

The 'lily of birds': the success story of the Siberian white crane

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In 1985 the Worldlife Fund's Gold Medal, its highest honour, was awarded to George Archibald, Director and co-founder with Ron Sauey of the International Crane Foundation at Baraboo, Wisconsin, which has achieved so much for the world's endangered cranes. Their most remarkable success story—and an outstanding example of international conservation efforts across political boundaries—is surely that of the beautiful Siberian white crane *Grus leucogeranus*. It is a story, too, of astonishingly recent discovery, as they told this writer on a recent visit to Baraboo.

This 'lily of birds', as it has been called, makes one of the longest migrations known for a large, non-pelagic bird: at least 5000 km between its breeding grounds in the Siberian tundra and its wintering grounds in Asia. In the nineteenth century thousands of Siberian white cranes wintered in shallow marshes and freshwater lakes of the Middle and Far East, prey for hunters, museums and zoos, but they would not breed in captivity. In India, this large and splendid bird with its snow-white plumage and jet-black wing tips was considered a great prize, and was caught in large numbers to be sold in markets. Even more disastrous for the population, however, has been the draining of vast areas of its wetland wintering areas in Asia for agriculture.

By 1973, when Archibald and Sauey started the International Crane Foundation (ICF), the Siberian crane had declined so drastically that it had become the world's third-rarest crane species and, indeed, one the world's rarest birds: a relict species occupying a mere fraction of its former range.

Most of the world's Siberian cranes appeared to exist in two populations, one eastern and one western. The eastern population was known to breed in north-eastern Siberia, but because of the vast and exceptionally remote areas involved and the enormous area each nesting pair requires,

only two nests had been discovered by 1973, both by Soviet ornithologists: the first in 1961 by V. I. Perfilyev in Yakutia and the second in 1965 in the same area by Dr Vladimir Flint, the leading Soviet authority on the Siberian white crane and now chairman of the Crane Working Group of the Soviet Union. The location of the wintering grounds, however, known to be somewhere in China, remained a blank. The breeding grounds of the western population were also undiscovered, but 64 of its members wintered in India's Bharatpur bird sanctuary (Keoladeo National Park), which was at that time disintegrating from overgrazing and tree-felling.

In captivity, there were only isolated, aged birds in zoos. One of the few survivors from that time is Wolfe, a crane from a West German zoo that is now kept at the headquarters of the ICF in Baraboo. He is believed to be the oldest Siberian white crane in the world, having hatched in around 1905.

