Breeding conditions for waders in Russian tundras in 1993

Pavel S. Tomkovich (compiler)
Elena A. Lebedeva (translation)

Tomkovich, P.S. (comp.) 1994. Breeding conditions for waders in Russian tundras in 1993. *Wader Study Group Bull.* 75: 27-34.

The timing of spring in 1993 was average. The weather during breeding period was good in most areas for which there is information: it was warm and dry in east-European tundras, at Yamal and in the Yenisey mouth, rather warm at the Indigirka and further to the east. Rather cold or cold weather was observed only at the Murman coast and at the Taimyr. Lemming numbers in the majority of areas in European tundras, at Yamal, at the Kotelny island, and at the Chukotka were characterized as low or at population minima. At the Taimyr and Novaya Zemlya their number in many study areas reached average levels. In 13 out of 32 areas an increase in numbers was reported. Number and reproductive performance of predators was related to small mammal distribution. Arctic Foxes *Alopex lagopus* were absent or scarce almost everywhere west of the Yenisey, breeding was observed only at Novaya Zemlya. At Taimyr and Wrangel island Arctic Foxes were comparatively scarce, but occupied on breeding up to 50% of dens (Pyasina river mouth); single pairs bred also at the south of Anadyr' estuary. Breeding avian predators were mostly also scarce. Concerning estimates of breeding success in waders, respondents consider that favourable weather conditions and low predation rate resulted in generally successful breeding. Where exact data are present estimates of breeding success range from average to high; the latter seems true for the whole tundra zone of Russia. The increase in lemming populations recorded in different tundra areas in 1993 indicate that by summer 1994 their numbers will reach a peak in at least some areas. If weather conditions are still favourable this will result in a noticeable decrease of predation pressure and thus enable high wader breeding success.

Tomkovich, P.S., Department of Ornithology, Zoological Museum of Moscow State University, Herzen Street, 6, Moscow 103009, Russia.

Summer 1992 was characterised by bad weather and high predation rates (with decreasing or low rodent populations) almost throughout the whole tundra zone from north-eastern Europe to the Pacific Ocean. This resulted in low wader breeding success everywhere. It was expected, that mass mortality of Arctic Foxes *Alopex lagopus* would take place in winter 1992/93; therefore favourable weather conditions permitting, good wader breeding success was forecasted in Eurasia (Tomkovich 1994). Now, with the 1993 breeding season over it is possible to evaluate the real situation in terms of lemming numbers, predator pressure and consequently wader breeding success based on information from respondents working in various tundra areas of Russia (see localities on Figure 1).

1. AYNOVY ISLES (WESTERN MURMAN)

Active snow-melting started early, *i.e.* in the middle of April, and the snow melted completely at the open areas. At the end of April cold weather returned and spring was in general cold and long. Lake ice melted at the end of May, and snow remained inland in hollows until mid-June. The weather in June remained cold with prolonged storms and much precipitation; in contrast July was dry and warm. Broods of waders grew up successfully and the overall reproductive success on the island was high. Autumn migration of Dunlin *Calidris alpina* occurred later, but was highly synchronous; numbers of migrating birds were similar to usual. Other wader species were scarce on migration, some of them even occurring only as individuals.

I.P. Tatarinkova

2. WESTERN COAST OF KANIN PENINSULA

The timing of spring was similar to the average for the recent decade: by 10 June snow remained only at the Kanin Kamen' elevation and in dune depressions; the latter melted at the coast by 20 June. The weather in the first half of June was cold with storms, rains and fogs. The majority of waders laid eggs between 8 to 14 June during the stormy conditions. The second half of June and the first week of July were mostly warm, storms occurring only on 20-21, 24 and 26 June and on 1-2 July. The weather became cold and rainy immediately after mass hatching of waders started on 4 July, and it remained so until the middle of the month. Lemmings and Arctic Foxes *Alopex lagopus* were both numerous in winter 1992/93. However, most of the lemmings had died by the beginning of spring, and the Arctic Foxes left the area. There were high numbers of the large gulls (Lesser Black-backed *Larus heuglini* and Glaucous *L. hyperboreus* Gulls) in coastal

