# Wader breeding conditions in the Russian tundras in 1996

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*(Translation)*

## INTRODUCTION

Following the traditional annual reviews of breeding conditions of waders in the Russian tundra, below we present observations, impressions and opinions of our correspondents regarding situations at certain sites and regions of the Arctic in 1996. Let us only remind you that from the picture of distribution and abundance of rodents and Arctic Foxes *Alopex lagopus* during the summer season of 1995 the following predictions had been made for 1996 (see Materials of the Working Group on Waders 9: 21-23). An increase in lemming numbers was predicted for the western sector of the Russian Arctic and therefore favourable breeding conditions for birds were expected in many regions as well. It was difficult to give a forecast for the tundras of Yakutia due to the overall patchy situation; some sites (the Lena delta) had increasing lemming numbers. A decrease in rodent numbers and corresponding higher clutch depredation rates were expected for Wrangel Island and the mountain tundras of the upper Anadyr River.

## INDIVIDUAL ACCOUNTS

1. North-western Kola Peninsula. Judging from different phenological events in the transition zone between the tundra and forest-tundra the spring arrived there 2-3 weeks later. Continuous snow cover persisted until late May and active melting of snow began only in early June. Practically all of June and beginning of July were characterized by quite cold and rainy weather conditions. Summer snowstorms occurred in mid and late June. Lemmings were not observed.

S. A. Dylyuk

2. North-western coast of Kanin Peninsula experienced a late and unusually cold spring. Phenological events lagged at least 10 days behind. The seaside sections which are normally free of snow by early May had isolated snow-fields till July. Throughout the wader breeding season the weather was dominated by windy and cold conditions and stormy periods; there, however, was no snow. Voles were numerous at least locally. There is no information about lemming numbers. The Arctic Fox numbers apparently went up since 2 animals were observed in the area where they had not been seen during the previous year. The Rough-legged Buzzard *Buteo lagopus* and large Larids nested successfully. The abundance of the Arctic Skua *Stercorarius parasiticus* - the most active wader predator - was rather high. No Snowy Owls *Nyctea scandiaca* were noted. As far as waders were concerned no deviations from the normal breeding course were observed (even if there was a delay in breeding initiation it could not be detected) although apparently more clutches and broods were lost than in the previous year. Population numbers of common breeding species remained without changes. The Ruff *Philomachus pugnax* was the only exception; the species was rare during the breeding season and no flocks were observed in the post-breeding period. Little Stints *Calidris minuta* did not breed (only one individual was encountered). There is a possibility that the Terek Sandpiper *Xenus cinereus* nested in the area (three pairs were discovered).

A. V. Fil'chagov

3. South-eastern part of Russki Zavorot Peninsula, Khabuika Lake area. The spring was cold and unstable weather conditions prevailed for a long time. Negative night and low (+5 °C) day time temperatures were recorded until mid June. Roughly 2% of tundra was under snow cover until the third week of June; some shallow lakes were still frozen too. The Pechora Mouth cleared from ice on 21 June. Comparing with the previous 5 years the start of vegetative period shifted 3 weeks back. Cold, with frequent rainstorms and strong winds, weather (average daily temperatures did not exceed +12 °C) prevailed in late June and early July. Yu. H. Mineev reported that during the second half of the summer average daily temperatures were also below the mean value from the previous years; the weather remained rainy and windy, which had an unfavourable effect on survival and reproduction of most tundra birds. Siberian Lemming *Lemmus sibiricus* numbers remained low although for the first time in 6 years a considerable number of winter feeding sites and "toilets" was found; at some localities the same was true for the Root Vole *Microtus oeconomus*. Since all Arctic Fox dens found in the area were occupied it was possible to speculate about an increase in population levels. Abundance of the Snowy Owl (did not breed), Arctic Skua and gulls did not differ from 1995, i. e. they were common. Most of the common shorebird species (Red-necked Phalarope *Phalaropus lobatus*, Temminck's Stint *Calidris temminckii*, Little Stint, Ruff, and Dunlin *Calidris alpina*) had full clutches early on, later, however, as incubation period progressed their size decreased. The Common Ringed Plover *Charadrius hiaticula* and Grey Plover *Pluvialis squatarola* were less common than in the previous year. By the middle of the second week of July the number of Temminck's Stint nests dropped almost two fold apparently as a result of Arctic Skua and Arctic Fox activities as well as the very cold weather. Hatching of the Grey Plover chicks was recorded.

Yu. M. Schadilov, A. B. Belousova

4. North eastern part of Gusinaya Zemlya (Yuzhni Island of the Novaya Zemlya Archipelago). Observations undertaken between 19 June and 5 September indicated late, cold and snowy spring: on 19 June large thawed patches were noted only at the seaside. The summer turned out to be short, cold and extremely rainy - storms were frequent; snowfalls were absent only between 10 July and 23 August. At the same time the hurricane-force winds not uncommon for Novaya Zemlya did not occur. Lemming numbers were low: 1 Collared *Dicrostonyx torquatus* and 3 Siberian Lemmings were found during the season. A 120 square km area contained only one Arctic Fox den with 4 pups plus 2-3 single individuals. A Great Skua *Stercorarius skua* pair bred in the area; wandering individuals belonging to the other skua species could be observed almost throughout the entire summer. Snowy Owls were uncommon (2-3 individuals/50 square km) and did not breed. The Rough-legged Buzzard density in mountain foothills was low and it is possible that some breeding occurred there. The Glaucous *Larus hyperboreus* and Great Black-backed Gull *Larus marinus* population levels were normal. The following shorebirds (in the descending abundance order) bred in the area: Ruddy Turnstone *Arenaria interpres*, Dunlin, Common Ringed Plover, Kentish Plover *Charadrius alexandrinus*, Little Stint, and Grey Phalarope *Phalaropus fulicarius*. Late broods comprised of pre-fledged young of the Phalarope, Common Ringed Plover

and Kentish Plover could be seen until mid August. Based on the observations of geese the nest depredation (mainly by the Arctic Fox) was very strong: nearly 80% of the nests were destroyed even though the number of Barnacle Geese *Branta leucopis* was dozens of times lower than in 1995. Waders, however, bred rather successfully. High mortality primarily affected nests and broods of Ruddy Turnstones and Common Ringed Plovers that nested on open hill crests (by mid July their number dropped by an order of magnitude); population levels in lowland sections with grassy cover remained almost unchanged until late July.

