



The trans-Siberian runaway

New evidence suggests that raising a Siberian crane chick on the tundra is hard work. But so, too, is studying one, as Eugene Potapov recalls. For one thing, such a large bird has a very large chick, which — at just a few weeks — can run very fast and is a competent swimmer. Photographs by the author.

When I saw my first Siberian white crane, I had no idea that this regal-looking, tall bird would literally lead me astray. The encounter occurred in the summer of 1986, on the vast, remote tundra plains of north-eastern Yakutia — one of only two known nesting areas for this extremely rare bird — and though I had travelled there with the express intention of observing Siberian cranes, I had hardly dared hope to see one. But I did, and within just a few days. The crane first appeared as a silhouette against the low arctic sun, picking its way over grassy tussocks. It gradually came closer, stopping occasionally to peck at unripe crowberries. My gaze was held by its dazzling white plumage and when it spread its wings, ran a few steps into the wind and took flight I felt bound to follow.

The problem was that we were on the edge of one of the many huge depressions, some as much as seven kilometres across, that are scattered over the soggy tundra. This one contained a lake three kilometres in diameter, and while the crane crossed that in a matter of minutes, it took me almost an hour to skirt round it. Yet the bird remained in sight the whole time. It was almost as though it was waiting for me to catch up.

In the hope of getting a photograph, I kept following that crane for five hours, until I realised that the bird was almost certainly leading me on in an attempt to distract me from its nest. When it finally took off, I realised that I had travelled seven kilometres, and that with a dark wall of fog rolling across the tundra and with visibility down to less than 100 metres, it was going to be a difficult 15km journey back to my boat, and then back along the narrow river to my base camp.

Many others have been led astray by this magnificent bird since, more than 200 years ago, the celebrated ornithologist P S Pallas first described the species from a specimen taken from the boglands of the Ob river valley — now its only known breeding area apart from my study site in Yakutia. But it was only 30 years ago that the first detailed studies, including aerial surveys, were done. The latest results are alarming: only a few dozen pairs are thought to breed on the wooded tundra of the Ob valley, with perhaps 350 pairs breeding on tundra in northern Yakutia. The puzzle is that, though it is known that the Ob river population winters in India and Iran and the Yakutia population in China, many more birds have been recorded wintering in China than breeding in Yakutia. What this means is that other breeding grounds almost certainly remain undiscovered in the northern taiga zone.

In the 1970s, scientists were so concerned by the plight of the Siberian crane that they battled through all kinds of bureaucratic obstacles to set up Operation White Crane. During several breeding seasons, a team led by Professor Vladimir Flint travelled from Moscow to the tundra to

collect eggs, which were then passed on to American colleagues who had been educated by their own experience in saving the whooping crane and who had incubation facilities at the International Crane Foundation in Wisconsin. Some of the chicks reared there were later returned to the Soviet Union, and some were taken to West Germany to found captive-breeding colonies. Now, as so often happens with rare species, much more is known about the crane's biology and behaviour in captivity than in the wild.