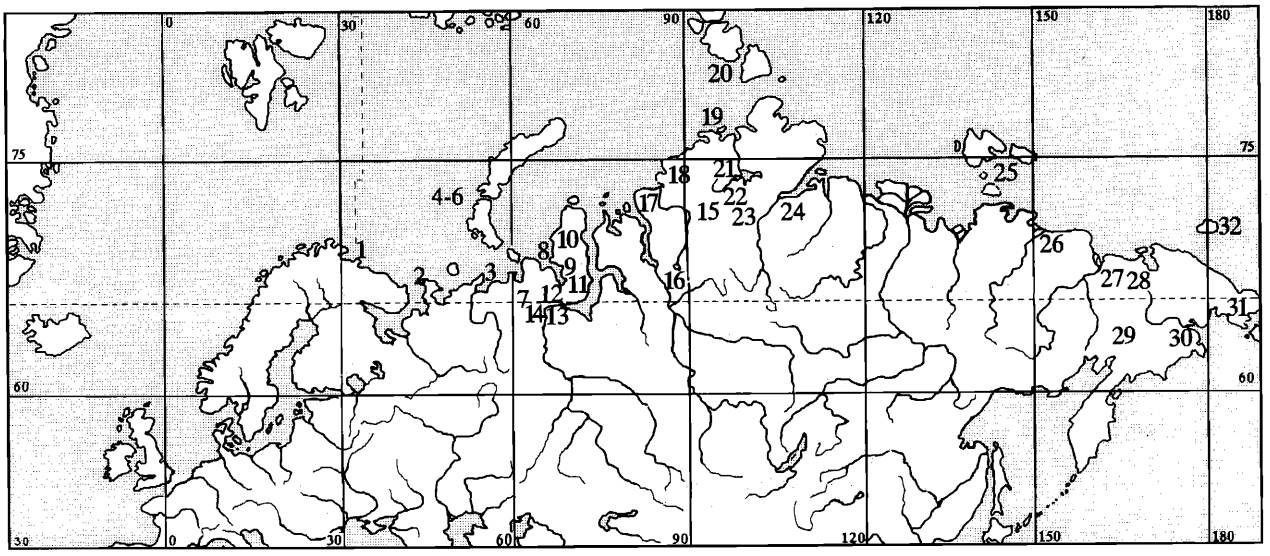


Figure 1. Location of study areas.

areas, while the numbers of skuas (mainly of Parasitic Skua *Stercorarius parasiticus*) were rather low. These birds predated many clutches during the storms, although they preferred duck eggs, and to a lesser extent influenced large wader species such as Oystercatcher *Haematopus ostralegus* and Turnstone *Arenaria interpres*. In general waders bred rather successfully, there were few replacement clutches (most often in Oystercatcher), and average brood size did not differ from usual estimates.

V.G. Vinogradov & V.O. Avdanin

3. EUROPEAN ARCTIC (FROM KANIN NOS POINT TO UGORSKY PENINSULA AND THE VAIGACH)

Weather conditions in summer 1993 were favourable, and numbers of lemmings and Arctic Foxes were extremely low. Predators which feed on rodents mostly did not breed. During aerial counts on 4-5 June single birds and pairs of Oystercatchers were few and recorded to the east up to Kolguyev island and Medynsky Zavorot. Between 20-25 July broods (*i.e.* successful breeding) of Red-necked Phalarope *Phalaropus lobatus*, Ruff *Philomachus pugnax*, Little Stint *Calidris minuta*, Dunlin and Ringed Plover *Charadrius hiaticula* were recorded near Varandei settlement.

V.N. Kalyakin

4. NOVAYA ZEMLYA (FROM GUSINAYA LAND TO THE MATOCHKIN SHAR OF THE SOUTHERN ISLAND AND AT THE SOUTH-WESTERN PART OF THE NORTHERN ISLAND)

Weather conditions in summer 1993 were favourable. In August numbers of lemmings (especially of Siberian Lemming *Lemmus sibiricus*) were increasing, and breeding was recorded almost in all rodent-feeding predators: in Rough-legged Buzzard *Buteo lagopus*, Snowy Owl *Nyctea scandiaca*, four species of skuas (adults with fledged young birds remained that time on breeding territories). At Gusinaya Land we also observed breeding of Short-eared Owl *Asio flammeus*. On the whole the numbers of breeding predators varied noticeably in different areas. Numbers of Arctic Foxes were extremely low. Breeding was successful (broods with unfledged chicks) in Purple Sandpiper *Calidris maritima*, Turnstone, Ringed Plover and Dotterel *Eudromias morinellus*, and was probably successful also in Little Stint. Numerous records of one to three fledged young Ruffs at Gusinaya Land indicated probable breeding of Ruff in that area.

