Breeding conditions for waders in the tundras of the USSR in 1990

A.K. Yuvlov (ed.) (translated by Jadwiga Gromadzka)

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Information concerning the 1990 breeding season for arctic waders in northern USSR is presented as for the previous two years (*WSG Bulletin* 57: 40-41 and *WSG Bulletin* 64: 51-54 respectively). Each of the following numbered sections refers to an area shown in Figure 1. At the end of each section the name of the relevant informant is given.

Given the very low lemming populations over most of the tundra in summer 1989, coupled with the low reproductive success of the Arctic Fox (*WSG Bulletin* 65: 51-54) it was predicted that fox numbers would be low in 1990 creating favourable conditions for tundra breeding birds. The actual situation for the 1990 breeding season is as follows.

1. Kola Peninsula - northern coast

Spring started exceptionally early with snow and much of the lake ice melting in April. However, cold weather in May and June delayed proceedings, stormy weather throughout the summer. Lemming abundance was very low. Very few waders and other bird species were breeding in this area of the tundra.

(*J.V. Krasnov*)

2. Kanin Peninsula - western coast (Shoyna vicinity)

Spring weather conditions were average in 1990. Lemmings were however, not present though voles were common in some places. Large gulls and the Arctic Skua *Stercorarius parasiticus* had normal-sized broods. The density of most common waders was high, i.e. Oystercatcher *Haematopus ostralegus*, Temminck's Stint *Calidris temminckii*, Dunlin *Calidris alpina* and Ruff *Philomachus pugnax*. Predation by gulls and skuas on wader broods was average. Arctic Foxes *Alopex lagopus* did not occur.

(*V.V. Leonovich and A.V. Filchagov*)

3. Kolquyev Island

Spring was cool and prolonged with many snow patches remaining in the northern part of the Island to the end of June. The weather at the end of June/ beginning of July was cold, with much wind, rain and mist. The development of vegetation was 1.5 - 2 weeks later than in the previous season. Lemmings were absent. There were average densities of Arctic Fox, Arctic Skua, Snowy Owl *Nyctea scandiaca* and gulls. The most common waders were Dunlin, Little Stint *Calidris minuta* and Grey Plover *Pluvialis squatarola*. Less numerous species were Ringed Plover *Charadrius hiaticula*, Turnstone *Arenaria interpres* and Red-necked Phalarope *Phalaropus lobatus*. Oystercatchers were breeding in sandy areas. The overall breeding success was considered as moderate.

(*T.S. Ponomareva*)

4. Eastern Bol'shezemel'skaya Tundra

Between the latitudes of 66°30' and 67°30' snow cover melted exceptionally early, and between 67°45'N and 68°30'N it melted slightly earlier than normal. River ice broke-up earlier, by the end of May/beginning of June. The summer was very hot and dry; between 22 June and 28 July there were only three rainy days with temperatures reaching 28-35°C between 7 and 21 July. The abundance of lemmings was very low. Arctic Fox, Rough-legged Buzzard *Buteo lagopus* and Short-eared Owl *Asio flammeus* did not breed, their overall numbers being low. Hen Harrier *Circus cyaneus*, Long-tailed Skua *Stercorarius longicaudus* did breed. Harrier numbers were however extremely low, and most Long-tailed Skuas only had one egg - despite normal nesting density. This dearth of predators enabled waders to achieve high breeding success.

(*V.V. Morozov*)