V. Kh. Kalyakin

5. Southern Gusinaya Zemlya (Yuzhni Island of the Novaya Zemlya Archipelago). Thawed patches and small ponds free of ice were noted in the village of Byelush'e between 4 and 18 of June; however, the vicinities of the village still had a winter-like appearance due heavy winter snowfalls. There were two records of the Siberian Lemming. Also 1 Rough-legged Buzzard, 2 Short-eared Owls *Asio flammeus* and transient Pomarine *Stercorarius pomarinus* and Long-tailed *Stercorarius longicaudus* Skuas were observed. Purple Sandpipers *Calidris maritima* were common during migration (peak period up to 6 June) and despite the late spring Common Ringed Plovers and Dunlins began to arrive on 5 June, Ruddy Turnstones, Temminck's and Little Stints - 6 June; Ruffs (males) were recorded on 10 and 11 June. The same area experienced almost daily snow flurries between 6 and 13 September despite still positive air temperature. Formation of the snow cover started on 14 September. Throughout this part of September few Purple Sandpipers and single Common Ringed Plovers were encountered. Snowy Owls were common (8 individuals/10 km).

V. Kh. Kalyakin

6. Vaigach Island. The winter here was characterized by extremely high precipitation levels while the spring was late (2 - 3 weeks behind the usual schedule) and prolonged; cold spells and snowfalls, however, did not occur. Ice on Yangayakha River broke around 20 June. The summer climatic conditions were close to average without any disruptions detrimental for birds. Collared Lemmings were not found. The Siberian Lemming numbers were clearly higher than in the previous year: they invaded human dwellings and were encountered a number of times in the tundra while in 1995 none were seen. Arctic Foxes turned out to be rare; there were only 3-4 sightings during the season and a den with litter was found 30 km from the field site. Few Snowy Owls appeared at the end of June and no breeding was recorded. Of Skuas only the Long-tailed bred in the area. Clutches of Rough-legged Buzzards were of reduced size (2-3 eggs). Breeding success of goose pairs under observation was high. This fact as well as findings of nests with hatching young and observations of adult birds displaying distress behaviour allowed us to suggest that breeding success of waders was also high. Breeding of shorebirds occurred almost at usual time despite the late melting of snow: Dunlin young hatched on 3 July, Little Stint - 12 July, Temminck's Stint - 17-18 July. Even such a relatively southern breeder as the Common Snipe *Gallinago gallinago* nested in the area (a brood was found on 26 July). Mixed flocks of waders of more than 200 individuals appeared in the Yangayakha valley on 7-9 August.

K. E. Litvin, Ye. Kh. Gurtovaya

7. Yugorsky Peninsula. A lot of snow fell at the end of the winter around the Byely Nos Field Station (69°36' N; 60°13' E); in late May 95% of the ground was snow-covered and according to a polar research station that was a record snow precipitation year. The spring was late, cold and prolonged. Air temperatures reached the average levels typical for previous years only in mid June and stayed at that level further on. Storms and rains occurred regularly but their frequency and duration were not above the norm. The wader arrival initiated in early June did not last long. Nesting densities of all species were similar to or lower than those of the previous year; only in the Ringed Plover the nesting density went up nearly two fold in coastal sections with suitable habitat. The nesting period was rather spread-out: the difference between nesting dates of some pairs of a particular species could reach 20 days. Physiological condition of trapped birds indicated that no clutches were lost owing to the climatic conditions. Lemming population numbers were low (only 1 Siberian Lemming was found throughout June and July). Territorial pairs of Rough-legged Buzzards occurred in areas with suitable breeding habitat; as a rule, however, there were no nests (only 1 nest with 1 egg was discovered; it was abandoned 3 days later). The only known Arctic Skua pair successfully fledged their young. There was only 1 Snowy Owl sighting during the season. Small flocks of Pomarine Skuas went through the area in early to mid June. Arctic Foxes were rather uncommon: early in the summer their were seen almost daily; by the end of the season none could be observed in weeks. The following shorebirds bred in the area: Dunlin, Little Stint, Temminck's Stint, Red-necked Phalarope, Ruff, Common Ringed Plover, Ruddy Turnstone, Grey Plover, Dotterel *Charadrius morinellus*, possibly Common Snipe. The overall nest survival was 57% with the highest level observed in the Common Ringed Plover (82%). Generally speaking that was a favourable season for the Common Ringed Plover and an average one for other species.

V.V. Gavrilov

8. South-eastern part of Bolshezemelskaya Tundra. According to a local meteorological station May and

early June 40 km to the south from Vorkuta City (67°17' N; 63°40' E) in Vorkuta River basin were cold although the snow was completely gone by 20 May. The air temperature of the second half of June (8.5 °C) did not deviate from the norm. Overall the spring was somewhat prolonged, the summer temperatures, however, were approaching average values. In July the amount of precipitation (rain) was slightly higher than the average and there were more days with overcast. Negative temperatures with snow precipitation were recorded that summer only twice: 15-16 June (down to -5 °C at night) and 11 July (-5.3 °C). Strong winds (8-10 m/s) were recorded once (throughout the day on 24 June). The rate of growth and phenology of most shrubs typical for polar willow and tundra-wetland vegetative associations of the southern tundra subzone did not differ from average values. According to the observations conducted on study plots between 5 June and 5 July the Siberian Lemming abundance was roughly as low as in the previous year. Snowy Owls and Arctic Foxes were not encountered. A pair of Hen Harriers *Circus cyaneus* and Rough-legged Buzzards resided in the area but apparently no breeding took place. Only single skuas were seen. The most common tundra wader species included the Golden Plover *Pluvialis apricaria* and then slightly less numerous Whimbrel *Numenius phaeopus*. Three nests of these species found in the area successfully produced chicks. Wood Sandpipers *Tringa glareola* and Common Sandpipers *Actitis hypoleucos* dominated the river valley and pebble shallows. The overall wader numbers, however, were low both in the river valley and tundra. Judging from the number of broods observed in late July - early August the breeding success could be estimated as average.