V.N. Kalyakin

5. NOVAYA ZEMLYA

Weather conditions in August were favourable. During short visits to the Southern island (Belushya, Besymyannaya, Gribova, Pomorskaya gulfs, and Gusinaya Land) and to the Northern island (Serebryanka Bay) an increase in number of Siberian Lemming was observed; breeding Snowy Owls were recorded (one nestling found). Breeding was thought to have occurred also in Rough-legged Buzzard (a pair of worried birds in the area of Besymyannaya gulf), and in Long-tailed Skua *Stercorarius longicaudus* (several pairs mobbed observers at the Southern island). Breeding of three other species of skuas was not confirmed, although immature birds were recorded. Short-eared Owls, including two juveniles, were observed on 1 September at Gusinaya Land. Arctic Foxes were recorded in many places, but only at Gusinaya Land was one inhabited den found; these mammals fed mostly on the eggs of Barnacle Geese *Branta leucopsis* and Bean Geese *Anser fabalis*. Waders were thought to breed

successfully, although visits to the coast were too short to find any broods.

A.B. Savinetsky

6. SOUTHERN ISLAND OF NOVAYA ZEMLYA

At the western part of the Matochkin Shar strait the number of lemmings after the 1992 population low point reached average levels, and continued to increase. In the Matochka river mouth Siberian Lemmings prevailed, while Collared Lemmings *Dicrostonyx torquatus* were distributed sporadically in suitable habitats. Birds feeding on rodents bred: one Long-tailed Skua chick was found, glaciologists observed Snowy Owl with one nestling and Rough-legged Buzzard further inland along Matochka river.

L.G. Emelyanova

7. EASTERN PART OF BOLSHEZEMELSKAYA TUNDRA

Spring passed very quickly: semi-winter conditions, which remained by 29 May altered abruptly to give warm and sunny weather; such warm weather without even light frosts remained for about a month. At that time there was no precipitation, temperature reached 17 - 23^{o} C at mid-day and fell to 4 - 10^{o} C at nights. The whole summer was dry and warm almost without precipitation, and cold wet weather with prolonged rains came only after 10 August. In spring and summer, numbers of lemmings and other small mammals (Narrow-skulled *Microtus gregalis* and Northern Redbacked Voles *Clethrionomys glareolus* and Arctic Shrew *Sorex arcticus*) were very low, but an increase was observed in autumn indicating a probable peak of lemming numbers in 1994. Numbers of Arctic Foxes remained very low and breeding was not recorded. The number of birds feeding on small mammals, (Hen Harrier *Circus cyaneus*, Rough-legged Buzzard and skuas), was also low. Snowy and Short-eared Owls were not recorded at all. Single pairs of Rough-legged Buzzard bred mainly at the northern edge of forest-tundra and in the mountains of the Polar Urals; nesting was mostly unsuccessful. Successful breeding was observed only in some pairs of Hen Harriers, which nested along the river valleys. Long-tailed Skuas in most cases did not breed, they moved in groups around the tundra concentrating near the rubbish dumps in the vicinity of human settlements. Favourable weather conditions and the ecological situation resulted in successful breeding in the majority of waders of this area. Large numbers of Ruff, Common Snipe *Gallinago gallinago* and Pintail Snipe *G. stenura* were recorded.

V.V. Morozov & A.N. Petrov

8. THE COAST OF BAIDARATSKAYA BAY OF THE KARA SEA (THE UGORSKY AND THE YAMAL COASTS)

Spring was early and warm, and snow melted completely in the first ten days of June. The weather during the whole of June was calm, warm and sunny without precipitation. July and August were also warm but rainy with frequent strong winds. Lemming numbers were average or a bit larger. As Arctic Foxes were actively hunted during the 1992/93 winter, they were not observed in summer at all and appeared in small numbers only in September - October. Birds that fed on small mammals bred. Thus, seven nests of Rough-legged Buzzard were found in a 50 km^2 area in the Yarayakha river mouth (69^{o}15'N). Judging by the number of birds in the tundra, and from the numerous flocks of waders in September, breeding conditions for birds in summer 1993 were favourable.