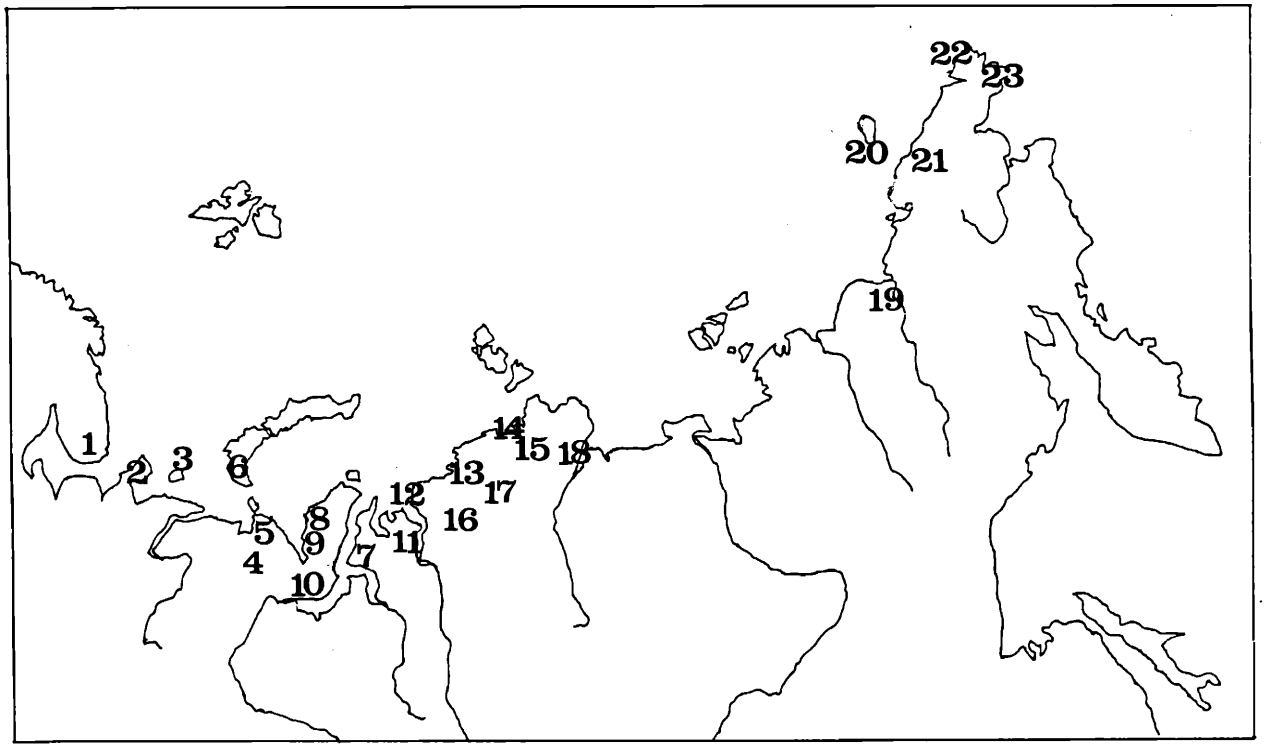


Figure 1 Numbers relate to locations described in text

5. Yugorskiy Peninsula

Spring was a little earlier with snow cover lost between the 8 and 15 June, and river ice breaking up between 9 and 12 June. Summer was hot and dry; favourable conditions for blood-sucking insects, in particular, Simulidae were numerous. The abundance of lemmings was low. Rough-legged Buzzard, Snowy Owl and skuas (three species) did not breed. Only few pairs of Glaucous Gull *Larus hyperboreus* attempted breeding. Arctic Foxes did not reproduce; generally the inhabited inland areas of the Peninsula, with only solitary individuals encountered near the coast. As a result of the favourable weather and low predation, breeding success of waders and ducks was high.

(*V.V. Morozov*)

6. Novaya Zemlya - southern island (near Sakhanin and vicinity of Krest-to lake)

Spring was very early. Ice had disappeared from the Barent Sea and Kara Sea by the end of April, 2.5 months earlier than normal. The summer was very warm and dry. There were low lemming and Arctic Fox numbers, and Snowy Owl did not breed. Skuas appeared in tundra in flocks of non-breeders up to mid-July. Breeding success of waders was lower than on average, most probably because of the activity of raptors.

(*V.N. Kalyakin*)

7. Middle Yamal - lower Seyakhi-Mutnoy and Mordy-yakhi rivers

Spring was one to two weeks earlier than usual. The summer was very warm (river temperatures reached 24°C) and dry. However, the weather changed for the worse at the beginning of August. Compared to the previous year, densities of Ruff, Red-necked Phalarope and Ringed Plover were high, but in contrast, densities of Dunlin, Little Stint, Common Snipe *Gallinago gallinago*, Pintail Snipe *Gallinago stenura* and Jack Snipe *Lymnocryptes minimus* were lower. Generally, the breeding success of waders was normal or a little higher than normal. Wader losses due to weather or predation appeared to be minimal.

