Breeding conditions for waders in the tundras of the USSR in 1989

A.Y. Kondratyev

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In extreme north-eastern Europe and on the Yamal Peninsula the high number of lemmings remained up to the beginning of the 1989 summer and then decreased sharply. In more eastern regions (Gydan, Taimyr, Yakutiya, Vrangel Island and many parts of Chukotka) the decrease in lemming numbers started earlier. The greater variety of conditions in the mountain regions of Chukotka resulted in some pockets remaining with relatively high lemming numbers. Arctic Foxes *Alopex lagopus*, which reproduced numerously in 1988, did not breed in 1989, with the exception of some sites in Chukotka. They occurred in high numbers on the Bol'shezemel'skaya Tundra, on the Yugorskiy, Yamal and Gydan Peninsulas and on Vrangel Island. Widely roaming Arctic Foxes were noticed in northern Yakutiya and in Chukotka. Where there were no lemmings, Arctic Foxes destroyed all nests and nestlings. As a result, there was extremely low breeding success of wader and other bird species in all northern tundras of the USSR.

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На крайнем северо-востоке Европы и на Ямале высокая численность леммингов сохранялась до начала лета 1989 года, а затем пошла резко на убыль. Восточнее депрессия их численности началась, по-видимому, раньше и охватила Гыдан, Таймыр, Якутию, о-в Врангеля и многие части Чукотки. Разнообразие условий в горных районах Чукотского края способствовало сохранению очагов относительно высокой численности леммингов. Обильно размножившиеся в 1988 году песцы *Alopex lagopus* в 1989 сезоне не размножались, кроме некоторых мест на Чукотке. Песцы сохраняли высокую численность в Большеземельской тундре, на Югорском п-ве, на Ямале, Гыдане и на о-ве Врангеля. Широкие кочевки песцов отмечены на севере Якутии и на Чукотке. При отсутствии леммингов песцы повсеместно разоряли гнезда птиц и уничтожали птенцов, так что почти по всему тундровому Северу Советского Союза отмечены крайне низкие результаты размножения куликов и многих других птиц.

Introduction

Information about the 1988 breeding season for arctic waders in northern USSR (*WSG Bull.* 57: 40-41) has resulted in great interest. A similar review is given here for 1989. This has previously appeared in the third *Bulletin of the Working Group on Waders* (1990) of the USSR Academy of Sciences (pp. 40-48). Observations from central Taimyr have also been included following a joint Soviet-German expedition to this area in 1989 (*IWRB News* 3: 8-9).

Information was collected by many ornithologists working in the tundras of northern USSR in 1989. Each of the following numbered sections refer to an area shown in Figure 1, and at the end of each section the name of the relevant informer is given.

1. Northern coastal areas and islands on Kola Peninsula (Murmansk coast)

Spring started very early: snow finished melting in mid-May in the Aynov Islands, compared to the long-term average snow-melt date of 27 May. The weather during spring and summer was warm but characterised by heavy rains. In the coastal tundra there were no lemmings, and the number of Arctic Foxes *Alopex lagopus* was not as high as usual. There were losses of recently-hatched wader broods observed on islands after heavy rains. The autumn