F.A. Romanenko

9. WESTERN PART OF THE MIDDLE YAMAL (LOWER REACHES OF THE MUTNAYA AND MORDA-YAKHA RIVERS)

The timing of spring was average. During the nesting period the weather remained warm, July was even hot. Increases in Collared Lemming and vole numbers were recorded, while Siberian Lemmings were absent. Arctic Foxes did not breed. Snowy Owls were not recorded; single pairs of Rough-legged Buzzard and Parasitic Skua bred, whilst at the same time the departure of Rough-legged Buzzards and all skua species was observed. Numbers of Herring Gulls *Larus argentatus s.l.* were noticeably low. Breeding was recorded for Common Snipe and Pintail Snipe. Numbers of Dunlin remained stable, while the number of Golden Plover, Little Stint, Red-necked Phalarope and especially of Temminck's Stint increased and that of Ruff decreased compared with previous years. For the majority of wader species breeding was successful.

V.G. Shtro

10. NORTH-EASTERN YAMAL - "YAIBARI" FIELD STATION (71^{o}04'N)

Spring started a little earlier than usual. Tundra areas became mostly (80%) free from snow by 12 June and ice broke up on the river on 13 June. Summer was dry and rather warm, without sharp decreases of temperature. Lemmings were few, their populations had only just started to increase. Arctic Foxes and other terrestrial predators were almost absent; the usual numbers of Parasitic and Long-tailed Skuas bred, while Pomarine Skuas *Stercorarius pomarinus* were scarce. Owls were absent; Rough-legged Buzzards were more common than usual at the start of the breeding season, but the majority

of pairs then abandoned their nests. There were average wader densities on survey plots. Surprisingly large numbers of Curlew Sandpiper *Calidris ferruginea* were recorded - *c.* 6 nests per km^2, and for the first time in northern Yamal breeding Pectoral Sandpiper *Calidris melanotos* was recorded. Breeding of waders was rather successful: chicks hatched in 95 of 113 nests under observation (84%). Incubation success calculated according to Mayfield-Paevsky method (n=125 nests) was 72%. Conditions for growth of chicks were favourable and many of them fledged successfully.

V.K. Ryabitsev, M. Gromadzki & H. Beimann

11. EASTERN PART OF MIDDLE YAMAL - "HANOVEY" FIELD STATION (68^{O}40'N)

The timing of spring was as usual with no late frosts recorded. By 8 June 90% of tundra was free from snow and river ice had disappeared by 9 June. On 10-11 June extremely high water levels were recorded which resulted in a large part of the study plot being flooded. Summer was warm, unusually dry, and without sharp temperature drops. Numbers of rodents, especially lemmings, were extremely low. Arctic Foxes and other terrestrial predators were almost absent. Skuas bred at low densities, and during the whole season a lot of nomadic birds were present. On the whole conditions were favourable for wader breeding. Slight decreases in breeding density of some waders (Ruff, phalaropes) was probably connected with the loss of clutches during the spring flood, which happened exactly at the time of egg-laying. Little Stints did not breed. The average breeding success of waders was rather high: chicks hatched in 87% of nests (n=37). Incubation success calculated according to Mayfield-Paevsky method (n=40 nests) was 90%. The most noticeable failures happened in the post-nesting period, when skuas and buzzards fed alternatively (and mostly) on bird chicks due to the lack of rodents.

N.A. Alekseeva, Yu.A. Tyul'kin, A.V. Odintsov & E.A. Polents

12. SOUTH-WEST YAMAL (LABOROVSKAYA MULDA BETWEEN THE KHARAMPE AND THE BOLSHOY SAPKEY RIDGES)

Favourable weather conditions together with low numbers of Arctic Fox and increasing lemming numbers enabled successful wader breeding. Almost all the mammal-eating birds (Rough-legged Buzzard, Short-eared Owl, and skuas) bred. In late July - early August broods were observed almost in all the local wader species, *i.e.* in Golden Plover *Pluvialis apricaria*, Spotted Redshank *Tringa erythropus*, Red-necked Phalarope, Ruff, Whimbrel *Numenius phaeopus*, Bar-tailed Godwit *Limosa lapponica* and snipes.