(*S.P. Paskhal'nyi*)

8. Middle Yamal - lower Yuribey river

Spring was early and relatively dry, with heavy rains appearing from mid-August. The Snowy Owl did not breed. Breeding success of raptors and their impact on

breeding waders were lower than usual. However, wader numbers were not significantly higher in comparison to the previous year, although Grey Plover were a little more abundant and Common Snipe were much more numerous than usual.

(V.G. Shtro)

9. Middle Yamal (station "Khanovey" 68° 40'N) and Northern Yamal (station "Yaybari" 71° 00' N)

Spring was very early but quite cool, yet snow cover and ice melted 1 to 1.5 weeks earlier than usual. The summer was warm, without heavy rains or cold snaps. Thus, the weather conditions for breeding birds were very favourable. As in 1989, the abundance of lemmings was very low, with only a few Siberian Lemming *Lemmus sibiricus* encountered. The abundance of the Arctic Fox seemed to be lower than on average. Only a few Rough-legged Buzzards were breeding. Non-breeding Pomarine Skua *Stercorarius pomarinus* and Long-tailed Skua were relatively numerous. Breeding attempts of Arctic and Long-tailed Skuas were unsuccessful. General breeding success of waders (as measured by egg hatching) in the Northern Yamal was 56%. In more detail, chicks hatched from 74% of Dunlin eggs; from 59% of Grey Plover eggs; and from 47% of Little Stint eggs. The breeding success of waders was similar in the Middle Yamal; Wood Sandpiper *Tringa glareola* and Ruff were the most successful breeders.

(V.K. Ryabitsev and N.S. Alekseeva)

10. Southern Yamal - basin of Shuch'ey river

The tundra was free of snow by mid-June and river ice has broken up by the end of May (i.e. ca. two weeks earlier than usual). Summer was dry and hot, and only at the end of June was there some rain. Around 20 June the temperature during the day raised up to 20°C, and from mid-July, for almost two weeks, the temperature raised up to 35°C. The number of lemmings and other rodents was low. Arctic Foxes were not visible and did not reproduce. Owls did not appear, skuas were met sporadically, Rough-legged Buzzard did not breed and only gulls were present in usual numbers. The low number of predators and favourable weather created suitable breeding conditions for ducks, Willow Grouse *Lagopus lagopus*, Ptarmigan *L. mutus* and waders. Temminck's Stint and Ringed Plover bred in higher numbers than normal, but Pintail Snipe, Golden Plover *Pluvialis apricaria*, Red-necked Phalarope and Wood Sandpiper *Tringa glareola* were less numerous.

(A.N. Pegova, S.A. Mechnikova, P.S. Simakin, K.V. Byelyakov and V.I. Ermolayev)

11. Northern Gydan - Mamonta Peninsula

In the vicinity of the Matyui-Sale trading-post, weather conditions and ecological processes on the tundra took place as normal. Ice had melted on the Dalem-Lekab-tambda River by 31 June. Summer weather was generally favourable, though an adverse change in the weather during hatching reduced some wader broods. The number of lemmings was very low but a small increase was noticed by the end of the summer. Arctic Fox, Snowy Owl and Rough-legged Buzzard were all scarce, but they bred. The number of skuas was high to mid-August, though only a few Long-tailed and Pomarine Skuas were breeding. Breeding success of waders was lower than 1988 but much higher than 1989. The most numerous breeders were Little Stint, Ringed Plover and Turnstone. Temminck's Stint, Curlew Sandpiper *Calidris ferruginea* and Grey Plover were quite common, and Dunlin and Lesser Golden Plover *Pluvialis fulva* were rare. Only single pairs of Ruff, Bar-tailed Godwit *Limosa lapponica* and Red-necked Phalarope were breeding.