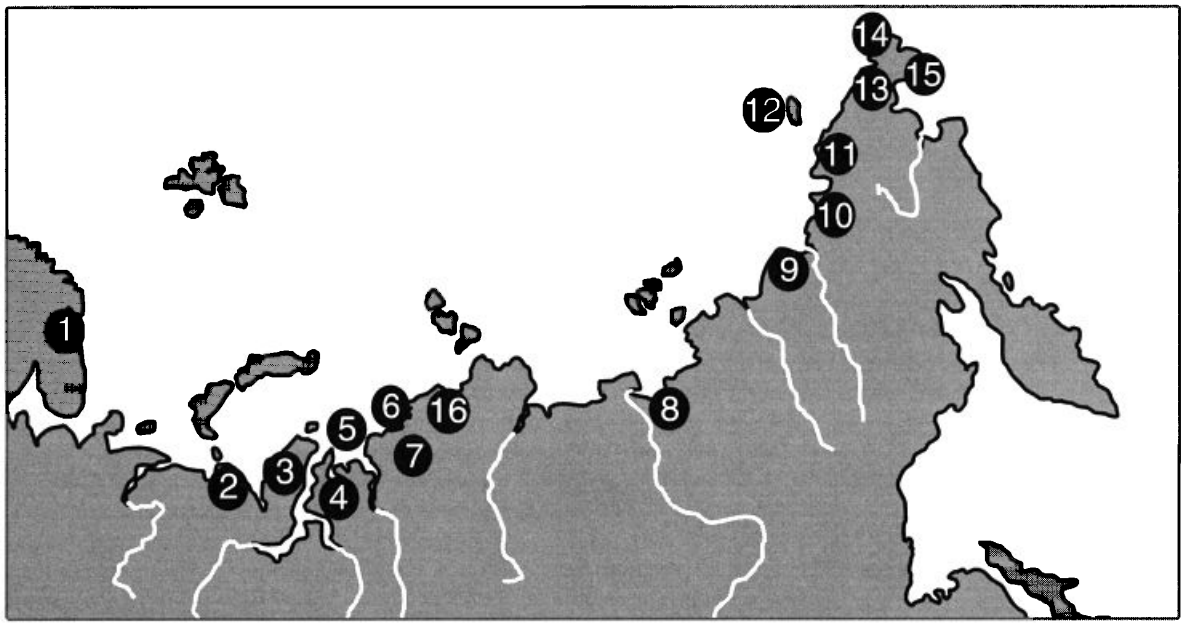

Figure 1. Study sites mentioned in the text

migration of Purple Sandpiper *Calidris maritima*, Dunlin *C. alpina*, Curlew Sandpiper *C. ferruginea*, Little Stint *C. minuta*, Ruff *Philomachus pugnax* and other species was characterised by very low numbers, suggesting low breeding success.

I.P. Tatarinkova

2. Eastern Bol'shezemel'skaya Tundra and Yugorskiy Peninsula

In common with the other European parts of the USSR, there was an unusually early and rapid spring: two to three weeks earlier than average. In tundra habitats there was 70-90% snow melt between 20-25 May, and the ice on rivers broke up at the end of May/beginning of June. The summer was exceptionally hot, with rainfall occurring mainly as rain-storms. During the winter there had been very high numbers of lemmings; a situation which remained up to the end of June in the eastern Bol'shezemel'skaya Tundra and to mid-June in the Yugorskiy Peninsula. Later, a sharp decrease in lemming numbers was noticed up to depression level. As a result, the breeding success of some avian predators was very low (Rough-legged Buzzard *Buteo lagopus*, Hen Harrier *Circus cyaneus*, Short-eared Owl *Asio flammeus*) and some others did not breed at all this season (Snowy Owl *Nyctea scandiaca*, Pomarine Skua *Stercorarius pomarinus*). Arctic Foxes were numerous but they did not reproduce. The timing of wader breeding was normal, but with extremely low success on Yugorskiy Peninsula because of predation by raptors. Breeding success of waders in eastern Bol'shezemel'skaya Tundra was also lower than normal.

V.V. Morozov

3. Yamal Peninsula

Weather conditions were favourable for breeding with an early spring and warm summer, although some nests disappeared after heavy rains. Lemmings were numerous during spring, but then decreased sharply. Predators, both mammals and birds, then fed on bird eggs and chicks. As a result, breeding success of waders was close to zero. Little Stints had already started to concentrate in post-breeding flocks at the beginning of July. Such a low breeding success in the region had only been recorded previously in 1974.

V.K. Ryabitsev

4. Gydan Peninsula (near Yuribey village)

In the subarctic tundra habitats, snow cover disappeared in mid-June and the ice on the frozen river Yuribey broke up at the end of June. After the peak in the numbers of Siberian Lemming *Lemmus sibiricus* in 1988, a rapid population decline was noticed, and numbers of both species of lemmings decreased during the summer to very low levels of abundance. Arctic Foxes were abundant, and Snowy Owls were numerous in the first half of the summer although they did not breed. Skuas also did not breed, and their numbers decreased during the summer.

Breeding efforts of Rough-legged Buzzard were unfavourable - *c.* 70% of nests disappeared. Breeding success of waders (Dunlin, Pacific Golden Plover *Pluvialis fulva*, Ringed Plover *Charadrius hiaticula*, Red-necked Phalarope *Phalaropus lobatus*) was probably also low.

Little Stint, Temminck's Stint *C. temminckii* and Ruff finished breeding with better results than other species. Grey Plover *Pluvialis squatarola*, Curlew Sandpiper, Jack Snipe *Lymnocryptes minimus*, Common Snipe *Gallinago gallinago*, Pin-tailed Snipe *Gallinago stenura*, and probably Wood Sandpiper *Tringa glareola* and Pectoral Sandpiper *Calidris melanotos* were breeding in low numbers. Generally the breeding season for waders was not successful.

V.S. Zhukov & O.D. Golubyev

5. Sibiryakov Island and Taimyr near Dikson

Spring was very late and prolonged. On 20 June, the tundra remained covered in deep snow, except

for the tops of higher hills. On Sibiryakov Island there was rapid melting of snow between 3-5 July, *i.e.* 2-3 weeks later than usual. The coastal sandflat was free of ice on 25 July. During the summer only two warm days (with mosquitos) were noticed. The first snow was on 1 August. There were low numbers of lemmings and Arctic Fox. The breeding season was extremely unsuccessful for geese, gulls and waders. Snowy Owls, skuas, eiders and Long-tailed Ducks *Clangula hyemalis* did not breed at all. The nest density of Grey Plover, Turnstone *Arenaria interpres* and Little Stint was very high, and the density of Dunlin nests was normal, but nest losses were as high as 90-95% because of predator activity. At the end of July/beginning of August waders practically disappeared, and only rarely were single broods of Dunlin and Little Stint seen.