D. V. Karelin, D. G. Zamolodchikov

9. Eastern foothills of the Ural Mountains (66°30'-67°30' N). The month of May was rather cold in forest-tundra and southern tundra subzones; it began to warm up only during the last third of the month - especially noticeably after 27 May. Ice on the Ob River near Salekhard broke on 31 May - 1 June, i. e. as usually. Plovers, Wood Sandpiper, Bar-tailed Godwit *Limosa lapponica*, Whimbrel and Common Snipe arrived on 22 May, appearance of the other species occurred between 27 and 31 May. Migration along the left bank of the Ob River was not very distinctive and was practically over by 5 June. June brought cool, moderately rainy weather while July was drier and warmer. No climatic anomalies were reported. Rodent population levels were extremely low. Only single Rough-legged Buzzard pairs nested in the area; territorial Hen Harriers and non-breeding Long-tailed Skuas were common. The ubiquitous Wood Sandpiper had the highest nesting density; the Golden Plover, Common Ringed Plover, Bar-tailed Godwit, Whimbrel, and Ruff were common. There were sporadic sightings of the Grey Phalarope, Temminck's Stint, Common Sandpiper, Common, Pintailed *Gallinago stenura* and Jack *Lymnocryptes minimus* Snipes. A pair of Greenshank *Tringa nebularia* was found as well. A pair of Little Ringed Plovers *Charadrius dubius* actively displaying distraction behaviour was recorded for the first time. If broods and adult birds displaying defensive behaviour observed throughout the first 2/3 of July could serve as an indicator, the reproductive success in most wader species was high and breeding took place within the usual time frame. Clutch and brood mortality attributed to predators and adverse weather conditions was close to minimal.

S. P. Paskhal'ny

10. Southern Yamal. By early June the tundra in the Shchuch'ya River watershed was mostly free of snow which was probably a result of the low total winter precipitation and May thaws. Rivers opened in late May - first five days of June; there, however, was little flooding. The spring was wet and cold but without long subzero spells. Due to the high amount of precipitation the rivers did not recede until mid June resulting in almost completely inundated floodplains. In the Terek Sandpiper this fact determined sporadic distribution, low breeding density and nesting in atypical habitats. The Common Ringed Plover numbers were extremely low and its breeding was almost totally restricted to watershed sections. The summer was overall cold and rainy - especially in August when only 7 days did not receive any precipitation. Similar to the spring quick summer floods inundated riparian sections. Heavy showers occurred a number of times; they, however did not appear to have a negative effect on breeding birds because they primarily took place either during the incubation or fledging periods. Populations of the both lemming species were on a stage of deep depression: no animals were observed. Trapping data provided by V. G. Shtro for the southern tundra subzone and foothills of the Polar Ural Mountains indicate medium abundance levels for the Northern Redbacked *Clethrionomys glareolus*, Narrow-skulled *Microtus gregalis*, and Water *Arvicola terrestris* Voles. Numbers of the Middendorf's Vole *Microtus middendorfi* were low. In the forest-tundra part of the Shchuch'ya River watershed vole numbers were very low; only the Northern Redbacked Vole abundance could locally reach the medium level. This situation resulted in generally low nesting density and minimal breeding success in the Rough-legged Buzzard (forest-tundra: most pairs deserted their nests during incubation and only 2 out of 8 had chicks; tundra: majority of Rough-legged Buzzards did not breed). Only 1 breeding pair of Hen Harriers was found in the tundra region; in the forest-tundra there were few regular records of this raptor. The distribution of Long-tailed Skua was patchy, most of them did not breed resorting to a nomadic life-style. In skuas 75% of full clutches had only 1 egg. The Arctic Skua numbers in the region were quite low but some of them still bred. Pomarine Skuas and owls were sighted. The Hooded Crow *Corvus corone cornix* was rather uncommon and occurred only in wooded sections of river valleys. The Arctic Fox is not a typical inhabitant of

southern tundras and forest-tundra. Only 1 out of 12 dens surveyed in a 500 square km area was occupied. The Red Fox *Vulpes vulpes* numbers were not high. It appeared these animals did not breed in the southern tundras but in the forest-tundra zone 1 den with pups was found. Despite seemingly unfavourable conditions waders breeding success was above average or even high. This was supported by numerous observations of Wood Sandpipers, Common and Pintailed Snipes, Bar-tailed Godwits, Golden Plovers and Whimbrel attending broods. Monitoring of nests of the two latter species (10 nests each) showed that individual nest depredation rates did not exceed 10%.

V. V. Morozov

11. Southern part of Tazov Peninsula. Arrival of the spring to the forest-tundra of the lower Pur River (lower sections of the Hadutte and Tab-Yakha Rivers near the village of Samburg) was extremely late: according to the local inhabitants ice on the Pur River broke on 7 June near Tarko-Sal and on 15 June near Samburg. The late nature of the spring was confirmed by observations initiated on 19 June. The Bay of Tazov opened on 26 June. Intensive snow melting occurred at the lower sections of the Hadutte and Tab-Yakha Rivers on 23-24 June, tundra lakes became free of ice on 26-27 June. Budding of the Dwarf Birch *Betula sp.* and Alder *Alnus sp.* was recorded only on 25 June, of the Larch *Larix sp.* - 27-28 June. The weather was hot and dry from late June until 12 July (when the field work was terminated). Judging from the mass swarming of Diptera the beginning of the summer fell on the second week of July. Lemmings, voles, Arctic and Red Foxes were not observed. There were no breeding records of the Rough-legged Buzzard either. Only single observations of non-breeding Snowy Owls were made. The Long-tailed Skua was a common breeder; the Hen Harrier was also quite abundant and probably nested in the area. A high breeding density was determined for the Wood Sandpiper, Temminck's Stint and Bar-tailed Godwit (locally, at heavily water-logged tundra sections). Pure tundra sites accommodated breeding Spotted Redshanks *Tringa erythropus*, Red-necked Phalaropes, and Golden Plovers. The wooded river valley yielded numerous records of the Jack and Pintailed Snipes while the Common Snipe was rare. Breeding of the Eurasian Woodcock *Scolopax rusticola* was recorded as well. The Common Ringed Plover was very common on sandy spits along rivers. None of the clutches under observation was lost.