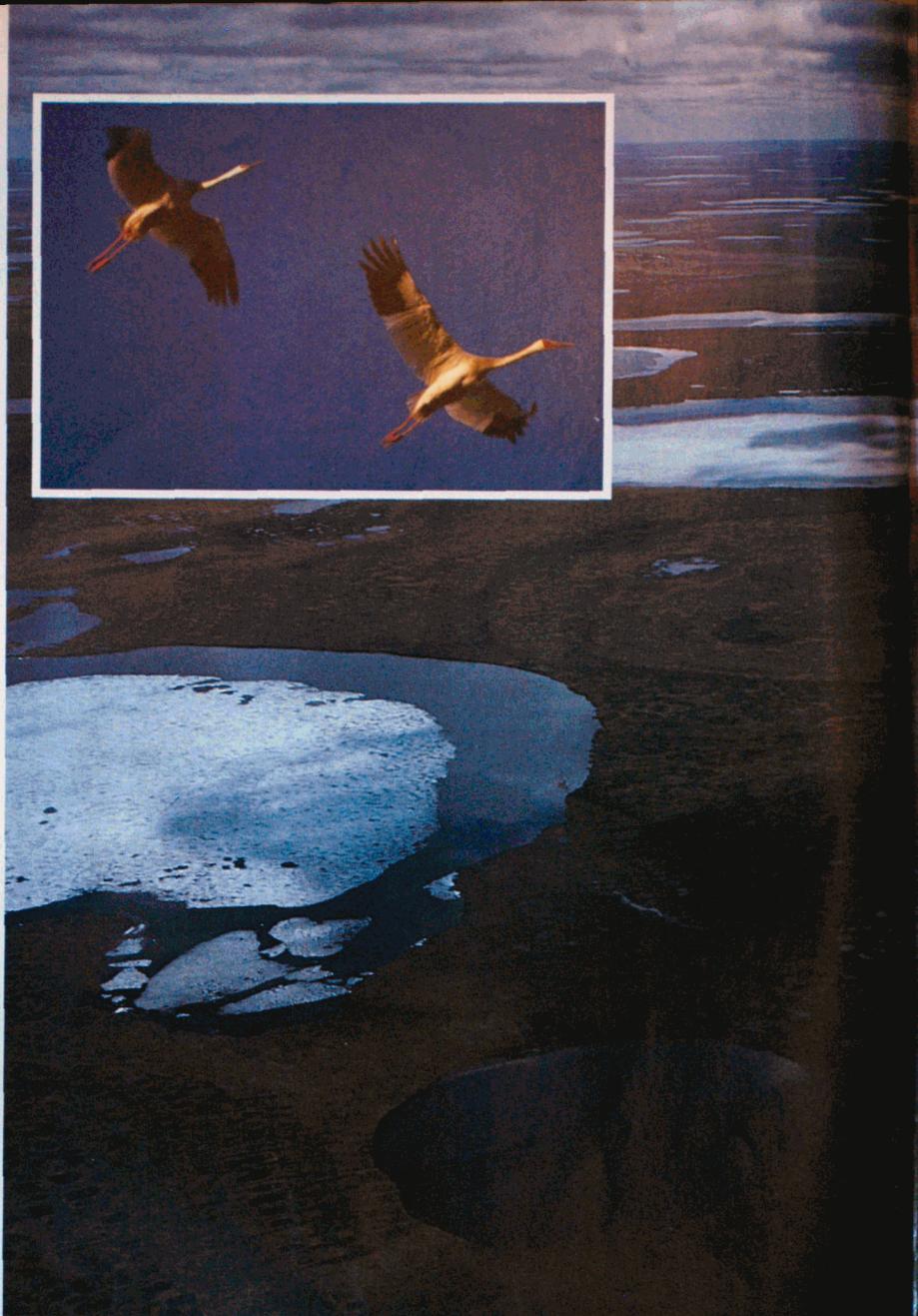
This is not so surprising when you consider the remoteness of the bird's breeding grounds, at least in Yakutia. The wet, boggy lake depressions that the birds favour can generally be reached only by boat and then on foot, over many kilometres. Back in the summer of 1986, when I first made this trip — and first saw a crane — it wasn't, in fact, the only bird I had come looking for. I was there to study northern Yakutia's tundra bird communities, as part of a team, led by prominent Soviet ornithologist Dr Alexander Andreev. A small team usually comes to the tundra each year, in early spring, to observe the arrival of migrant birds. From the base camp we would travel on foot or by motorboat over the surrounding uninhabited tundra. (The nearest settlement, of about 250 hunters and fishermen, is about 150km to the east.)