V.N. Kalyakin

13. SOUTHERN YAMAL - THE SCHUCH'YA RIVER BASIN

Spring phenology was average. In June the weather was warm and dry. July was also warm with thunder-storms. Lemming numbers were still at a low point. Rough-legged Buzzard bred in single pairs, Long-tailed Skuas were scarce, Parasitic Skua, Hen Harrier and Short-eared Owl were rare. Among waders, Wood Sandpiper *Tringa glareola* prevailed (5.7 pairs/km^2), Golden Plover (2.6 pairs/km^2) and Pintail Snipe (2.1 pairs/km^2) were common. Numbers of Ruff and Temminck's Stint *Calidris temminckii* were less than usual (0.8-1.5 pairs/km^2), the same was true also for Red-necked Phalarope (0.2-0.5 pairs/km^2). Both good weather conditions and low predator pressure favoured the successful wader breeding.

S.P. Paskhalny

14. SOUTH-WEST FROM YAMAL - SURROUNDINGS OF SALEKHARD TOWN

The timing of spring was normal and it passed quickly. May turned cold, floating ice passing down the Ob' river on 1 June. The weather was warm and dry by 25 June, and remained warm although with thunder-storms later. The majority of waders arrived in the last ten days of May. Only Little Stint and Temminck's Stint appeared later, on 3 June and 6 June respectively. Only three wader species, *i.e.* Wood Sandpiper, Ruff and Terek Sandpiper *Xenus cinereus* commonly bred, the number of Whimbrels in tundra areas was also comparatively large (0.5-1.0 pairs/km^2). Numbers of rodents were low. Breeding conditions for waders were considered favourable.

S.P. Paskhalny

15. TAIMYR PENINSULA

Spring phenology was similar to other years. July was rather cold and windy. Lemmings were rather scarce in the typical tundra subzone and further south in Western Taimyr their population density was comparatively higher only locally (on the left shore of Pyasino Lake). As a result there was an almost complete absence of breeding Arctic Foxes in the southern part of the Taimyr peninsula (to the middle parts of the typical tundras), while further to the north broods of Arctic Foxes were recorded only in 20% of dens. Moreover, breeding of Arctic Fox was almost twice as successful on the Eastern Taimyr than the Western. Breeding of birds was generally rather successful, and similar to average estimates.

Ya.I. Kokorev

16. BREKHOVSKY ISLANDS IN THE YENISEY DELTA

Spring was rather early and warm according to local information. During studies from mid-July to mid-August the weather remained warm and dry, the temperatures reached 15 - 20° C in the afternoon and fell to 5 - 8° C at nights; it rarely decreased at nights to 0° C. It became colder and more rainy in the second week of August. The number of Siberian Lemmings and voles was not high; Rough-legged Buzzards did not breed although they remained in the vicinity of old nests. Arctic Foxes were not observed, but one abandoned den was found. Breeding success of waders was considered to be high, as most observed pairs had broods of three to four chicks.

V. Karpov & H. Vonk

17. NORTH-WESTERN TAIMYR (MEDUZA BAY TO THE SOUTH FROM DIKSON)

In the arctic tundras there was much spring snow. As a consequence snow started to melt only about 9-12 June, however by 22 June most of tundra was free of snow. Probably as a result of this spring snow, numbers of breeding waders were low and patchily distributed. Summer turned cooler than usual with a prevalence of northern winds and frequent fogs. Only late in July did the weather became warm, but with much rain. The lemming population was increasing and reached an average population size in August. At the beginning of summer there were too few of these mammals to support concentrations of predators. Most Rough-legged Buzzards abandoned clutches during incubation, although one or two pairs of Pomarine Skuas bred (one chick found). A pair of Snowy Owl and Brent Geese *Branta bernicla* bred only on the islands of Yenisey Bay. Arctic Foxes were observed near dens, but their numbers were low. Breeding success was high for most waders: chicks hatched from 94% of Curlew Sandpiper eggs, from 81% of Turnstone and Little Stint eggs, from 67% of Grey Plover *Pluvialis squatarola* eggs, from 63% of Pacific Golden Plover *Pluvialis fulva* and Ringed Plover eggs, and from 40% of Dotterel eggs. The main cause of egg-losses was predation by Long-tailed Skuas. Chick mortality also occurred during a sharp drop in temperature around 10-15 July. On the whole reproductive success was average.