A.I. Koshelev, O.A. Chernikov, E.A. Dyadicheva, E.E. Syroechkovsky jr., A.S. Abolits & A.N. Voronov

6. Western and central Taimyr (to Verkhnaya Taimyra river in the east)

Spring was prolonged and cold. In some areas many birds lost their nests after heavy rain followed by frost in the second half of June. These included, amongst others, geese, ptarmigans and Lapland Buntings *Calcarius lapponicus*. The density of lemmings decreased sharply and they disappeared completely in some places. The number of Arctic Foxes was low everywhere. Most of the large and many of the medium-sized lakes were covered with ice during the whole season. Most rivers had very high water levels and were almost flooding up to the end of July. Snow remained on 10% of the tundra surface, mainly on north-facing slopes. The summer was cool (in June the temperature rarely exceeded 10° - 12°C), and first snows occurred on 28 July and 2 August. Breeding success of waders was lower than average everywhere. Big flocks of non-breeding sandpipers and phalaropes occurred along rivers and at polygonal marshes.

A.A. Vinokurov

7. Western and Central Taimyr

The 1989 breeding season was exceptional in terms of its low productivity for wading birds. This was due to the late and cold spring causing the normal progression of ecological processes to be one month late. Most waders did not breed, the number of lemmings was extremely low while fox populations were high. In the basins of the Binyuda, Mokoritto, Lyungfada and Yangoda rivers (the lower Pyasina region) the results of wader censusing showed practically no waders. Only single nests were found, most often with an incomplete clutch. The almost complete absence of Bar-tailed Godwits *Limosa lapponica* deserves mention.

Y.I. Kokorev

8. Yakutiya (between rivers Olenek, Lena, Kharaulakh, Kuolay)

The winter was characterised by frequent, large snowfalls, especially in the forest-tundra, mountains and southern parts of the tundra, where the last snow fell on the 20 June. The snow melted slowly, with many snow patches still remaining in mid-August. Summer was cold, with rain and wind. The density of lemmings and voles was low; there were extremely low numbers of mosquitoes. Arctic Foxes probably did not reproduce at all and were moving long distances. Rough-legged Buzzards and skuas (particularly Pomarine Skua and Arctic Skua *Stercorarius parasiticus*) were scarce, occurring mainly in river valleys. None of the twenty Rough-legged Buzzard nests that were found contained eggs. Ruff, Wood Sandpiper, Temminck's Stint, Common Snipe, Pintail Snipe and Spotted Redshank *Tringa erythropus* all bred in large numbers. However, wader breeding success was not high due to summer flooding and unfavourable weather conditions. Waders started autumn migration at least five to seven days earlier than usual.

A.I. Artyukhov

9. Yakutiya - lower Kolyma region

According to information from E.P. Potapov, general conditions were similar to those in the Chaun lowland.

A.V. Kondratyev

10. Chaun lowland

Spring was relatively early, with a widespread snow melt taking place at the beginning of June. The number of Lemmings was very low. All birds started to breed intensively but many of their clutches were destroyed by Arctic Foxes and Pomarine Skuas (the latter did not breed). Around mid-summer, Pomarine Skuas were replaced by Arctic Skuas and Long-tailed Skuas *Stercorarius longicaudus* (flocks of up to 100-500 birds). On 23 June there was a major deterioration in the weather, with temperatures of -1°C and snow up to 10 cm deep, which remained for two days. This resulted in the mass disappearance of clutches of all small birds and also of Sabine's Gull *Larus sabini*. Raptors began to eat the eggs of larger birds, and the waders and small passerines which had laid replacement clutches (*c.* 5-10% of pairs) experienced very low breeding success due to predator pressure. As a result, in early August, juvenile Dunlins were very rare. Most waders had left the tundra by 5 August.

A.V. Kondratyev

11. Coast of north-western Chukotka

In the area between Nolde Gulf and Billings Cape the density of rodents was very low. The snow cover was gone by 10 June and the summer was warm. The density of Arctic Foxes was *c.* 3.5 individuals along a 10 km transect, but only few animals reproduced (in one plot of 50 km^2 only one fox family survived). In valleys between 20-30 km from the sea, lemmings were quite common. However the density of waders and foxes was significantly lower (by factors of three and two respectively). Snowy Owls were fairly common, although no breeding was confirmed. In mountain areas Rough-legged Buzzard bred.