I didn't see a crane again that summer, and though I did see several more the following year I still hadn't seen any chicks. That didn't happen until 1989, when I was mapping rough-legged buzzards in the most remote part of the Yakutia study area. The weather was appalling. A north-easterly wind from the Arctic Ocean was driving banks of fog, rain and snow across the tundra. But as successive fog banks rolled away, they were pierced by brief bursts of blue sky, and it was during one such >

Opposite: The great escaper. When the chick was tiny, the first sign of disturbance would cause it to hide. But at about four weeks old, it switched its escape tactic to running. Here, it has just been weighed and measured, after a chase across the tundra and a swim across a freezing lake.

Below: Launchpad. This is the closest the author could get by boat to the cranes' nesting area — a 6km hike away.





Plane's-eye view. These huge boggy lake depressions with floating turf and polygons are favoured as breeding sites. In the far north-east of Siberia, the ice starts to melt in June. Here, some of the smaller lakes have already thawed (the one in the top right was the one used by the study birds).

Inset: Flight control. If a pair with a young chick is disturbed, both parents will immediately take flight, giving alarm calls as they pass over the chick. These encourage the chick to stay quiet, still and virtually undetectable in the grass tussocks.

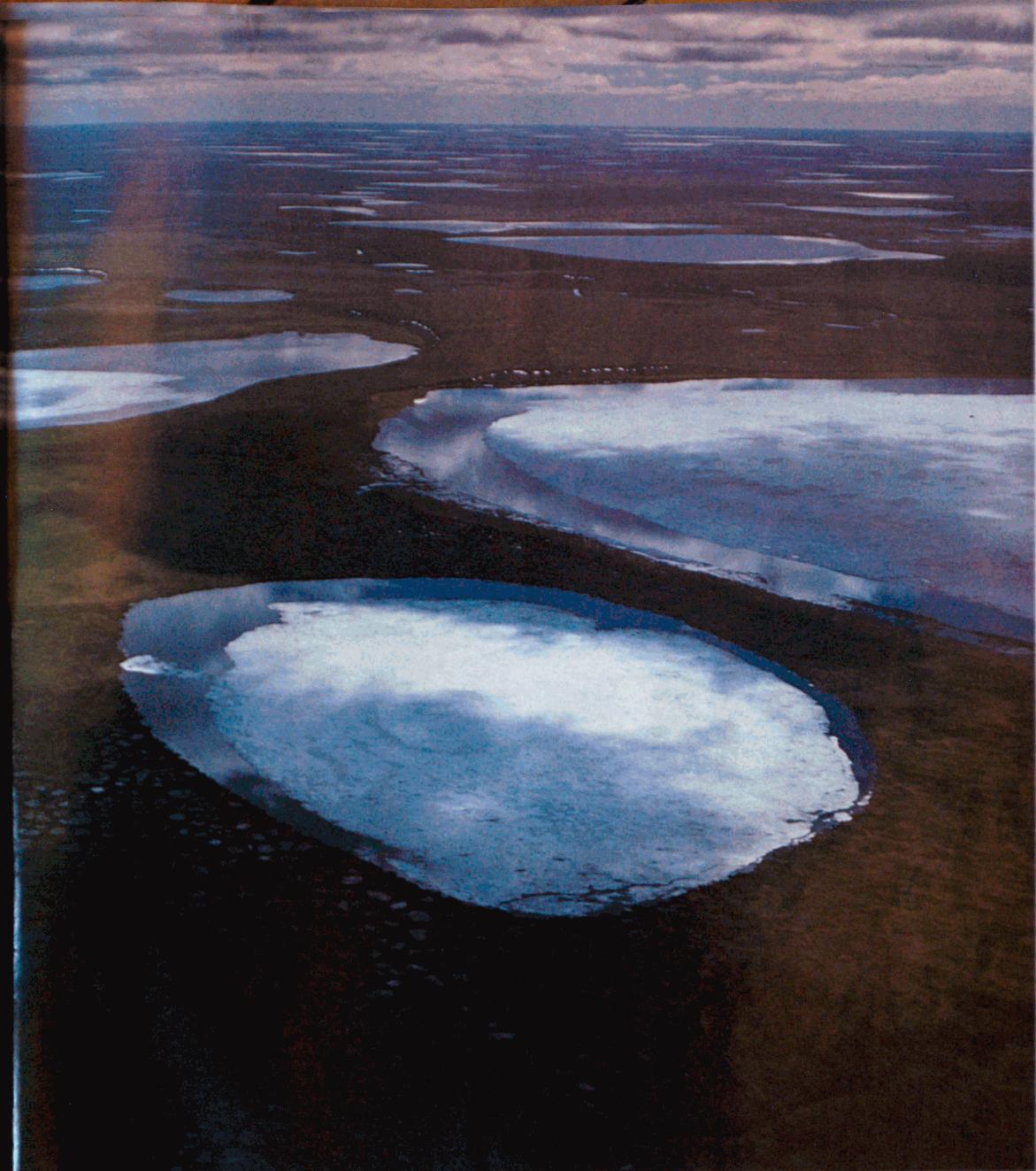
flash of sun that I came to the edge of a large lake and scanned the shore with my binoculars. There were plenty of birds there – a herring gull colony, two pairs of white-billed divers, several pairs of Ross's gulls. And there were two white cranes – one sitting, one standing – about a kilometre away. Even from that distance I could make out the nest, a trampled platform of moss and sedge, about a metre across.