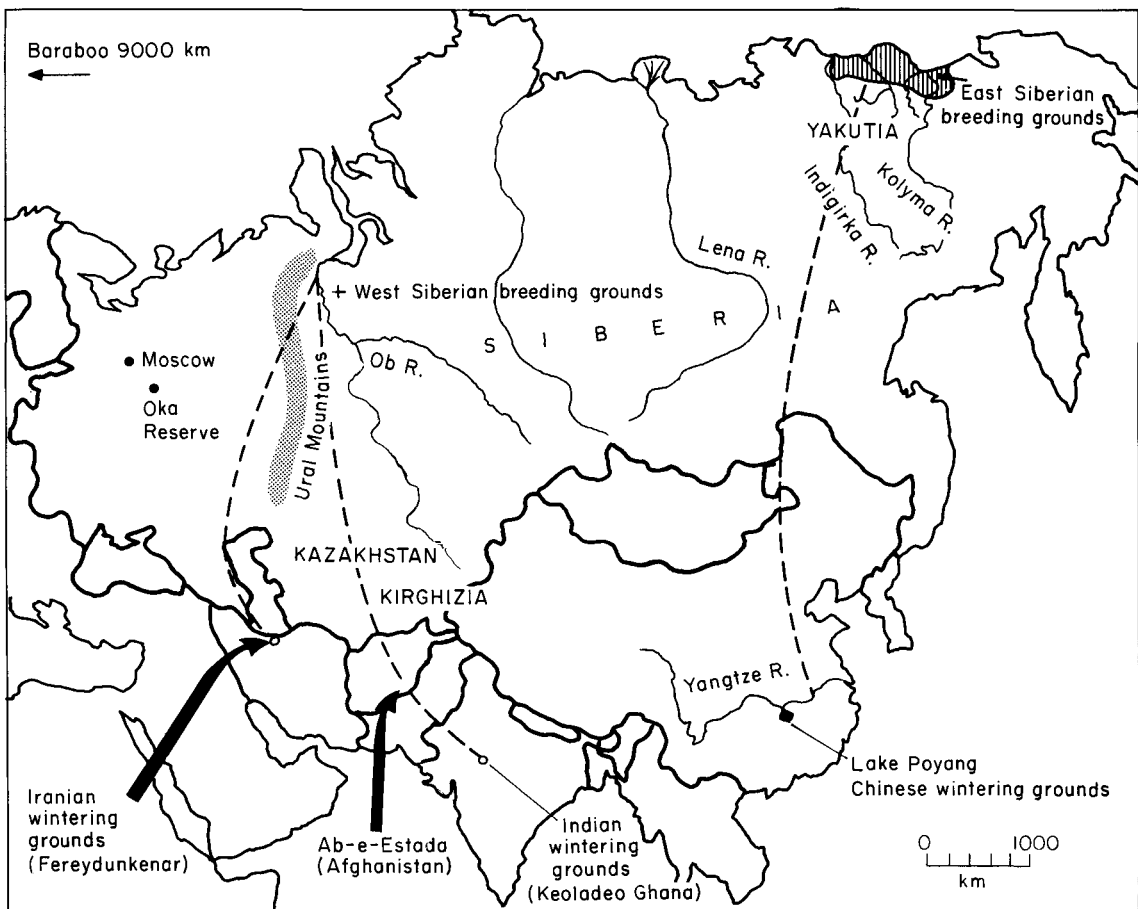
There was, furthermore, much confusion in the literature: descriptions may date from the German naturalist Pallas, who named the bird in 1773, but there is no evidence to suggest that he saw it himself or that other descriptions were really of the Siberian crane; often the alleged sites were in the far south, for example in Kazakhstan, and even included nests of storks in Kirghizia.

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Then in the summer of 1978 some Soviet students, floating down a tributary of West Siberia's great river Ob, found a long-legged chick, apparently abandoned, on a sand-bar. It could not fly and approached them unafraid. They eventually gave it to an animal-lover in a nearby village who kept it with her sled-dog huskies beneath her house, feeding them all with fish scraps. When word reached Moscow, Flint's assistant, Sasha Sorokin, flew out to bring it back—'an extremely dirty bird stinking of fish' to quote Archibald—and once in Moscow, it had to endure three successive baths in Flint's flat to wash away the putrid smell of rotten fish. The bird, since called Sauey, is now at the Oka State Nature Reserve's Rare Crane Breeding Centre south of Moscow.

The unknown breeding ground of the west Siberian crane flock was presumably near Sauey's sand-bar, and in 1981 Sorokin, using low-altitude aerial surveys, found his first eight breeding pairs nesting just east of the Urals in tundra wetlands on the edge of coniferous forest along the Kunevat, tributary of the lower Ob. At the last count (in 1984) there were nearly 50 birds.

This western population's migratory flight-path to and from India takes them through Afghanistan and Pakistan, and in March 1977 Ron Sauey and others found 56 Siberian white cranes at Ab-e-Estada in eastern Afghanistan, representing all but one of the cranes they had seen four days earlier at Bharatpur. However, it is a dangerous annual gauntlet through Afghanistan and



Map showing distribution of the Siberian white crane (redrawn from a map by Cilla Kimberly and John Wiessinger in the *Brolga Bugle*, Winter 1978).



A Siberian crane at its nest (ICF).

Pakistan, and hunters here were probably the chief cause of the flock's 60 per cent decline in the decade up to 1983. In Pakistan live-crane catching, particularly of the demoiselle and common crane, has long been a major activity in the Northwest Frontier Province and in part of Baluchistan. In 1984, however, crane-hunting laws were passed that, among other things, prohibited the sale of cranes (much to the hunters' outrage), and an educational back-up has followed in local and regional dialects, which includes an audio-visual programme to teach hunters how to distinguish the Siberian white crane from its far more numerous common and demoiselle crane cousins.