I. P. Pokrovskaya, N. Yu. Obukhova, V. V. Kamyshenkov

12. North-western Taimyr Peninsula. The snow was gone relatively late from the Meduza Bay (20 km south from Dixon) area so that by 25 June (21 June in 1994) only 50% of the tundra was free. Ice on the Meduza River broke on 25 June, i. e. 5 days later than in 1994. June was dry while the first three weeks of July were rainy although stretches of dry and warm weather occurred as well. There were no summer snowfalls. The peak hatching time in waders (12-16 July) was associated with a period of cold, windy and foggy weather. Collared Lemmings were very common: up to 30 individuals were encountered daily. This high abundance facilitated successful breeding of Snowy Owls, Rough-legged Buzzards, Long-tailed and Pomarine Skuas. The Brent Geese *Branta bernicla* nested primarily next to birds of prey. No Arctic Foxes were seen at the site. Also the Dotterel observed there breeding in 1993 was absent. Breeding densities of common wader species were 14 nests/square km for the Little Stint and Curlew Sandpiper *Calidris ferruginea* and 5 nests/square km for the Pacific Golden Plover *Pluvialis fulva*. The overall nesting density in shorebirds was higher than in 1994 (35 and 20 nests/square km respectively). The breeding success was high in all species (70-100%).

I. Tulp, L. Bruinzeel, J. Jukema, O. Stepanova

13. Lower reaches of the Pyasina River apparently experienced worse ice and weather conditions than the Pur River because ice on the latter broke on 6 July while the Pyasina Delta was still blocked on 10 July.

Ya. I. Kokorev

14. Middle reaches of the Pur River (Western Taimyr). Melting of the snow, spring floods and the other phenological events were 2.5 - 3 weeks late in the typical tundra subzone which resulted in 1.5 - 2 week delay in breeding of birds. Waterfowl were affected most strongly because their breeding area - riparian sections - became free of snow only in late June - early July. Brent Geese bred more southerly than usually (the southernmost site was located 30 km to the north from the Pur Field Station). The summer weather conditions were adequate without any climatic anomalies. Early in the season the abundance of lemmings was estimated as medium; later, by the end of the season, it decrease perhaps owing to the heavy pressure of rodent-specializing predators. Rough-legged Buzzards nested rather densely: 6 pairs per 22.2 square km study plot and 0.8 - 1.0 pair per 10 km of the river course. The Snowy Owl numbers reached 0.5 pair per 10 km of the river course. The Herring Gull *Larus argentatus* which bred in colonies as well as singly was common too. Arctic Foxes occupied 15% of dens and the mean number of pups in a litter was 8. Wader breeding density was lower than average, especially so in species nesting in riparian zones. Very few Curlew Sandpipers were seen. Non-breeding of 4 territorial Peregrine *Falco peregrinus* pairs was probably connected to the overall low bird densities as was a failed breeding attempt of yet

another pair. In general, however, the nesting was successful and survival of broods high.

Ya. I. Kokorev

15. Severnaya Zemlya Archipelago (Sedov Islands, Bolshevik Island). The spring here was late and the summer quite cold. The average daily air temperature during the arrival and nesting of waders was lower than in the previous years: - 3 °C in June and - 0.2 °C during the first two thirds of July. Collared Lemmings were not found but some traces of their winter activities were discovered. There were no Arctic Foxes either. Only wandering skuas were encountered; there were no confirmed breeding records although it is quite possible that some nesting pairs were overlooked on Bolshevik Island. After migration (9 - 19 June) Purple Sandpipers started breeding by late June (eggs in one nest hatched on 20 July). Therefore it can be concluded that unfavourable weather conditions did not cause a delay in the arrival and breeding time of this species. A slightly lower abundance of breeding birds is, however, possible. It is highly likely that the late spring on Taimyr was the reason behind the accidental records of the Red-necked Stint *Calidris ruficollis* (in a flock of Purple Sandpipers) on Domashni Island on 15 June and two Ruddy Turnstones between 22 June and 31 July.

A. E. Volkov

16. Byrranga Mountains near the Levinson-Lessing Lake (74°30' N; 98°30' E). Comparing to the previous year the spring was 10 days late. Negative temperatures (- 3 °C) and frequent snowstorms occurred until 20 June. Despite these conditions, however, the snow was almost gone by the third third of June. After their arrival most birds concentrated at small snow-free patches along the Krasnaya River course but after 20 June their densities in riparian habitats dropped considerably and paired individuals became prominent. The summer was cool but without snowstorms. The end of July and early August experienced heavy rains. The Siberian Lemming density throughout the summer remained at 2 individuals per 100 trap-days. Density of the Collared Lemming in different habitats of the Krasnaya River valley was relatively high (6 individuals per 100 trap-days). Their numbers showed an upward trend starting the third third of July but by late summer the Collared Lemming abundance gradually decreased to 2 individuals per 100 trap-days. Juvenile individuals did not breed. Arctic Foxes were fairly uncommon in the mountains: 3 dens were found in a 400 square km area of which only 1 was inhabited. The diet of that family was dominated by Siberian Lemmings and hare *Lupus sp.* The breeding density of Long-tailed and Arctic Skuas was rather high. A 100 square km area contained 1 breeding Peregrine pair, 6 non-breeding Rough-legged Buzzard pairs and 1 Rough-legged Buzzard nest with a clutch of 2 eggs. No Snowy Owls were observed. The Dotterel and Pacific Golden Plover were the most abundant shorebirds in the mountains; in valleys - Curlew Sandpipers and Little Stints; on pebble beds of mountain streams - Common Ringed Plovers.

