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Nebraska's Sandhill Crane Populations, Past, Present and Future*

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Although the spring concentrations of Sandhill Cranes in Nebraska's Platte Valley are now an avian phenomenon known nationwide, a general appreciation and inventory of this unique concentration of birds has only been attempted in the last few decades. I am often asked how long this largest of all crane concentrations has been occurring in the Platte Valley, and why it has developed only there. Here I will try to summarize the little-known history of this marvelous assemblage, but not dwell on the ecological reasons for it. The latter are now generally well understood to revolve around abundant spring food supplies (now almost entirely corn) and safe nocturnal roosting sites (the sandy bars and islands of the uniquely wide and shallow Platte River).

Perhaps the earliest known account of Sandhill Cranes on the Platte River was that of an early Plains explorer, John

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Hunter, who reported seeing Sandhill Cranes on the central Platte in the spring of 1834. Hundreds of thousands of human migrants moved west along the Oregon and Mormon trails during the middle 1800s. However, they typically timed their arrival in the Platte Valley for late spring, when the river could be safely crossed at Fort Kearney or points farther upstream, and when a mid-summer ascent to the Rocky Mountain passes would be most feasible. By late spring the cranes would have already departed the Platte Valley, and so it is not surprising that no mention of cranes appears in emigrant diaries and journals.

Few references to the crane migration occurred in Platte Valley newspapers prior to 1950. In 1934, however, the Hastings Daily Tribune reported in its April 18th edition that "Probably this strip of the Platte [between Keamey and Odessa] is crossed twice a year by more Sandhill Cranes than any other strip of similar length in the same latitude anywhere from coast to coast." That same year, the birds arrived in the Kearney vicinity on March 16 (Nebraska Bird Review 2:79, 1934).

Levi Mohler worked for the Nebraska Game and Fish Commission (as it was then known) from 1941 to 1954, and extracts from his diaries of that time include several interesting crane observations. On March 25, 1946 he saw (in correspondence) some 2,000 cranes during a drive from Lincoln to North Platte; and on March 27, he saw 500 to 600 near Lewellen. On March 31, 1947 he counted about 6,000 cranes southwest of Odessa, and on April 17, he saw flocks foraging southwest of Elm Creek. He also observed a roosting flock of cranes on March 18, 1953, near Overton. These dates center on late March, but extend to April 17, a very late date for crane flocks

as compared with their seasonal occurrence pattern in recent years.

In the spring of 1945, W. J. Breckenridge visited the Platte Valley in late March to collect Sandhill Cranes for an exhibit in the University of Minnesota's natural history museum. He reported an estimated 20,000 birds roosting on the river near Lexington. During the few days he was in the Platte Valley, he saw an estimated 30,000 to 40,000 cranes roosting near the confluence of the North and South Platte Rivers (Breckenridge, 1945; Walkinshaw, 1949).

Similarly, in 1954 Lawrence Walkinshaw estimated that 35,000 cranes were present in the North Platte vicinity during late March of 1954 (Heineman, 1954).

It is of interest that all these larger pre-1950s assemblages of cranes were seen in the river stretch extending from North Platte to Kearney, rather than occurring between Kearney and Grand Island, where the largest numbers now are concentrated. The river upstream of Kearney is now largely unsuitable for Sandhill Crane use, owing to heavy vegetational growth and river channel depletion. After arriving in Nebraska in the early 1960s, I regularly drove to Elm Creek before leaving the highway to look for massive spring crane flocks, not expecting to find very large numbers close to Grand Island. Later, from the 1970s onward, I have driven only as far as the Doniphan-Alda region. By then the restored Mormon Island roosting areas had attracted increasing numbers of cranes.

It was not until the Sandhill Crane was first considered suitable for legal hunting during the late 1950s that the U.S. Fish and Wildlife Service undertook a series of spring aerial surveys that were concentrated along the central Platte Valley. These surveys began in 1959, and from then until 1978, the peak

numbers recorded in the mid-continental region ranged from 80,000 to 225,000 birds, averaging nearly 160,000 (Johnsgard, 1983). Since then the annual maximum estimates have been progressively higher, probably owing in part to more sophisticated and more comprehensive surveys, and also presumably to an actual increase in crane populations. Thus, in 1974 the estimate from all mid-continent areas was 177,100 cranes, and since then there has been a gradual but substantial increase in these estimates.

Estimates reached about 450,000 Lesser Sandhills by the late 1990s (Rhymer et al., 2001). The estimated annual hunting-related mortality in this population has also gradually increased in the same general period, from as low as about 13,000 in 1976, to nearly 30,000 in 1994. The average long-term estimated hunting-related mortality for the mid-continent population for the two decades 1975 to 1994 was 21,250 birds annually, as calculated from data presented by Sharp (1995). This figure represents 6.6 percent of the estimated mean total mid-continent spring population of 322,700 birds for that same 20-year period, and obviously excludes all non-hunting mortality factors, such as disease, predation, accidents, etc.

During the approximate two decades from 1974 to 1995, the mean population indices for the mid-continent Sandhill Crane population as reported by Sharp have increased 250 percent, representing an average net positive rate of population increase approaching ten percent annually, in spite of the just-mentioned nearly seven percent annual mortality attributable to hunting atone. This implicit gross annual recruitment rate of more than 15 percent is appreciably higher than all documented migratory Sandhill Crane recruitment rates, which

have historically ranged from 7.2 to 11.5 percent, and collectively averaged 10.4 percent (Johnsgard, 1983). Only the fully protected and non-migratory Florida Sandhill Crane population has reportedly attained a 15 percent annual recruitment rate. However, assuming an 11 percent maximum (early fall) recruitment rate, less subsequent fall-to-summer mortality (hunting plus non-hunting losses) of at least seven percent, the mid-continental Sandhill Cranes should be increasing at no more than 3 to 4 percent annually. Such a rate of increase would produce a doubling time of 17 to 23 years, and would mean that our current crane population should stand at about 300,000-320,000 rather than about 450,000 birds, based on the mean 1959 to 1978 survey figures.

I thus believe that the estimated numbers for mid-continental Lesser Sandhill Cranes are either currently too high or the earlier population estimates were substantially too low. If the former is true then hunting harvests should be adjusted accordingly. The cranes are already showing increasing signs of physiological stress in the Platte Valley during spring. They must now compete for critical spring food in an era of diminishing waste corn supplies, owing in part to ever more efficient mechanical harvesting techniques. There is also a substantially greater competition for the remaining corn from several million geese and other migratory waterfowl. This is especially true of Snow Geese, which are not only greatly increasing in numbers in the Platte Valley but usually also reach peak populations of a million or more a week or two before the cranes.

Our cherished annual spring spectacle of Sandhill Cranes in the Platte Valley may be more precarious than we realize, and must be carefully tended.

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