(V.S. Zhukov, E.S. Efimov and V. Kan)

12. Sibiryakov Island - southern coast

Spring was earlier than normal, and by 19 June the vast majority of the tundra was free from snow cover. However lakes were still frozen and snow remained in river valleys. The ice cover on the Kara Sea melted around 5-10 July. Weather was favourable throughout the relatively warm, though rainy, breeding season. There were no snow-storms during incubation, but it rained heavily during the hatching period of Dunlin and first peak of Little Stint (around 7 July). Weather was generally suitable during the whole chick-rearing period, and there were several warm (over 20°C), sunny days after 20 July. Lemmings were certainly rare in terms of visual observation. The clutches of the Pomarine and Long-tailed Skuas, both species which do not breed when lemmings are scarce, may however suggest that lemmings were locally abundant. Very few Arctic Foxes were present in the study area, most probably as a result of heavy hunting at this vicinity during preceding winter. As a result, egg-losses resulted mostly from trampling by domestic Reindeer *Rangifer tarandus* and predation by skuas and gulls. Overall the season was good for waders. Nest success of the most abundant species, Grey Plover, Little Stint and Turnstone, was as high as 80%-90%. Consequently, considerable numbers of juvenile waders (mainly the Curlew Sandpiper and Little Stint) were observed on the tundra and coast from early August.

(P. Chylarecki and A. Sikora)

13.Taymyr - Piasina delta

Spring and summer weather was warmer than normal, with average day temperatures reaching 0°C on 8 June, and with few rainy and misty days. Snow cover disappeared between 10 and 20 June, a little earlier than usual. Lemmings were very scarce. Arctic Foxes were absent, but the Herring Gull *Larus argentatus* and three Skua species were very common. Rough-legged Buzzard and Snowy Owl were breeding locally in low numbers, perhaps due to small concentrations of lemmings. High densities of some wader species were noticed, in particular Little Stint and Curlew Sandpiper. Generally breeding success of waders was high: e.g. chicks of the Little Stint hatched from 74% nests in the study area.

(H. Hötker and V.I. Kokorev)

Taymyr - central part of northern coast (76°N, 98°30'E)

Lemmings were absent. Raptors did not breed and their numbers were very low. A similar situation also prevailed further west, in the region of Sterlegov Cape (P. Prokosch pers. comm.). Snow melt was late due to the deep snow cover and cool summer (it may be typical for this area). As a result, waders bred only on hill-tops and on some hill-sides where snow disappeared earliest. Wader abundance was therefore low and the distribution patchy. The summer was characterised by winds, with much rain and mist; there was only one warm week at the end of July. Breeding success was high in species whose nests are well hidden, such as the Little Stint (chicks hatched from 81% of eggs) and in species actively defending their nests, such as Grey Plover (also 81%) and Turnstone (four broods were found and all hatched successfully). Breeding success of waders having more open nests were lower; Curlew Sandpiper (61%), Sanderling *Calidris alba* (68%) and Knot *C. canutus* (45%). The Long-tailed Skua appeared in July in large numbers and, together with cool weather, this predator was responsible for the losses of most wader clutches. Generally, the breeding success for waders in that season was estimated as moderate.

(P.S. Tomkovich, M.Y. Solovyev, E.E. Syroechkovskiy (jr) and E.G. Lappo)

15. Western Taymyr - basin of Pura river

Lemming numbers were moderate in most of the region, yet were low in the south. The summer was very hot and dry.

(V.A. Zyryanov)

16. Central Taymyr - basin of Shrenk river (bigger tributary of Yuzhnaya Taymyra)

Snow melted as usual and by the end of June the tundra was almost free of snow. Apart from some cool and stormy weather in late July, weather conditions were favourable for breeding birds. The abundance of the Siberian Lemming was extremely low. However, some nests the Long-tailed Skua, Arctic Skua and Rough-legged Buzzard was discovered. Arctic Fox and Snowy Owl were absent. Breeding and non-breeding Herring Gulls were quite numerous. Also flocks of non-breeding Long-tailed Skuas appeared from time to time. Nests of some wader species were found: Grey Plover, Lesser Golden Plover, Dotterel *Eudromias morinellus*, Turnstone, Little Stint, Red-necked Stint *Calidris ruficollis*, Curlew Sandpiper and Sanderling. General breeding success of waders was not high, and the main factor limiting their success seemed to be predation by Herring Gulls.