The clammy fog quickly descended again, and for once I was grateful because it hid me from the birds and allowed me to creep to within 100 metres of them before they saw me. I was delighted to have confirmation of my suspicions that the birds were breeding in the area, farther east than any Siberian crane nest yet recorded in the region. It was in typical white-crane habitat – a peaty hollow containing several lakes, and with areas of 'polygons', those typical

tundra features created by repeated freezing, defrosting and refreezing.

I was keen to record as much as possible about the birds' behaviour, and the next morning, after a trip back to base camp for camping equipment and supplies, I was set up just over the rise from the nesting lake, eagerly taking up watch. The lake shore consisted of a marshy floating turf of sedge roots and rhizomes, cotton grass and arctophila (a narrow-leaved grass that grows in shallow water), and it was here that the adults spent most of their time – one incubating, one feeding nearby on roots pulled from the turf and on the juicy parts of cotton-grass stems. Obstinate roots it hacked at with its strong beak, and any submerged roots were tossed on to the nearest solid surface before being chopped apart.

After three days crouched on the edge of the nesting



area, my eyes glued to my telescope, I was exhausted, and it was a relief to return to the base camp for a week. But when I got back to the nest, it was empty, apart from a few fragments of eggshell and some fresh arctic-fox droppings. I had seen the parent birds take off over the lake as I arrived, and was hopeful that at least one chick might have hatched and left the nest. To find out, my best strategy, I decided, was to convince the parents I had left, and so I departed conspicuously, making sure the cranes could see my silhouette on the edge of the depression. Then I headed for the boat, where I collected primus stove, kettle and telescope. Thus equipped for a lengthy vigil, I waited for a covering wave of fog and crawled back into the hollow.

Before long I spotted one of the parents, half concealed in the tall grass, sitting in a posture that strongly suggested

brooding. As soon as the next fog bank reached me, I took the opportunity to close the distance, and a crane leapt up in the swirling fog less than 100 metres away. I still had no idea where on the expanse of flat bog the chick might be, but the anxious warbling sounds of its parents circling overhead were a sure sign that it wasn't far. I quickly looked over all the nearby polygon hummocks but saw nothing. In each hummock – any of which could be up to 15m across – there was the usual shallow pool of water, and a sparse growth of grass, but no sign at all of a chick.