M. N. Koroleva, I. N. Pospelov

17. South-eastern Taimyr. In phenological terms this was the latest spring in three years in the Bludnaya River Mouth (near the village of Novorybnoye): at the end of the second third of June a storm covered with snow all thawed openings. Dunlin - the earliest breeder amongst waders - initiated nesting only at the very end of June while the later breeding species (Pectoral Sandpiper *Calidris melanotos*, phalaropes, Ruff) did not breed until early July. Density of the breeding waders with low site fidelity (Pectoral Sandpiper, Phalaropes, Ruff) was lower than in the considerably earlier season of 1995 but higher than during the only slightly earlier summer of 1994. The summer was relatively warm and dry, no snow fell during the breeding season. Lemmings (90% Siberian and 10% Collared) had the highest density in three years. After the abundance peak during the snow melting in late June - early July they were being encountered by each observer for up to several times per day throughout the month of July. For the first time in three year a pair of Arctic and 3 pairs of Pomarine Skuas nested in the area. Few Snowy Owls showed up at the end of the season. Only few isolated Rough-legged Buzzard pairs nested in the area as well as Long-tailed Skuas whose breeding density was low - the same as in the previous years. No Arctic Foxes were observed during the wader reproductive period what determined the highest breeding success in the birds in three years: reproductive success was 66 to 89% in all common wader species. The main reason for clutch mortality - quite unique for this season - was trampling of eggs by the Reindeer *Rangifer tarandus*, which lingered in the study area until late July (a month later than normally). Overall it can be stated that the waders breeding in the region had the highest success in three years.

M. Yu. Solov'ev, V. V. Golovnyuk, M. N. Dementiev, T. A. Pronin, T. V. Sviridova

18. Lena Delta. Spring and early summer climatic conditions in the area were extremely unfavourable for shorebirds. The meteorological service of the village of Tiksi had no records of such a late and cold spring since 1932 - the year of its foundation. Migration in the southern part of the delta was only slightly behind the usual schedule. However, the continuous snow cover on tundra and frequent snowfalls forced waders to concentrate at few thawed patches along channel banks and tributary mouths. Species characteristic for forest-tundra and southern tundra could be found together with high Arctic birds, often in atypical habitat zones. The lichen layer at such sites was literally turned upside-

down by foraging birds. Even the food garbage discarded by humans was consumed. The first two thirds of June witnessed mass mortality of Ruddy Turnstones, Red-necked Phalaropes, Curlew Sandpipers, Little Stints, Red-necked Stints, and Temminck's Stints caused by emaciation. A stable crossing of mean daily temperatures above the zero mark and subsequent melting of snow occurred only on 20 June. On the same day active courtship displays began in most species including the Grey Plover, Pacific Golden Plover, Ruddy Turnstone, Common Ringed Plover, Red-necked and Grey Phalaropes, Ruff, Curlew Sandpiper, Dunlin, Sanderling *Calidris alba*, Little Stint, Red-necked Stint, Temminck's Stint, Long-billed Dowitcher *Limnodromus scolopaceus* as well as nest building in Dunlin. Essentially the entire breeding season was shifted two weeks back and the number of nesting waders was quite low. Some species probably did not breed at all. The were no climatic anomalies observed in the delta in July, the month, however, was overall much colder than usually. Spring floods did not affect breeding as they occurred before the start of nesting and the water levels were not too high. Lemming numbers reached their peak and both winter and summer breeding in these animals was successful. Snowy Owls and Arctic Foxes were numerous and ubiquitous in the delta. Pomarine Skuas bred in its northern part. Rough-legged Buzzards were pushed by the Owls slightly to the south from their usual distribution area. Peregrines probably did not breed due to low shorebird numbers (the only investigated nest which had been occupied for a number of years was empty although the adult birds were seen nearby). Breeding success of waders in the delta was very low. The negative effect of climatic conditions during the pre-breeding period canceled out the advantage of the high lemming population levels.

V. I. Pozdnyakov

18. In the Lena Delta the unusually cold spring was nevertheless followed by the usual appearance of open water and the breaking of ice. Wader arrival to the central delta was facilitated by the availability of open water and was premature: during the first half of June adult mortality was very high due to the absence of food and extremely low temperatures. There were few waders in the northern part of the delta and they arrived rather late. Peak lemming numbers resulted in a successful breeding season for Snowy Owls, Pomarine Skuas and Rough-legged Buzzards. Grey Plovers, Little Stints and Grey Phalaropes also had a good year even though their nesting started 2 weeks later. No other wader species nested in the northern part of the delta that year. The summer and autumn temperatures were low as well and ice formation began 7 - 10 day earlier than usually. Amongst the unusual autumn events was the appearance of numerous flock of juvenile Ruffs in the northern parts of the delta (previously such a phenomenon was recorded on the New Siberian Islands).

D. V. Solov'eva

19. In the Yana Delta and vicinities of the village of Yukagir arrival of the spring took place approximately 15 - 20 days behind the average time (observations from a number of previous years). According to a local meteorological station the month of June was coldest in more than twenty years. Inhabitants of the settlements of Ust-Yansk and Kresty reported mass mortality of small sandpipers and passerine birds around 12 - 15 June when a return of subzero temperature was observed. Hundreds of birds that had arrived to the tundra only a few days before congregated on the Yana banks and in the settlements. In Nizhneyansk winter conditions persisted until 15 June while in Yukagir until 20 June when snow was still covering up to 80% of tundra. Ice on Yana broke only on 17 June. A few days before that moment the rising water broke though certain segments of banks and flooded the adjacent low tundra sections. By 23-25 June the outer delta (in a 20 - 30 km belt) was 70-80% flooded. After an abrupt drop in the water level which occurred over a period of 1 day the active egg-laying began. Very few clutches were laid prior to the floods and most of them were probably destroyed. Water levels in the delta channels remained high until mid July, thus most delta islands were submerged strongly limiting nesting opportunities for waders and other birds. Near Yukagir first eggs were laid on average 1 week later than normally. In July-August the weather was rather unstable, more often cool with low amount of precipitation but overall favourable for breeding birds.

