THE SPRING MIGRATION OF SIBERIAN CRANES AT LINDIAN COUNTY, HEILONGJIANG PROVINCE, CHINA

LI FANGMAN[1] and LI PEIXUN

Biology Department, Harbin Normal University, Harbin, Heilongjiang, China

ABSTRACT

This paper reports observations on arrival, departure, and numbers of Siberian cranes *Grus leucogeranus* at Lindian, on the east side of Zhalong Marsh in Heilongjiang Province, China, in spring 1988. Siberian cranes arrived almost daily from 8 April until 8 May, with a peak population of 806 birds from 8-12 May. Violent storms on 29 April and 3 May were accompanied by large increases in cranes. The resting cranes formed three main flocks. Most families consisted of two birds. All cranes departed 13-16 May.

INTRODUCTION

The reed marsh of Lindian County (ca. 47° 10' N, 124° 26' E), on the east side of Zhalong Marsh, is a part of Zhalong Nature Reserve. This area is an extremely important stopover site during the spring migration of the Siberian crane.

In the spring of 1988, we recorded the spring migration of Siberian cranes during our studies of other cranes, while making prolonged observations from the Huluxin. The Huluxin afford an excellent vantage point, only 1 km from the nearest flock. A lookout tower (about 8 m) had been set out for crane observation.

We used 40 x binoculars for data collection. Whenever Siberian Cranes passed by, arrived or departed, we made daily counts (weather permitting) at 1700 to 1800 hours; we made two or three counts, and the average error was less than 10%. Occasionally, we took five counts for correction. In addition, we kept the Siberian cranes under observation from daybreak to evening.

RESULTS

In the spring of 1988, the earliest arrival of 10 birds occurred on 8 April at Lindian. From 14 April to mid May, the population of Siberian cranes increased almost every day (see Table 1 and Figure 1). The cranes stayed at Lindian for 40 days; perhaps some of them were passing by. The main flock remained for as long as one month.

The cranes arrived in evening at 1700 hours on 14 April, at 1600 hours on 15 April and at 1736 hours on 16 April. Arrivals did not occur, however, when we observed the whole day before 1600 hours.

The cranes which flew from south to north arrived at the reed marsh of Huluxin, wheeling in the air (2-3 circles). They called and broke up their flock into families of 2-4 birds and non-family groups. In our surveys it was quite clear that 80% of the crane families consisted of two birds (see Table 2). The number of the cranes in spring 1988 reached a peak on 8-12 May, when all 806 birds were present. The number of cranes arriving showed a dependence on the bad weather. There were violent storms on 29 April and 3 May. After the bad weather, however, the numbers of cranes present had distinctly increased when counted the next day.

Siberian cranes arrived in Lindian and made up three main flocks (see Figure 2). They separated along the edge of a pool, feeding and roosting in thin reed marsh. The position of the flocks persisted almost until they were leaving for the north. The period of departure was short. All the cranes departed from 13-16 May. They flew up about 1000-1200 hours. When the Siberian flock departed, they were wheeling in the air (2-3 circles). The numbers of the flocks were about 12-70 birds (usually 50-60 birds) arranged in the form of "—," and they flew northward into the upper air. On such days, the weather was bright and clear, the temperature was higher, and the wind speed was less then 5 m/sec.

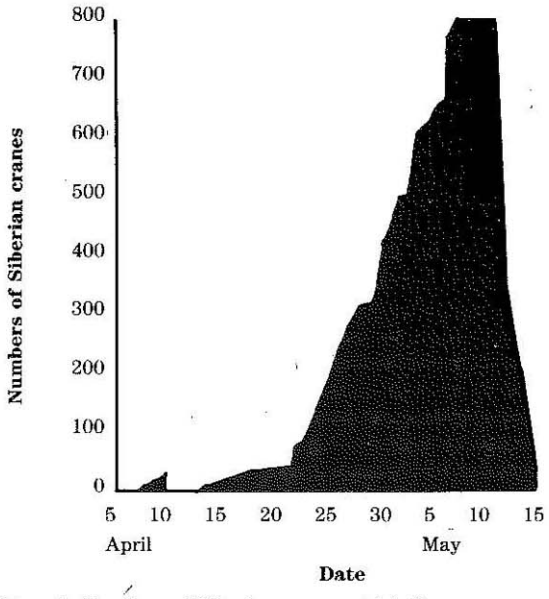

Figure 1. Numbers of Siberian cranes at Lindian.