It was some time before I remembered that Siberian-crane chicks are russet-coloured, and so if viewed from above would be perfectly camouflaged by the rusty red layer of algal silt that lined each pool. I returned to one of the polygons nearest the lake, and this time I knelt ▶

down beside it; viewed from that angle, the water surface reflected the sky, and any hiding chick ought to have shown up. I was on my knees by the third polygon puddle when I finally saw it: the chick was floating motionless, holding its greyish-pink bill in the water and close to its body. I quickly weighed and measured it, and then returned to my hide, making an obvious detour *en route* to deceive the adult birds.

It was another two hours before the fog dispersed, allowing me to watch the crane family with ease. The adults were walking along the lake shore excavating roots, eating some and chopping others into smaller pieces for the chick. One of the parents caught a small fish, which proved difficult to handle, but it finally managed to lay the fish on a tussock for cutting up. Feeding bouts alternated with periods of rest of about an hour, with one adult sleeping while the other brooded the chick. Not wanting to disturb the birds, I chose one of these rest periods to withdraw unnoticed.

My next visit was a week later. I crept to the familiar depression, but found no cranes there, and was forced to spend the next two days scouring the area. I finally found the family three kilometres away, feeding on a lake shore strikingly similar to the original nest site.

This time, to simplify future searches, I carefully attached a tiny radio transmitter to the chick's back with a simple harness. I had also come to recognise the sections of lake shore formed by floating turf that the birds preferred to feed on and I confined my search to them. Such boggy areas are easily distinguished, even at a distance, because the plants there, coloured by algal growth, are predominantly yellow, in marked contrast to the green background of the tundra.

I returned a week later, and on my way from the boat, I repeatedly came across signs of crane activity – uprooted moss, remains of plant rhizomes extracted from the floating turf, stalks with the more succulent parts missing, and huge telltale footprints in the peat. It appeared that the cranes had spent the week in one large depression, gradually making the rounds of each of its lakes. The radio transmitter's signals were coming from some floating turf, and so I began a close inspection of that area. By now, the young crane was quite large (almost two kilograms, as I discovered when I weighed it later), and no longer seemed to feel the need to hide from me. Instead, as soon as it spotted me, it spread its wings and stood its ground with a threatening posture. But when I approached the chick to take its measurements, it suddenly waded into the water and swam off.

It was important that I measured it. No one had ever before had the opportunity to gather vital statistics on the growth of wild Siberian-crane chicks, and it might never come again. Anyway, if nothing else, I needed to



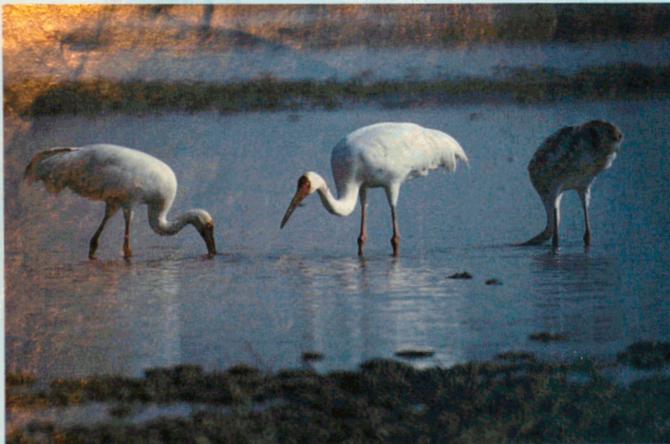
remove the transmitter harness, which would become lethally tight as the chick grew. I considered what to do. My only options were to give up and return in a few hours, or to wade out now and retrieve the chick. By this time, it was out near the middle, surrounded by bustling and inquisitive white-billed divers. My clothes off (and modesty preserved only by clouds of mosquitoes), I clambered into the icy water. At first, the chick was quite calm as I approached, but when it spotted me, it quickly made for the opposite shore.