(I.I. Chupin)

17. Western and Central Taymyr

The Siberian Lemming was present in the east only to the western banks of the Taymyr Lake. The appearance during autumn of relatively large numbers of Snowy Owl was therefore limited to these areas. The distribution of the Arctic Fox was similarly dependent on the lemmings, but they were less numerous, no more than 13% of potential burrows were occupied. The weather was generally free from adverse conditions and waders bred successfully.

(Y.I. Kokorev, V.A. Kuksov and N.A. Logvinenko)

18. Central and South-eastern Taymyr

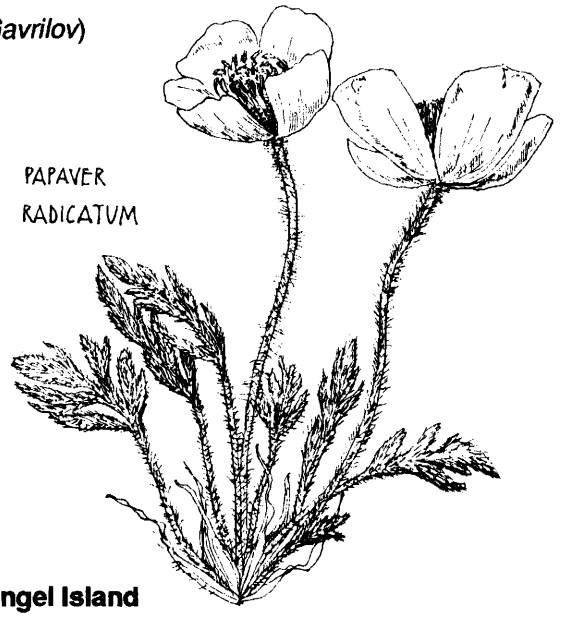
Spring was a little earlier than usual. On the Khatanga River the ice started to break-up on 7 June and on the Logata River, on 10 June. During first ten days of June, when all breeding waders arrived, the tundra was almost free of snow, with many temporary surface water pools. The density of waders on breeding areas was higher than in the previous year. For example, the maximum density of Bar-tailed Godwit near the Logata mouth in 1990 was 11.6 individuals/km^2 compared to only 5.5 in previous year in the "Ary-Mas" plot. The breeding season for most bird species seemed very good. Families of geese with 4-6 young were encountered, and waders attending chicks behaved very quietly and were therefore not felt to be disturbed by raptors.

(A.A. Gavrilov)

19. Yakutia - lower Kolyma region

Spring was early and warm. Snow cover melted before waders arrived. However, the weather changed for the worse on 10 June: the temperature was low and it rained almost every day apart from five days of better weather at the beginning of July. The abundance of lemmings was relatively high (the maximum number was expected to occur in 1991), but Arctic Foxes were not numerous. Relatively high numbers of Long-tailed Skua were present, but not all were breeding; big flocks of non-breeders were observed in the tundra during the whole June. Waders arrived three to four days earlier than usual, and many commenced breeding at densities higher than normal, e.g. Spotted Redshank *Tringa erythropus*, Common Snipe, Pintail Snipe, Red-necked Phalarope, Long-billed Dowitcher *Limnodromus scolopaceus* and Bar-tailed Godwit. The following species occurred at average densities: Lesser Golden Plover, Grey Plover, Pectoral Sandpiper *Calidris melanotos*, Ruff, Grey Phalarope *Phalaropus fulicarius*, Sharp-tailed Sandpiper *Calidris acuminata* and Temminck's Stint. The main losses incurred by wader broods were caused by bad weather and raptors (particularly Long-tailed Skuas). Breeding success was lowest in small species such as; Temminck's Stint, Grey Phalarope and Pectoral Sandpiper. Therefore, the combination of high densities of some breeding waders coupled with low breeding success for some species resulted in an overall moderate breeding season.

(*V.V. Gavrilov*)



20. Vrangel Island

Spring was cooler than normal, though without snowstorms and heavy snow-falls. The summer was particularly wet but with an unusually warm August and September. The abundance of both lemming species (Siberian Lemming and Collared Lemming *Dicrostonyx torquatus*) was moderate. Arctic Foxes, Snowy Owls and Pomerine Skuas were breeding, though their numbers were average. Breeding success of waders was good.