[1] current address for Li Fangman is Biology Department, Mudanjiang Teachers College, Mudanjiang, Heilongjiang, China

Date	#of cranes	Temp. (av. c°)	Wind direction	Force of wind	Notes
8 Apr.	10	5.15	N	1-2	perhaps birds
9 Apr.	15	6.05	S to N	0-1	before 11 April
10 Apr.	26	8.6	SE to S	3-6	passed north, not
11-13 Apr.	0	1-2	N	5-7	counted in 806 total
14 Apr.	5	7.2			
15 Apr.	18	13.9			
16 Apr.	28				
17 Apr.	28?				strong wind
18 Apr.	38				
19-21 Apr.	38		NE, NW		rain with snow
22-23 Apr.	73				
24 Apr.	133				
25 Apr.	182				
26 Apr.	223				
27 Apr.	269				
28 Apr.	315				
29 Apr.				7	
30 Apr.	421				
1 May	457				
2 May	497				
3 May					strong wind
4 May	613				
5 May	623				
6 May	659				
7 May	776				
8-12 May	806				
13 May	330	17.1 (max 27.7)	WSW	0-3	depart 2 flocks
14 May	213	18.2 (max.22.4)	S to WSW	0-2	depart 3 flocks
15 May	48	17.3 (max. 23.2)	S	3	depart 4 flocks
16 May	0				fine day, all departed

Table 1. The numbers of Siberian cranes at Lindian in spring 1988.

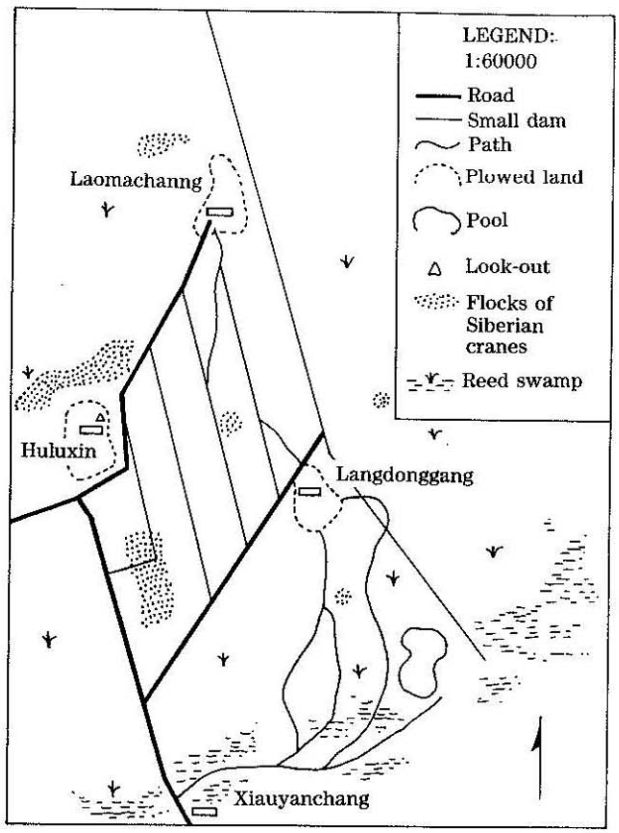

Figure 2. Spring stopover locations for Siberian cranes in Lindian, 1988.

DISCUSSION

According Zhang Semin (pers. comm.), total numbers of wintering Siberian cranes were 1658 at Poyang Lake in 1987-88 winter; the first migratory flock, over 400 birds, left on 9 March; the last migratory flock left on 3 April. Therefore, it is likely there are some other unknown stopover places on the cranes' migrating route. It is necessary for protection of the cranes to discover the stopover places and to do more future studies.

Every year, the numbers of migratory Siberian cranes in Lindian varied: 121 in 1981 and 159 in 1982 (Xu et al. 1985), 217 in 1983, 570 in 1984, 531 in 1985 and 525 in 1986 (Li et al. 1987). These numbers do not mean the Siberian crane population is increasing. Perhaps, some variation was caused by survey errors. More importantly, the numbers of migratory Siberian cranes in Lindian is related to local weather. Siberian cranes choose a clear day for departure. Warm weather is good for cranes migrating north.

number of individuals observed together	1	2	3	4
number of times observed	25	705	144	5
percent of observations	2.8	80.2	16.4	0.6
total number of observations	879			

Table 2. Frequency of Siberian crane observation for families, pairs, and single birds, spring 1988.

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