When the chick reached the shore, it rushed to join its anxious parents, who were stalking with their wings outstretched. Stark naked, teeth chattering, and raising clouds of mosquitoes, I chased after the chick. The floating turf quaked and sagged underfoot, sometimes giving way and leaving me knee-deep in water, my feet feeling the icy hardness of the permafrost. The chick picked up speed over this stretch, but I knew I would have a better chance of catching up when we reached the area of sedge tussocks.

As soon as I had caught it I had to hurry back around the edge of the lake to the place where I had left my clothes and equipment. The wet chick scratched violently, while its parents escorted me with all manner of incredible postures, frantically trying to distract me from their offspring. When I reached the equipment I put the chick in a bag, quickly put my clothes on, then removed the transmitter harness, weighed the chick and released it (it

Right: Second childhood. After several years' observation of the same pair, the author has concluded that the adults in a pair moult in alternate years. For about a month, from the end of July, the moulting bird can't fly, and during this period it behaves like a chick. At the first sign of danger, its unmoulted mate will fly overhead making alarm calls, signalling that it should hide. Last year's chick was about five weeks old when one of its parents started moulting, and for the next few weeks, it was left to feed alone, while the unmoulted adult spent all its time several kilometres away, protecting its mate.

Distant relations. The Siberian cranes that breed in Yakutia are thought to winter mainly in China, while the ones that breed 3,000km to the west, in the Ob river valley, spend the winter in Bharatpur, India (below).





seemed clear that my problem from now on would be catching rather than locating the chick).

Of course, I knew that my presence was putting the cranes under pressure, and perhaps forcing them repeatedly to move from one lake to another. But over the next few weeks, I found the family several more times within the same depression, and my measurements showed that the chick was growing faster than those that have been artificially fed in captivity. It seemed likely that my regular presence caused no more disturbance than that of, say, predators such as wolves and arctic foxes, and I wished the birds more good than they did. I had secured the first-ever data on the physical development of a Siberian-crane chick in the wild, and had also managed to shed some light on the conservation needs of this highly endangered species.

At the time, it was thought that the Siberian tundra provided abundant food and nesting areas for these cranes and that the main reason for their decline was human hunting along their migration routes and in their wintering areas – but my observations suggest otherwise. They are probably naturally rare, with their population limited by the nature of the tundra itself.

There may well be plenty of suitable habitat for non-breeding adults, which can spare the time for the labour of pecking out roots from the marshy turf. But birds with a growing chick need much more than that. The adults I watched managed to catch, on average, five food items

per minute, and even then their chick was barely fledged by mid-September, when the lakes were already iced over and inaccessible. Only in a specialised habitat – lake shore flanked by a 10-20m strip of floating turf – can such a high feeding success rate be maintained.

This habitat has other advantages. The beaks of its closest competitors, whooper and Bewick's swans, are too short to extract large rhizomes from the floating turf. And the only other species of crane that breeds in the area, the sandhill crane, lives exclusively on dry tundra, preferring roots to dry sedge and cotton grass tussocks. The other advantage of the lake shore is defence: if attacked by a wolf or arctic fox, a well grown chick may be able to escape by rushing to the lake and swimming out of reach, as I myself well knew.

The problem is that such prime Siberian-crane breeding sites are in short supply. In my study area of 1,050km², I calculate that there are only about 25km of lake shore, and if you exclude those stretches that are too isolated or have banks that are too steep, only about 18km remain. And in just one month, I calculated that 'my' crane family made use of 13.5km of such shoreline.

For programmes that involve releasing captive-bred Siberian cranes in the wild, these results suggest caution. There are certainly some areas where released birds could survive, but these are not suitable for cranes to maintain broods. In my view it is therefore impossible to raise artificially the white crane's reproductive success. □

Author

Eugene Potapov (below, with a three-day-old chick) spent eight field seasons in the remote tundras of north-eastern Siberia, while based at the Institute of Biological Problems of the North, part of the Academy of Sciences of the USSR. Last year he arrived in Oxford to read for a DPhil in raptor ecology.





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