India was not, however, the only traditional wintering place of the western population. In the nineteenth century a sizeable number wintered along the southern shore of the Caspian Sea, but these had long been considered to be extinct. Then, in 1978 an Iranian ornithologist found a flock of at least nine near the south Caspian town of Fereydunkenar. When Archibald went to investigate, he found them in a gigantic waterfowl trap called an *Ab-bandan*, an extremely

ingenious system off flooded rice-fields, consisting of a trapping pond with two narrow channels, one blind, designed by the local villagers to trap and slaughter ducks and other birds.

The cranes' existence had been unknown because the local trappers had kept out all strangers for fear of disturbing the wild ducks, and Archibald was threatened on his approach. He returned the next day accompanied by police, and fortunately found the cranes preferring the flooded rice fields to the trapping pond—although the villagers are believed to resort to guns as the ducks prepare to fly north, killing masses of waterfowl including perhaps cranes. However, the quandary is that outside interference could result in total extinction for the tiny flock at the hands of angry trappers.

More than 3000 km east of the west Siberian flock's home in the tundra is the eastern population in Yakutia, north-eastern Siberia (with no breeding area ever recorded between the two). No one knew where they wintered. Chinese ornithologists, who had been sent to work on farms

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and in factories during the Cultural Revolution, were subsequently determined to find the wintering grounds of the Siberian cranes and, after several years' searching and public appeals, they finally found them in 1981 on China's largest freshwater lake, the 3000-sq-km Poyang. They discovered 140 birds, which approached the estimate of 200 made by Flint and his colleagues for the eastern population. The next winter, surprisingly, there were 409 birds, in 1983 840, and in January 1985 Archibald was astounded to find as many as 1500 Siberian white cranes wintering in the one small part of the lake unaffected by draining and diking. 'I was blown away', he exclaimed. 'It was like a dream come true!' Thus the world's known population of this rare crane was four times greater than had been believed.

As for the apparent population explosion, Archibald postulates that this is more likely to be the result of the convergence of birds from the area's other wetland wintering grounds reclaimed for agriculture. However, even this last refuge—now the Poyang Lake Nature Reserve—is threatened: at present Poyang is partly filled from April to September by the Yangtze's floodwater, but this drains back by winter leaving a mere 500 sq km, only about 200 mm deep, of mudflats and small pools shallow enough for the birds to eat—a paradise for myriads of birds. However, a dam across the Yangtze is now being planned; the Chinese claim that this will not cause any problems as five other rivers feed Poyang, but the effect on '1500 birds all in one puddle' (in Archibald's phrase) is conjectural. A few metres less of water in the summer will allow the dike builders to do a lot more damage.

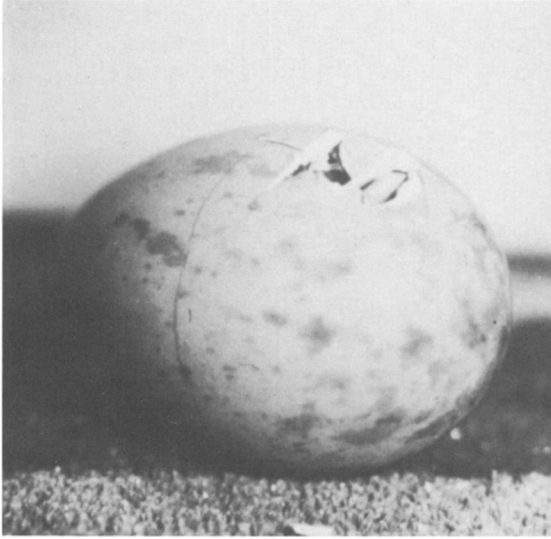
The discovery of the Poyang cranes was widely publicized in China, including front-page coverage in the *People's Daily*, and the local peasants, who know them as the cranes with black sleeves, have now stopped pursuing the lake's birds, which include several thousand cranes of five species, hundreds of great bustards and tens of thousands of geese, in boats mounted with canon and shrapnel.