T. Sviridova, A. Rybkin, G. Kosareva, M. Nurov & M. Melnikov

18. THE PYASINA RIVER DELTA

Spring was rather late: by 17 June only 50% of snow had melted, but due to warm weather in the last week of June the remaining snow melted quickly and river ice broke up on 1 July). July was dry and cold (average temperatures about 0° C). Frosts occurred between 15 to 20 July and were accompanied by strong stormy winds and frequent snowfalls. Such weather conditions caused mortality of some chicks, at least those which were still in nests. Numbers of Siberian and Collared Lemmings were low (respectively 0.78 and 0.32 ind./100 trap/day), but the number of pregnant females allowed the prediction of an increase in numbers after late August. About half the Arctic Fox dens were occupied and the family size was large. Among waders Little Stint, Pacific Golden Plover, Dotterel and Curlew Sandpiper were the most numerous. Nest-failure of waders from predation was low: calculated probability of nest survival up to hatching was 78% (data combined for all species), and 80% for Little Stint.

K. Van-Dijk, I. Popov & P. Venema

19. ISLANDS OF THE KARA SEA - IZVESTIY, TsIK, SVERDRUP, RUSSKY

Breeding conditions for birds were generally favourable. At the first two groups of islands snow started to melt 15 to 20 days earlier than in the very cold 1992. No long frosts and extensive snowfalls occurred. Lemmings do not occur on the Izvestiy TsIK islands while at Sverdrup island old signs were recorded in 1992, and at Russky island a few winter lemming nests were found in 1993. Although Arctic Foxes do not breed on these islands, the animals which remained there for summer 1992 predated the majority of bird clutches. In 1993 no Arctic Foxes were observed on the islands and waders bred successfully. At least five territorial Dunlin were recorded at Sverdrup island. At Russky island Purple Sandpiper commonly bred, in August broods of this wader consisted of one to three chicks. Single pairs of Turnstone, Sanderling *Calidris alba* and Little Stint bred

E.E. Syroechkovsky Jr. & E.G. Lappo

20. SEVERNAYA ZEMLYA ARCHIPELAGO - BOL'SHEVIK, KOMSOMOLETS, OCTOBER REVOLUTION, SEDOVA ISLANDS

The dates of spring nature development and July weather were similar to the long-term average; no events unfavourable for the breeding of birds occurred. Collared Lemmings and Arctic Foxes were rare as in the two previous years. Parasitic and Long-tailed Skuas bred, although they were scarce. In contrast to summer 1992 Brent Geese bred as well. Only one wader species, *i.e.* Purple Sandpiper was recorded breeding; dates of breeding were as usual: chicks hatched at Bolshevik island after 23 July.

A.E. Volkov & J. de Corte

21. SOUTH OF CENTRAL BYRRANGA MOUNTAINS (THE LEVINSON-LESSING LAKE)

The weather in July remained cold, the monthly temperature averaged in 5.6° C, frosts occurred every night and north-western winds prevailed. In July the lake

remained covered with ice. Lemming numbers varied from 20 to 80 ind./ha in different habitats and populations were increasing. Siberian Lemmings prevailed, while Collared Lemmings were trapped occasionally. Arctic Foxes were rare (two records) and did not breed. Among the birds Curlew Sandpiper and Grey Plover were most numerous in the river valleys and Snow Buntings *Plectrophenax nivalis* and Rough-legged Buzzards in the mountains. The density of the latter species was estimated as five pairs per 10 km^2.

M. Koroleva

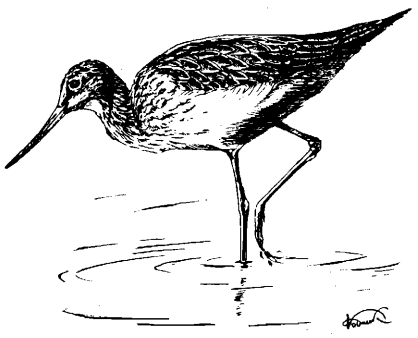
22. CENTRAL TAIMYR - THE MALAYA LOGATA RIVER

Average August temperature was 11.2° C. In August there was much precipitation and the water level in the river increased by 2 m. During this month a slight increase in lemming numbers was recorded; their population density ranged in different habitats from 1 to 20 ind./100 traps/day. Three inhabited Arctic Fox dens with one to three puppies were found within 10 km from the camp. Rough-legged Buzzards bred in large numbers: six nests (containing two nestlings on average) were recorded on a 25 km survey route.

