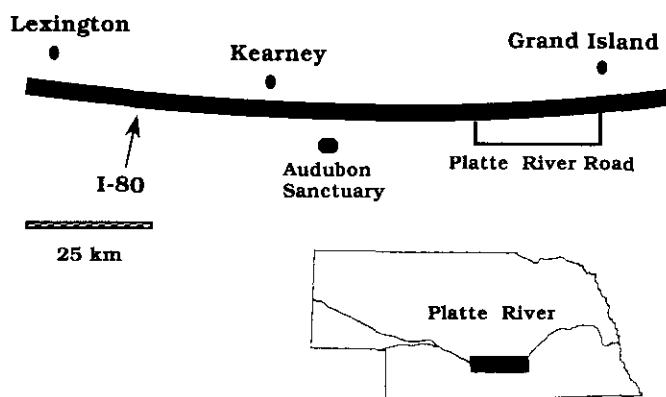


Fig. 1. The Platte River in central Nebraska.

Pacific Railroad was built in 1866. A hundred years later Interstate 80 was completed and it traverses through the heart of the major crane staging area along the Platte.

It was not until the late 1800's that the first recognition of the Platte and North Platte rivers' importance to sandhill cranes was noted (Bruner et al. 1904). Later, the reach from Sutherland to Wood River was identified by several authors as an important crane staging area (Swenk 1918, Breckenridge 1945, Tout 1947, Walkinshaw 1949, 1956, Allen 1952, Rapp 1954, Rapp et al. 1958). Robert Porter Allen's quest to learn more about cranes focused attention on the critical importance of the Platte River. The discovery of the whooping crane nesting grounds in 1954 rekindled an interest in this species and the Whooping Crane Conservation Association was formed in 1961. On the national front a growing environmental ethic was developing, spurred by publications such as *A Sand County Almanac* (Leopold 1966) and *Silent Spring* (Carson 1962) and culminating in the first Earth Day on 21 April 1970.

1970 – 79

Considerable environmental legislation was passed in this decade, including the Endangered Species Act of 1973. The Act led to the designation of a reach of the Platte River as critical habitat for the endangered whooping crane in 1978. Scientific interest in cranes escalated in Nebraska (Frith 1974, Lewis 1974, U. S. Fish and Wildlife Service 1981, Tacha 1981).

Frith (1974) counted the number of crane-watchers along the Platte River southwest of Grand Island during 4 2-hour periods on Sunday afternoons in March. On 21 March 1971 there were 115 people, and on 18 March 1973 there were 227 people, nearly twice that of 1971. These were his highest counts in each of the 2 years. If 4 people

were in each vehicle, those figures translate to 29 and 57 vehicles for 1971 and 1973, respectively.

The Platte River and its cranes were popularized on film with Wild Kingdom's *A Day with the Sandhill Cranes* (1977) and in print with Roger Tory Peterson's *Dozen Birding Hot Spots* (Harrison 1976). Proponents of federally subsidized irrigation and hydropower projects wanted to further tap the Platte's water already diminished by two-thirds from pre-development levels. Several proposals were forwarded in the 1970's, yet none was approved or constructed in Nebraska.

Farrar (1991) credits the Mid-State Irrigation Project as the single event that spawned interest in protecting Nebraska's sandhill cranes. This project would have destroyed the best remaining crane habitat, but it was defeated by local referendum in 1975. Continued loss of critical crane habitat coupled with growing threats to the water supply prompted the National Audubon Society to sponsor a meeting of conservationists in 1971 to discuss necessary actions needed to protect this resource. This eventually led to the annual River Conference held in Kearney each March.

The first crane sanctuary was purchased on the Platte River by the National Audubon Society and was dedicated in 1974 (Fig. 1). The presence of a national conservation group on the river as a landowner was met with mixed reactions. In 1974, an ill-fated proposal by the federal government to establish a National Wildlife Refuge southwest of Grand Island fueled local controversy and animosity towards the cranes and those who sought to protect crane habitat.