At least one mystery still remains: where do these birds come from? The Chinese have made spring-time air surveys throughout northern China and have found large flocks of Siberian

cranes staging in several wetlands, but by summer the flocks have left, presumably for the Siberian tundra, probably in the vast 900 km stretch of Yakutia between the Lena and Indigirka rivers. Archibald's Russian colleagues, who 'couldn't believe there were that number of cranes in China', are currently searching the area, but East Siberia is an enormous region.

Even with the unsuspected size of population, the Siberian white crane remains vulnerable. Back in 1975, when the population apparently consisted of fewer than 400 birds, a joint ICF-USSR-Iranian scheme began, which the Russians call Project Sterkh (Operation Siberian White Crane). The aim is to produce Siberian crane eggs at the ICF and the Oka reserve's captive breeding centre and transplant them into the Russian nests of the common crane *Grus grus*, which breeds in the same Ob forest-tundra habitat as the western population and winters in large numbers in Iran. There, Iranian colleagues are wing-tagging the birds so that Soviet researchers can identify the exact nesting areas. Thus, the Siberian cranes will hopefully learn a new migration route from their foster-parents and start a new and more secure flock than the tiny endangered population in Iran (11 in 1986). Co-operation continues, but the Iranian revolution has slowed progress. Nonetheless, the 1983 International Crane Workshop at Bharatpur was attended by Americans, Russians, Chinese, Iranians and Pakistanis. A commemorative Indian postage stamp of a Siberian white crane was issued at the time, reproducing a painting that had been presented to Indira Gandhi, then Prime Minister, in recognition of her efforts to help save the species.

However, discovering how to breed Siberian cranes in captivity was a major challenge for the ICF. Males often kill their mates in captivity, and surviving females seldom lay eggs. It took the ICF five years to discover the secret: the combination of artificial insemination, incubation by sandhill cranes, which produces stronger chicks, and floodlights to simulate the near-continual daylight of the spring tundra. Success came at last in June 1981 (the year the cranes were found at Poyang) with the birth of Dushenka—'a hatch heard around the world'. Three more chicks were born in 1982, five more in 1984, and two in 1985.



Artificial lighting made a remarkable difference: one female Siberian at Baraboo had been in the Philadelphia Zoo from 1952 to 1970 and had never laid an egg, and yet the first year at the ICF under lights, she laid 12: doubtless a mate and much more privacy helped as well. Unfortunately, none of the eggs was fertile, and so Flint and his colleagues collected 11 eggs for the ICF in the Yakutian tundra in 1977 and 1978. They were raced 10,000 miles to Baraboo's incubator by helicopter and scheduled jets, and from them six birds (three of each sex) have been raised, among them Aeroflot, which hatched prematurely at 30,000 feet.

Theoretically, of course, it would be much simpler to transfer eggs from wild rather than captive Siberian cranes to be hatched by common cranes, but this is impossible because the latter nest much earlier than their rarer cousins. The ICF's artificial photoperiod is essential, therefore, to make the captive Siberians behave as if the tundra's spring had arrived and so synchronize their eggs with those of the common crane.

Baraboo, with a captive flock of 19 in 1986, now hatches some eggs, raising the chicks, and flies other eggs back to the Oka reserve where a second captive flock of 15 is being built up with eggs from the tundra. Says Archibald: 'If they can learn how to breed them in captivity as we're doing here, they can just transfer eggs out of their



Dushenka, the first Siberian crane to be hatched in captivity (G. Archibald).

back-door into the nests of the common crane. The idea is now not to return them to the tundra but to establish a flock at Oka in common crane habitat of forest-marsh, fairly similar to the two birds' shared breeding grounds on the Ob much further north.'

'It's all very historic in the past few years,' he rightly declares. And Sauey believes that more wintering sites may be discovered, especially in China, and a third breeding area may be found in extreme west Siberia or even eastern Europe. So the history of the Siberian crane may lie ahead too.

Acknowledgments

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