M. Koroleva

23. SOUTH-EASTERN TAIMYR - THE ARY-MAS AREA (SOUTHERN TUNDRA SUBZONE)

Spring started earlier than usual. The mean daily temperature exceeded 0° C level for the first time on 7 June. As a result the snow melted on the plains on 8 June, and on 11 June ice break-up started at the Novaya river. Lemming numbers were extremely low in May and June, later they were recorded occasionally. Arctic Foxes were few during spring and summer, only two or three out of 13 dens were occupied in a 120 km^2 area. Breeding of waders was successful, although it was partly influenced by a sharp drop in temperature in the last ten days of July In the first half of June abundance of breeding and migrant wader species in the most typical habitats was 8 ind./km^2 for Pacific Golden Plover, 32 for Ruff, 20 for Temminck's Stint, 9 for Pectoral Sandpiper and 13 for Bar-tailed Godwit. On the whole good weather conditions, a lack of Arctic Foxes, and low number of skuas and gulls in the second half of the summer favoured successful breeding of waders.



A.A. Gavrilov

24. THE KHATANGA AND POPIGAI RIVER MOUTHS

The weather during most of the summer was cold with strong winds and rains. Lemming numbers were rather low and variable in different parts of the study area. In total 18 nests of Rough-legged Buzzard (each with three to five nestlings) were found. Long-tailed Skuas commonly bred, while Parasitic Skuas were recorded only in transit in small flocks or in pairs. Herring Gulls in the study area were not numerous. Arctic Foxes were scarce and only one inhabited den was found. Among breeding waders Grey Plover, Pacific Golden Plover, Ruff, Little Stint, Dunlin, Grey Phalarope *Phalaropus fulicarius* and Pectoral Sandpiper were common; Bar-tailed Godwit, Red-necked Phalarope, Temminck's Stint, Ringed Plover and Curlew Sandpiper were comparatively scarcer. Although weather conditions were unfavourable and the number of lemmings was low, wader breeding success turned out to be average.

I.I. Chupin

25. KOTELNY ISLAND (NOVOSIBIRSKIYE ISLANDS)

In the inner parts of the island (the upper and middle reaches of Balyktaakh river) the weather remained relatively dry, cold and windy from 21 July to 22 August. Precipitation was observed only as a kind of foggy drizzling or snowing. The lemming population was at a low point; few Arctic Foxes bred (only three young animals were recorded), their number was estimated at 0.8-0.9 ind. per 10 km survey route. Among Snowy Owls only 14.3% were young. Although the abundance of Pomarine Skuas and Long-tailed Skuas was high (in the last ten days of July their number reached locally 64 ind./km^2), only one breeding pair of the latter species was recorded. Among territorial pairs of Herring Gulls successful breeding was observed only in three pairs. Breeding success of waders was probably average: broods of Grey Plovers, Turnstones, Grey Phalaropes were recorded. Starting in early August, flocks of young Curlew Sandpipers and Turnstones were observed and between 10-20 August such post-breeding movements were recorded also for Sanderlings and Grey Plovers.

V.I. Pozdnyakov

26. THE INDIGIRKA RIVER DELTA

Dates of spring were almost the same as long-term averages except for the timing of ice break-up: as the water level was low, floating ice started to pass later than usual (on 14 June near Chokurdakh and on 21 June near Tabor); no large floods were observed. June was in general warm with short-term frosts. In July strong winds were frequent. Extensive rains occurred at the beginning of August. Arrival and breeding of waders took place on usual dates: complete clutches of Grey Phalarope and Ruff were found on 12 June. Grey Phalarope, Ruff, Pectoral Sandpiper, Long-billed Dowitcher *Limnodromus scolopaceus* and Grey Plover were the most common breeding waders. Numbers of lemmings and Arctic Foxes were rather low, hence predator pressure was insignificant, and as a result waders bred successfully.

A.G. Degtyarev

27. THE LOWER KOLYMA RIVER

The first half of summer was warmer than usual (8 - 14° C at the coast and up to 25° C inland): in the larch woodlands with scattered stands at the Omolon river valley, in montane tundras of the Ukagirsky upland and in the coastal tundras, lemming numbers were larger than in 1992, those of Arctic Fox average, and the number of skuas high. At the same time Snowy Owls, Rough-legged Buzzards and Peregrine Falcons *Falco peregrinus* were not numerous. The number of breeding Great Knots *Calidris tenuirostris* was considered to be large (five broods of one to three chicks were recorded on 1 km^2); high breeding densities were observed also for Whimbrels, Grey Phalaropes and Temminck's Stints. Dotterel, Spotted Redshank, Sharp-tailed Sandpiper *Calidris acuminata*, Bar-tailed Godwit, Little Stint and Curlew Sandpiper were rare. In the last ten days of July large concentrations of Long-billed Dowitchers were observed at the marine coasts. Judging by the number of young birds, breeding was successful for most waders.