M.S. Stishov

12. Vrangel Island

Though snow started to melt at the end of May (following warm weather), the summer was relatively cold and wet, not allowing the tundra to dry out. The small numbers of lemmings present during spring had disappeared completely by the summer. Snowy Owl and Pomarine Skua did not breed. The number of Arctic Foxes was high but they did not reproduce. All located nests of eiders and Long-tailed Skuas were destroyed by raptors. In a single large breeding colony of Snow Geese *Chen caerulescens*, 40% of nests were destroyed and all goslings were predated. None of the nature reserve staff in the area found any wader broods.

V.V. Baranyuk

13. Chukotka Peninsula - middle and lower Amquema river

Spring was early, with the snow melting during the first 10 days of June. There was a noticeably strong reduction in numbers of Collared Lemming *Dicrostonyx torquatus* and Siberian Lemming *Lemmus sibiricus* with a low density of the Tundra Vole *Microtus oeconomus*. Arctic Foxes did not reproduce (in the lower region of the river), Red Foxes *Vulpes vulpes* reproduced only in low numbers. Both these predators mainly occurred in the river flood plain, where higher numbers of Arctic Ground Squirrel *Spermophilus parryii* and Willow Grouse *Lagopus lagopus* occurred. As a result, chicks and recently-fledged waders were mainly noted outside the floodplains.

I.V. Dorogoy

14 Chukotka - north-western part (coast from Enurmino to Uelen)

In the second half of the summer no lemmings were found. The tundra was dry. Almost no waders occurred.

L.I. Barsova

15. Chukotka - southern coast near Sireniki

The unusually heavy winter snowfalls resulted in the tundra snow cover remaining for four to six weeks longer than in an average year. A mass arrival of waders took place at the beginning of the snow melt. The summer was relatively warm, although July and August experienced almost continuous rain which caused widespread flooding in the river valleys. Arctic Foxes, Snowy Owls and skuas (three species) appeared in July and were common later during summer. This is unusual as these species are normally only abundant in the area in winter and spring.

N.B. Konyukhov

16. Central and Northern Taimyr

At Malaya Logata, the 1989 breeding season was very poor for many tundra birds. Firstly, spring was two weeks later than normal and was accompanied by snow storms until 30 June. Secondly, predation by Arctic Foxes on both eggs and young was high because of low lemming (mainly Siberian Lemming) and high Arctic Fox abundance. For example, at Malaya Logata many breeding waders had started to breed very late, but few of them were able to raise their chicks. There was probably hardly any successful breeding of Brent Geese *Branta bernicla* in Taimyr in 1989. Potential breeding islands were still linked to the mainland by ice in late June so that Arctic Foxes could easily reach them. Although one nest of Knot *Calidris canutus* was found on the Sturmanov Peninsula, the large flocks of Knots and Bar-tailed Godwits present by mid-July indicated that the breeding season for many birds had already finished without success.

P. Prokosch & H. Hötker

Conclusion

As predicted in the previous year (*WSG Bull.* 57: 40-41) in extreme north-eastern Europe and on the Yamal Peninsula the high number of lemmings remained up to the beginning of the 1989 summer and then decreased sharply. In more eastern regions (Gydan, Taimyr, Yakutiya, Vrangel Island and many parts of Chukotka) the decrease in lemming numbers started earlier. The greater variety of conditions in the mountain regions of Chukotka resulted in some pockets remaining with relatively high lemming numbers. Arctic Foxes, which reproduced numerously in 1988, did not breed in 1989, with the exception of some sites in Chukotka. They occurred in high numbers on the Bol'shezemel'skaya Tundra, on the Yugorskiy, Yamal and Gydan Peninsulas and on Vrangel Island. Widely roaming Arctic Foxes were noticed in northern Yakutiya and in Chukotka. Where there were no lemmings, Arctic Foxes destroyed all nests and nestlings. As a result, there was extremely low breeding success of wader and other bird species in all northern tundras of the USSR.

In some areas, bad weather added further unfavourable effects for birds. In the European North and in the Yamal Peninsula, the spring was very early with a warm but wet summer, causing high nest losses (Yamal) and losses of young birds (Murmansk coast). In Gydan Peninsula, the weather was average, whereas on Sibiryakov Island, in Taimyr and the Yakutiya coast, spring was much later, and the summer was cold (even with snowfalls). In Chukotka and on Vrangel Island, the weather generally was 'normal', although in some regions spring was either early or late, and summer - either dry or damp. In the Chaun lowland for example, the summer coolness and snowfall was the reason for the massive loss of wader clutches.

It is difficult to predict the general conditions for wader breeding in 1990. It seems, however, that in some regions of Yakutiya and Chukotka there will be some increase in lemming numbers. The number of Arctic Foxes in most regions ought to decrease because of food shortage, giving good prospects for small birds in 1990.

P.S. Tomkovich