(*M.S. Stishov*)

21. Chukotka - Arctic coast

Spring and summer were cooler than normal, often with wind, mist and rain, though without heavy snow-falls. Around the Yakan Cape (150 km to the west of the Schmidt Cape) the abundance of rodents was low: Siberian Lemmings were found sporadically only. The Snowy Owl and Pomerine Skua did not breed, though were quite numerous. In sub-mountain and lowland regions up to 25 Snowy Owls and 70-80 Pomerine Skuas were found along a 10 km transect. The density of the Arctic Fox was moderate with 2-3 individuals per 10 km transect. In the western part of the Vankarem Lowland, in the lower Ekvyvatap region (30 km to the east of the Schmidt Cape), lemmings were completely absent. Only 1-2 Snowy Owls and 2-5 Pomarine Skuas were recorded along a 10 km transect in this area. Arctic Foxes did not reproduce and were scarce.

(*M.S. Stishov and P.V. Maryuchnich*)

22. Chukotka - north-eastern part

In the tundra to the south of Uelen and in the basin of the Chegitun river, the summer was warm: July was hot and dry, and August was wet. The abundance of rodents was extremely low. Arctic Foxes and Snowy Owls were absent. Rough-legged Buzzard bred in low numbers on the Chegitun, feeding on birds, rabbits and ground squirrels. Breeding success of waders was considered to be moderate.

(*A.B. Savineckiy*)

23. Chukotka - southern coast

Snow cover had almost completely melted by the end of April, i.e. two-three weeks earlier than usual. However, at the end of May, night temperatures fell down up to -3°C to -4°C, with snowfalls. Raptor activity was minimal. Breeding success for waders was good.

(*N.B. Konyuchov*)

CONCLUSIONS

Based on the above information, an astonishing similarity of breeding conditions for waders (albeit with small variations) occurred over a vast area of northern USSR

in 1990 (from the Kola Peninsula in the west, to the Chukotka in the east). Yakutia was the only region with poor information. Practically everywhere the spring was early, although in some regions (Kola Peninsula, Kolguyev Island, Kolyma and Chukotka) it was prolonged due to cool temperatures. In the western part of the Soviet Arctic (excluding Kola Peninsula, Kolguyev Island and most northern territory of Taymyr) and in eastern Chukotka, the summer was dry and very hot. Conversely, in the lower Kolyma, Vrangel Island and on the arctic coast of Western Chukotka, the weather was chilly and wet during the wader breeding period. However, extreme weather conditions were not noticed in any region and the weather was generally favourable for birds in the whole area.

None of the regions supported high numbers of lemmings. Their abundance had reached minimal levels in almost all Palearctic tundras in 1989, and this situation persisted during 1990, although in some regions the number of lemmings did increase in 1990. Low lemming abundance was found in the Middle and Northern Yamal, in the northern part of the Gydan, on the Sibiryakov Island, and locally in north-western Chukotka. Moderate lemming abundance was found all over the Taymyr (to the west of the Taymyr Lake), in north-eastern Yakutia, and on the Vrangel Island.

It is interesting to note that, firstly, the low abundance of the Norway Lemming *L. lemmus* on the Kola Peninsula has persisted for three years and secondly, the number of the Siberian Lemming on the Sibiryakov Island has been increasing slowly but steadily for three years with the same trend in the Lower Kolyma area, but with a faster increase in numbers. The patchy lemming distribution remained in the mountain region of the Chukotka. High numbers of lemmings have been occurring for some years on the Vrangel Island. Only in 1989 did their population decline sharply, but this trend was reversed in 1990.

According to earlier predictions, Arctic Foxes, the main predator of waders in the tundra, were either not numerous or locally absent in the area. This generally resulted in good or very good overall wader breeding success though nowhere were maximal levels achieved. The activity of avian predators, especially skuas, were noticed in many regions. Even if breeding did not occur, they remained in flocks of non-breeders throughout the season in many regions.

The existence of a three-year lemming abundance cycle on the Taymyr leads to the prediction that peak numbers should occur during the 1991 season. This phenomenon also seems apparent in many other areas. In this situation, predators would feed mainly on lemmings, thereby creating potentially very good conditions for breeding waders, although breeding success will always depend on weather conditions in the tundra to some extent.

(*P.S. Tomkovich*)