Distribution of microtine rodents was quite uneven. Average vole numbers were recorded near the village of Kazach'e. Sixty percent of animals trapped by S. Grigor'ev were Root Voles, while the rest - Northern Red-backed Voles. The Siberian Lemming and Northern Red-backed Vole numbers were low along the Samandon channel in Tastakh area. The highest species diversity (the actual numbers, however, were low) was found near Nizhneyansk where the high tundra was dominated by the Siberian Lemming (60%) and the Northern Red-backed Vole (35%) while only single individuals of the Collared Lemming were encountered. The Narrow-skulled Vole *Microtus gregalis* was locally quite common near human dwellings. According to the local inhabitants numbers of lemmings near Nizhneyansk were high in March-April when the animals were seen around their winter burrows and in tundra (this was supported by plentiful signs of their winter activities in the outer part of the delta). We found only few rodents killed by the flooding. The general impression was that either the small winter peak occurred before the arrival of the spring or the growing numbers of rodents were undercut by the heavy spring floods.

The predator pressure on bird clutches in the lower Yana was also uneven. The abundance of Arctic Foxes was medium to high in the north-eastern part of the delta where 2 inhabited dens were located in the coastal zone - outside the range of the floods; they had a minimum of 6 and 4 pups; another family with 2 young was seen in

the tundra. It is presumed that some young as well as adult animals were a subject to mortality. The information on the high Arctic Fox abundance was also corroborated by hunters who used leg-hold traps during the winter. Southerly, down to forest-tundra, at Samandon neither Arctic Foxes nor any signs of their activities were seen. Red Foxes were not uncommon at the middle flow of the Ilin Shar channel. Some locations housed single Long-tailed and Arctic Skua nests. Only few Rough-legged Buzzards and Snowy Owls were observed although judging from the locally gathered information in some years they are quite common.

Bird nests located in the outer part of the delta (the typical tundra subzone) especially in its western sector fared the worst from predation by the Arctic Fox and skuas. As a result of this as well as the flooding at the lower Ilin Shar in July the tundra appeared empty: apparently at least 3/4 of clutches and broods of waders and passerine birds did not survive. The overall breeding success was slightly higher near Nizhneyansk but even there probably no less than 50% of clutches were destroyed. Southerly the predator pressure was even lower. Few depredated nests were found near Kazach'e. It can be concluded that this was not a very good season in terms of bird reproductive success especially in the outer part of the Yana Delta.

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20. Poluosny Ridge (sources of the left tributaries of the Indigirka River) and Kular Chain (the lower Yana River). Spring thaws that engulfed the tundra and forest-tundra zones of these areas in early May were replaced by winter weather later that month. In the settlement of Deputatski negative temperatures were recorded on 4 June and approximately 90% of the tundra was still covered with snow. Periodical snowfalls lasted until 12-14 June, daily temperatures did not rise above 1-2 °C while nights were frosty. When the warm weather - several sunny days - arrived to the Poluosny Ridge up to 50% of snow melted. A subsequent streak of cold and cloudy conditions did inhibit bird activities but could not reverse the start of the breeding season and by 20 June first clutches were laid in many species. Such a spring could be characterized as extremely late and the breeding initiation dates were more typical for tundra than forest-tundra-breeding species. A similar situation were reported from the area 200 km to the west near the settlement of Ust-Kuyg on Yana where ice on the river broke on 20 May due to the warm spring weather. A reverse in the weather, however, occurred and below-zero temperatures with snowstorms lasted for nearly three weeks after that. The weather warmed up by 22 June (start of observations) but the catastrophic flooding that inundated not only the river valley but also the suprariparian terrace of Yana including the settlement (first time since its foundation, i.e. in about 30 years) was at its highest. In the Itgychen River valley near the settlement of Deputatski few traces of vole activities were observed, Northern Pikas *Ochotona hyperborea* were, however, locally common. An adult Root Vole and a juvenile individual of an identified species were trapped near the settlement of Ust-Kuyga during the flooding. Tundras around Kular had low rodent abundance: their bones were found in Rough-legged Buzzard pellets, one individual killed by a Raven *Corvus corax* was investigated. Two Root Voles were seen in the forest-tundra near the settlement of Severnoye. Infrequent signs of lemming activities were noted in the tundra as well. In the Kular Chain area and adjacent regions the predator pressure on bird clutches was apparently quite moderate. No evidence of depredation was found along the Poluosny Ridge during the spring.

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21. Lower Indigirka. The summer - late July and August - was cold and damp near the settlement of Chokurdakh, Mungurdakh, Sokurdakh and Lebedinoye (Tyuret') Lakes and in the lower flow the Berelyakh (Elon') River; large ice floes remained on the Lebedinoye Lake. Several summer snowstorms covered the tundra with snow for up to two days at a time. Counts and specialized search for lemmings in tundra and forest-tundra areas resulted in only 1 trapped Siberian Lemming. Observations of signs of lemming activities were quite rare. This situation can be characterized as a period of deep depression in lemming population levels. No Snowy Owls or Arctic Foxes were seen.

L. G. Yemel'yanova

21. Lower Indigirka. In the Chokurdakh settlement area the spring was late with frequent cold spells and prolonged snowfalls. Ice on the Indigirka River broke later than usually - 15-16 June. The summer was abnormally cold with snowfalls in July-August, the Cloudberry *Rubus chamaemorus* and Foxberry *Vaccinium vitis -idea* did not yield any fruit. Lemming numbers were very low as well as those of the Snowy Owl and Arctic Fox. The mass arrival of waders occurred in early June but later due to the cold weather many of them reverse migrated, some perished. The more or less favourable weather established only in late June and because of this the start of the breeding season was also late. Many nests and broods of the Pectoral Sandpiper and Red-necked Phalarope were found while only single clutches of the Grey Plover, Temminck's Stint, Little Stint, and Long-billed Dowitcher were recorded. Hatching took place throughout the first three weeks of July. Considerable proportion of nests and broods were destroyed by Herring Gulls and skuas. In terms of breeding success this was not a goon season for many wader species.