A landmark case in 1978 established a \$7.5 million trust (the Platte River Whooping Crane Critical Habitat Maintenance Trust, hereinafter the Platte River Trust) specifically to protect and maintain habitat for cranes and other migratory birds along an 128-km reach between Grand Island and Lexington known as the Big Bend of the Platte River. This case centered around the Grayrocks Dam on the Laramie River in Wyoming which would ultimately reduce flows in the Platte River (Platte River Whooping Crane Trust 1989).

With the scientific data accumulating along with victories from litigation and the election booths, the stage was set for the 1980's. However, even though crane-watching was gaining in popularity, it was not yet recognized as having much of an economic impact on the local region, and Nebraskans were the primary participants.

1980 – 90

The 1980's brought about a rapid increase in interest in watching cranes and in protecting their habitat. More

than 10,000 acres of prime habitat in the Big Bend reach were protected by the Platte River Trust, National Audubon Society, and The Nature Conservancy. Near Grand Island the Platte River Trust constructed a crane-viewing bunker, which was dedicated to the children of North America in 1981. The National Audubon Society constructed additional blinds on their sanctuary as well, and the guided crane tour business was launched. Several books were published about the cranes and the Platte (Currier et al. 1985, Johnsgard 1981, 1984, Stahlecker and Frentzel 1986).

In 1989, the Platte River Trust filed to intervene in the relicensing proceedings of the Kingsley Dam on the North Platte River after its 50-year license expired in 1987. This action prompted petitions to intervene from a variety of interests including irrigation, hydropower, recreation, and wildlife. Once again the water controversy filled front pages of newspapers as it had during the Mid-State and Gray Rocks Dam days.

Two 1-hour documentaries featuring cranes and the Platte River aired on national television in 1990. Mass media hype about the area's cranes prompted thousands of inquiries about how and where to watch cranes. Nearly every major magazine, newspaper, and television network carried a story extolling the Platte River and its crane spectacle as a world class wildlife event.

The capacity of blinds erected by the Platte River Trust and Audubon was rapidly met. In an effort to accommodate an increasing demand, Audubon and the Trust urged local Convention and Tourism Bureaus to publish a Crane Watch brochure describing where and how to see cranes. About 100,000 brochures have been distributed since 1987, many of them to travelers along U.S. Interstate 80. The Hall County Department of Roads constructed a crane-viewing pull-off southwest of Grand Island, at the suggestion of the Trust, to alleviate some of the congestion at bridge crossings. The Buffalo County Convention and Visitors Bureau in Kearney expanded on the Audubon's River Conference theme and established a week-long Crane Watch festival complete with bus tours. Not to be outdone, Buffalo's County's counterpart in Hall County sponsored the Wings Over the Platte celebration in 1989 in Grand Island, which is now an annual event that draws largely upon out-of-state visitors for a weekend exposure to crane biology and viewing.

Grand Island's daily newspaper adopted the sandhill crane as its masthead in 1987. Ft. Kearney State Historical Park opened in March 1986 and used volunteers to accommodate the overwhelming demand to watch cranes. However, hundreds of crane-watchers are turned away as blinds and bus tours fill. An estimated 15,000 crane-watchers trekked to the Platte by the end of the decade.

In 1989, Nebraska Governor Kay Orr declared 15 March as Sandhill Crane Day in Nebraska in response to a request from an 11-year-old boy who lived near the river.

About 250,000 passenger vehicles passed Grand Island along I-80 in 1988 during the 34-day crane-watching season from 5 March through 7 April (Nebraska Department of Roads, unpubl. data). With all of the media attention and the availability of the Crane Watch brochure, the number of "casual" crane-watchers increased as many of the curious travelers paused to witness the birds, often from the Interstate right-of-way.

1991

The media continued to cover the story. In March television crews from Columbia Broadcasting System, American Broadcasting Company, and Cable News Network filmed cranes along the river. Local crane experts gave dozens of interviews to newspaper and magazine correspondents throughout the country. A 90-minute program produced by Nebraska Public Television entitled "The Platte River Road" aired in April. A feature in the March issue of *Nebraskaland* described the crane-watching boon and, perhaps more importantly, addressed the associated problems of managing the onlookers (Farrar 1991). Disturbance of the cranes and safety of the visitors were major concerns.

Wings Over the Platte/Crane Watch.—Two hundred and twenty-two people from 25 states, Washington, D.C., and Ontario attended the Wings Over the Platte banquet in Grand Island (T. Kuzelka, pers. commun.). In addition, 605 people participated in bus tours during the weekend event (many individuals went on multiple trips). About 1,100 inquiries were made leading up to this weekend event compared to 738 in 1990. Similarly, 600 people participated in 24 bus tours originating in Kearney as part of their Crane Watch celebration (R. Jasnoch, pers. commun.). This was the first year bus tours were offered in Kearney, so there were no comparable figures. About 350 people attended National Audubon's River Conference in Kearney.

Trust Tours.—Sixty-eight guided tours (each tour potentially holding a capacity 25 viewers) were given during the crane-watching season, which extended over a 34-day period from 5 March through 7 April. More than 1,700 reservations were made, and 941 people from 38 states and 3 foreign countries signed the guest book. Of these guests, 45% were from Nebraska, 11% from Iowa, 4% from Minnesota, and 3% each from Kansas and Colorado. For the previous 10 years, the percentage of Nebraskans ranged from 48 to 86% (Table 1). We believe maximum attendance has been reached since 1989 because

Table 1. Numbers of registered crane-watchers at the Platte River Trust's blind near Grand Island, Nebraska, 1981–91.

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Total	Mean
People	479	645	603	577	852	624	930	882	934	1148	941	8615	783
Tour groups	44	48	44	46	42	54	55	56	62	68	68	587	53
States represented	20	15	24	18	31	15	29	23	22	33	38	48 ^a	25
Countries represented ^b	3	0	2	4	1	2	1	4	1	3	3	17 ^a	2

^a Cumulative total of states or countries represented during the 11 years of blind operation.

^b Countries other than the United States.

of cancellations due to adverse weather and other personal circumstances. Guest book registrations underestimate the actual number of visitors.

Ft. Kearney State Historical Park.—About 3,900 people from 40 states and 4 foreign countries visited this facility southeast of Kearney in 1991, compared with about 4,900 visitors from 43 states and 10 foreign countries in 1990 (K. Skaggs, pers. commun.; Farrar 1991). In 1991, 884 people signed the guest book, and 45% of these were from Nebraska. Colorado, Kansas, and Iowa accounted for 25% of the registered guests.

Audubon Tours.—National Audubon Society hosted 1,121 visitors at their Lillian Annette Rowe Sanctuary and surrounding area (K. Strom, pers. commun.). About 65 tours were given. Thirty-one percent of the participants were from Nebraska, followed by Kansas and Colorado (10% each), Iowa (7%), and Missouri and New York (5% each). Participants represented 38 states, Washington, D.C., Ontario, Manitoba, Germany, and Brazil.

Vehicle Counter.—A total of 5,167 vehicles were counted during 351 hours during a 19-day period that included 3 weekends (Fig. 2). The temporal peak in traffic, averaging 43.1 vehicles per hour, was from 1500 to 1600 hours (Fig. 3). Traffic averaged 500 vehicles per day (VPD) on weekends and 281 VPD on weekdays. During the 16-hour diurnal period tabulated, there was an average of 22.1 vehicles per hour. This totals 12,002 vehicles when multiplied over the 34-day crane-watching season. If 10,000 vehicles were bona fide crane-watchers and it is assumed that each vehicle averaged 4 passengers, the number of crane-watchers on this small section (<25%) of the staging area was 40,000 people. Doubling this number, a conservative approach to account for crane-watchers from the Kearney area, suggests that about 80,000 people visited the central Platte region to view cranes. The peak traffic during a 2-hour period occurred on Sunday, 24 March, from 1200 to 1400 hours. There were 188 vehicles recorded compared to 29 and 57 vehicles recorded by Frith

(1974) in 1971 and 1973, respectively. That was more than a 6-fold and 3-fold increase from 1971 and 1973, respectively. The actual increase was probably greater because Frith's highest counts included a larger reach of the river.