A. G. Dyagterev, N. N. Yegorov, S. M. Sleptsov

22. Indigirka Delta. The snow melted by 26-27 June. Only Red-necked Phalaropes were noted breeding in the area in late June. Few Common Snipes, Ruffs, Grey Plovers and Pectoral Sandpipers were observed as well.

A. G. Dyagterev, N. N. Yegorov, S. M. Sleptsov

23. Lower Chukoch'ya River. The spring at the Kolyma lowland was extremely cold and prolonged, ice on the Chukoch'ya River broke only on 26 June. At the same time even the shoreline strip did not thaw at many tundra (elevated) lakes. The air temperature did not exceed +3°C before the ice breaking. Clogging of the river flow with ice resulted in flooding of a large section of the valley which destroyed some nests of ducks, swans and waders. After a weak peak in numbers in 1995 lemming populations levels were in decline. One hundred trap-days yielded only 6 animals. Arctic Foxes and Rough-legged Buzzards bred successfully; at only 1 den out of 5 the pups were abandoned being 1 month of age. There were 4 chicks in each of 4 Rough-legged Buzzard nests found in the area (hatching period was 25-30 June). No Snowy Owls nested at the site and only single individuals were observed. All signs indicated that for shorebirds the breeding season was successful. Nests of the Little Stint, Pectoral Sandpiper and both Phalaropes were found quite commonly. Few nests of the Grey Plover and Temminck's Stint were located. These nests (1 of each species) were depredated before clutch completion. The Ross's Gull *Rhodostethia rosea* did not breed. Geese were thought to be breeding successfully. One of the 3 discovered Bean Goose *Anser fabalis* clutches hatched on 30 June; 2 of out 6 Bewick's Swan *Cygnus columbianus* nests were flooded.

A. V. Kondrat'ev, A. N. Lazutkin

24. Lower Kolyma River. In the summer the weather was rather unstable. It was cold for most of the time and only 2-3 days each month were warm with temperatures of up to +25°C. Snowfalls occurred every month and in August they became not uncommon. First shorebirds arrived in late May. Only Grey and Red-necked Phalaropes and the Temminck's Stints were numerous while numbers of the Wood Sandpiper, Common Sandpiper, Common and Pintailed Snipes decreased noticeably. Great Knots *Calidris tenuirostris* nested in the usual areas at the lower Omolon River where the Little Whimbrel *Numenius minutus* was observed as well. At the beginning of the last third of June at the Chukoch'ya River mouth most wader clutches were still incomplete. In late June high predation rates by Herring and Glaucous Gulls on clutches of both Phalarope species and the Temminck's Stint were recorded. Despite the cold summer apparently the breeding success in birds was satisfactory.

S. I. Mochalov

25. Cape Schmidt area. According to the observations conducted in late June - early July the summer on the northern Chukotka coast was cold despite a presumably early spring or little snow accumulation over the winter. No lemmings were observed but there were medium population density levels of the Root Vole at Cape Ryrkarpi where a pair of the Rough-legged Buzzard nested. Breeding of Long-tailed and Arctic Skuas was noted in the tundra. Only single Arctic Foxes were observed and no breeding was recorded. Of some interest are observations of breeding Red-necked Stints (a nest was found) and Ruff (downy chicks) as well as sightings of the Dotterel and Spotted Redshank.

I. V. Dorogoy

26. Belyanka Spit in the northern part of Kolyuchinskaya Bay experienced a cold summer (late June observations): the weather was dominated by cold winds with snow flurries, the sea along the north shore was clogged with masses of broken ice. Lemmings were absent but some Root Voles kept near the hut. Only single pairs of the Arctic Skua nested in the area. An abandoned Raven nest on a navigation tower was investigated. Few dozen Pomarine Skuas occurred close to the shore where they attacked kittiwakes that were catching fish in the windows of open water amongst ice floes. Arctic Foxes did not breed. Commonly breeding wader species included the Spoon-billed Sandpiper *Eurynorhynchus pygmeus*, Dunlin, Western Sandpiper *Calidris mauri* and Red-necked Phalarope while the Rock Sandpiper *Calidris ptilocnemis* and Ruff were rare.

I. V. Dorogoy

27. Wrangel Island. According to observations of 24-26 June the snow melted relatively early but the summer was cold with sporadic snowstorms. Both lemming species populations were in deep depression. From predatory birds only the Long-tailed Skua nested in the area. Single Snowy Owl males were also observed. Arctic Foxes were uncommon and did not breed. The following common wader species were recorded in the area (in the descending abundance order): the Ruddy Turnstone, Grey Plover, Dunlin, Red Knot *Calidris canutus*. The Red Knot abundance was lower than in the previous years.

I. V. Dorogoy

27. Wrangel Island. The snow melted relatively late in the season and until the third week of July the weather remained cool with frequent precipitation and fogs. August was the warmest month during which the weather was mostly clear and calm (same was true for the first half of September). No snow fell in the summer. The abundance of both lemming species was at its lowest throughout the island: 1 Collared Lemming was caught per 300 trap-days and 1 Siberian Lemming was trapped as a result of a full survey of a 4 ha area. Lemming or traces of their activities were primarily found in settlements or near field stations. Snowy Owls and Pomarine Skuas did not nest and their numbers were below the normal level. Only one breeding attempt was recorded in the already depressed Arctic Fox population (a den with a litter that died from starvation was found). Breeding success of common wader species was relatively high. Nesting densities did not differ from other years. At the end of July numerous Red Knot, Ruddy Turnstone, Grey Plover and Dunlin broods could be observed. Few Pectoral Sandpiper and Grey Phalarope and 2 Red-necked Stint broods were seen.

M. S. Stishov

The total number of sites from which information was obtained in 1996 dropped continuing the general trend attributed to the financial and logistical difficulties associated with visitation of remotes regions of the country; in particular several permanent field stations were shut down including those on Yamal and Taimyr. This year no information was received from northern Yamal, Gydan, northern Taimyr (east from Dixon) and southern Chukotka Peninsula.

In some regions the spring arrived relatively early (southern Yamal, sources of the left Indigirka tributaries and apparently the north Chukotka Peninsula coast), later return of cold weather, however, resulted in generally cold spring and cool, wet summer almost throughout the Russian Arctic. Only in 2 areas - the south-eastern Bolshezemelskaya tundra and southern Yamal Peninsula the spring phenological events occurred within the usual time frame. Reports from almost all other regions indicated snow melting, opening of water bodies and the other spring events as being from several days to 3 weeks late. Central northern Yakutia experienced extremely snowy and cold spring which resulted in incidents of wader mortality (quite massive in the Lena and Yana Deltas) when the birds arrived to breed at usual time. In most cases the late spring led to a delay (sometimes up to 2 weeks) in breeding season initiation. The unusually high spring floods on the Yana River were not detrimental to the reproductive efforts of waders because of its timing while we suspect that the same kind of occurrence destroyed many cluthces along the Chukoch'ya River in eastern Yakutia. At the same time persistence of high water levels at some rivers (Schuch'ya on Yamal, Yana in Yakutia) for a long time prevented shorebirds from breeding in riparian zones.

In most areas the cold spring was followed by a cold and wet summer. Only at some sites (Yugorski Peninsula, near Salekhard on Ob, southern Tazov Peninsula, southernmost sites of Taimyr and Wrangel Island (from late July)) the summer was normal or even warmer than usually. Despite the seemingly unfavourable for birds general summer conditions most regions did not experience any climatic disturbances of catastrophic magnitude; summer snowfalls were registered only in 6 areas: Kola Peninsula, Bolshezemelskaya tundra, lower Indigirka and Kolyma, Chukotka and Wrangel Island. This is the exact reason why the cool summer conditions had a weak effect on breeding success of waders which are generally adapted to severe conditions. There were some grounds to presume brood mortality only in north-eastern Yakutia due to snow precipitation.

In 1995 some sites still boasted high lemming population numbers - in Yakutia first of all; a tendency towards an increased in these rodent numbers became apparent in central Taimyr and the Lena Delta. In 1996 these again were Taimyr and the Lena Delta were lemmings appeared to be common or perhaps even abundant. In the Yana Delta high numbers observed in the spring decreased as the summer progressed; it is also possible that numbers were dropping along the Chukoch'ya River in the summer as well. At all other sites lemmings were either absent or rare. Only two sites (both in the European part of Russia) produced increasing population levels including Russki Zavorot Peninsula near the Pechora Delta and Vaigach Island. Voles were locally common on Kanin Peninsula while at all other sites their population levels were not above the average.

As always the distribution and partially abundance of Arctic Foxes directly depended on the rodent abundance - that of lemmings in particular. Therefore it does not come as a surprise that all dens in the Pechora Delta were occupied and breeding at several Taimyr sites, in the Lena Delta, maritime section of the Yana Delta and on Chukoch'ya was successful. Single and not always successful breeding attempts were reported from Novaya Zemlya, Vaigach, southern Yamal and Wrangel Island. Increase in the Arctic Fox numbers relatively to the previous year was recorded in the European part of the Russian tundras - Kanin and Russki Zavorot Peninsulas.

Breeding of birds specializing in preying on rodents - the Snowy Owl and Pomarine Skua - took place only on Taimyr and in the Lena Delta, i.e. where lemming numbers were considerably high. Nobody reported breeding Short-eared Owls. Rough-legged Buzzards nested in many areas although not always successfully but their numbers were high only on western Taimyr Peninsula.

Snow and weather conditions early in the season undoubtedly affected not only the dates of the start of bird breeding but also their distribution and in some cases abundance. It is believed that this can explain the absence in the Little Stint on Kanin Peninsula, observations of displaying Sanderlings in the Lena Delta and unusual sightings on Novaya Zemlya. It is believed that some wader species also did not breed in the Lena and Indigirka Deltas.

Wader breeding success was below average in the European part between the White Sea and Pechora River where the Arctic Fox numbers went up. Easterly up to Taimyr inclusively reproductive success rates were good or even high; whenever exact numbers were available, they exceeded 50%. Farther to the east, in Yakutia the situation was not so clear. Field researchers indicate poor reproductive success and provide information about high rates of clutch loss in the Lena Delta (despite the high lemming numbers), Yana Delta, lower Indigirka and Kolyma. It is possible that in the latter two regions clutches were lost due to poor weather conditions. At the same time birds nested quite successfully just slightly farther to the south - in the mountains around the lower Yana and Indigirka and probably Chukoch'ya. The outcome of the breeding season on Wrangel Island should be considered successful as well (despite the absence of lemmings).

Considering the three-year cycles of lemming numbers in Western Siberia and Taimyr it may be expected that growth of the rodent numbers that was witnessed on Taimyr in 1996 will spread westwards to Yamal during the following year (except for the southern parts of the peninsula) and perhaps even farther if conditions are optimal - all the way to the White Sea. On Taimyr itself (some areas) lemming numbers will probably continue increasing reaching the peak by the summer of 1997 (for example in the Arctic tundras north from the Byrranga Mountains) while some other regions (near Dixon for instance) will experience a summer decline. In Yakutia the depression should start in the Lena and Yana Deltas and on Chukoch'ya River while some increase may be expected for Indigirka.

In summary therefore one should expect to see a weaker predator pressure on clutches and broods of tundra birds in northern parts of Eastern Europe and Western Siberia; the impact by Arctic Foxes and other predators on breeding birds will most likely increase on Taimyr and in the tundras of Yakutia. In general then, provided the weather does not complicate the picture, the summer of 1997 will most probably be successful for the tundra birds overwintering in Europe and Africa and will be poor for northern Yakutia breeders wintering in Asia, Australia and America. The fragmented nature of information available for Chukotka does not allow us to make any specific predictions for the region.

P. S. Tomkovich