A 1991 survey that included 350 respondents (193 in-state, 150+ out-of-state), showed that the average stay was 2.7 days (J. Fontanez, Walnut Jr. High School, pers. commun.) for an estimated 216,000 crane-watching days. The average expenditure was \$69.23 per person per day (for comparison, the Convention and Visitors Bureau in Grand Island uses a figure of \$70 per visitor day [T. Heinz, pers. commun.]). Thus, an economic benefit estimated at \$15 million was pumped into the local economies during the 1991 crane-watching season. The Nebraska Department of Economic Development uses a multiplier of 2.7 to calculate the roll-over effect from tourism dollars (T. Doering, pers. commun.). That translates to a \$40.5 million benefit to the local region, none of which was subsidized by taxpayers' dollars! For comparison, a multiplier of 1.8 is used locally which amounts to a \$27 million benefit.

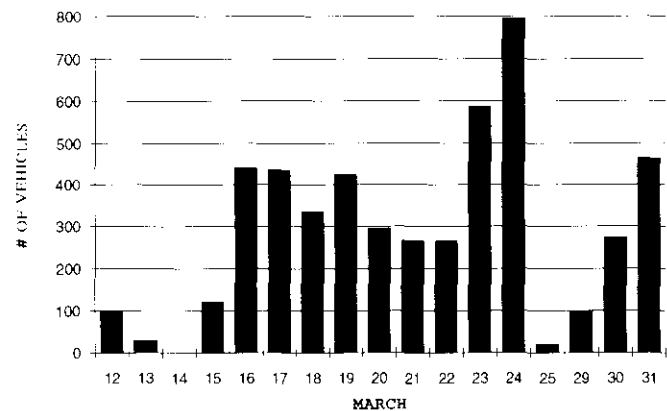


Fig. 2. Vehicle count along the Platte River Road, 1991 (only those dates with a 24-hr count are shown).

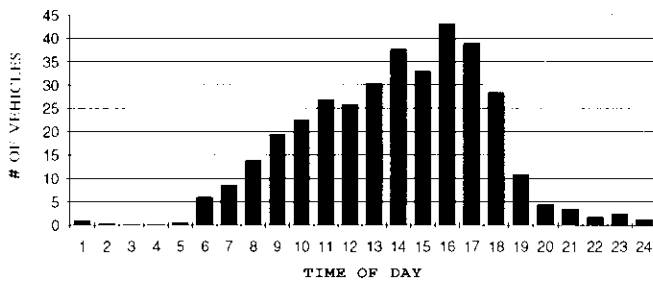


Fig. 3. Traffic pattern (average number of vehicles per hr) along the Platte River Road, March 1991.

CONCLUSIONS

In 1991, an estimated 80,000 crane-watchers pumped more than \$15 million into the local economy along the Platte River. The number of crane-watchers is likely to increase or remain stable over the next few years as the public "discovers" this spectacle through national and international media events and word of mouth. Existing facilities are unable to safely accommodate the current demand, much less any additional growth. Local agencies and organizations need to provide additional public access to the cranes without creating additional traffic hazards and without disturbing the birds. The construction of 1 or more interpretive centers, and the training of knowledgeable volunteers to assist the public and advise them on proper crane-watching etiquette, are also needed.

Most importantly, there is a need to protect adequate instream flows throughout the year so that this region will continue to serve as a life-support system for cranes and the other species dependent upon it. Biologists have long recognized the need to protect this vital habitat. Now that it is becoming more apparent to the general public that crane-watching has a direct, positive, economic impact, perhaps there will be increasing impetus from a broader audience to assure the protection of this habitat.

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