S.I. Mochalov

28. BILIBINO DISTRICT (WESTERN INLAND CHUKOTKA)

In the mountains the depth of snow and dates of spring snow melt were similar to average long-term values. The highest water level in the rivers was either average or lower than usual. Summer was warm, in the eastern parts of this area it was very dry until 13 August, however rains, snowfall and strong winds occurred there later. The number of small rodents was greater than in 1992, although still did not reach maximal level. Arctic Foxes were rather scarce in northern parts; Long-tailed Skuas commonly bred in montane areas; breeding success of Rough-legged Buzzard was higher than in 1992. Few Snowy Owls were throught to breed at the seacoast. The numbers of Willow Grouse *Lagopus lagopus* and Rock Ptarmigan *L. mutus* were low. Large quantities of berries ripened in the central parts of the study area. The number and breeding success of most wader species was similar to average estimates. It is probable that reproduction was less successful for those waders breeding in the mountains south of the northern tree-line of larch (Whimbrel, Common Sandpiper *Actitis hypoleucos*, Terek Sandpiper and Grey-rumped Tattler *Heteroscelus brevipes*).

A.I. Artyukhov & S.V. Zagoskin

29. SCHUCHY MOUNTAIN RIDGE - UPPER REACHES OF THE ANADYR' RIVER

In the mountain tundras June and July were warm with small amounts of precipitation. Numbers of Snowy Voles *Alticola*, Northern Mouse-hares *Ochotona hyperborea* and American Sousliks *Citellus parri* were increasing. Several predator species were rarely recorded in the montane tundras (Brown Bear *Ursus arctos*, Common Weasel *Mustela erminea*, Raven *Corvus corax*, Long-tailed Skua, Rough-legged Buzzard and Peregrine Falcon), and their influence on the few wader species breeding in this areas was minimal. Good weather conditions and low predation pressure favoured high breeding success in Great Knot, Pacific Golden Plover, Solitary Snipe *Gallinago solitaria* and in single breeding Dotterels.

P.S. Tomkovich & D.A. Shitikov

30. SOUTHERN COAST OF THE ANADYR' ESTUARY

In tundras in the area of the Avtatkuul' river, spring was late and with much snow. In June the weather was cold and windy, while in July it was rather warm and calm. The lemming population was still at a low point, nevertheless some pairs of Arctic Foxes were breeding, and no wandering Arctic Foxes were recorded in June. Breeding success of waterfowl and waders was considered average.

A.V. Kondratiev

31. EASTERN CHUKOTKA

In the major part of the region the end of June and July were unusually warm which resulted in numerous tundra fires. Populations of both lemming species were starting to increase; in several localities (the vicinity of Uelen settlement, Anadyr' river mouth etc.) large numbers of Root Vole *Microtus oeconomus* were observed also. Judging by the number of broods of most species, breeding was successful over the major part of the Eastern Chukotka.

I.V. Dorogoi

32. WRANGEL ISLAND

Spring was rapid and early without late frosts; tundra areas were 50% free of snow by 20 May. Summer was warm, but autumn and winter came rather early as it began snowing in the middle of August. Both lemming species were present in average or slightly above average numbers and were still increasing. There were few Arctic Foxes and they bred as well as a few Snowy Owls and Pomarine Skuas. Records of unfledged chicks of Grey Plover, Turnstone, Knot *Calidris canutus* and Pectoral Sandpiper (the latter was unusually numerous at suitable sites) indicated successful wader breeding.

V.V. Baranyuk

CONCLUSIONS

Summarizing the results of these observations we noticed the decrease in number of respondents from Chukotka. This is evidently the result of the economic situation in Russia which has reduced the possibilities of reaching these remote areas. Little information is still available from Yakutia and some areas of the European north; in recent years ornithological studies have ceased at the Gydan Peninsula and this has resulted in the complete absence of data from this vast area of the West-Siberian tundras. The best surveyed regions are the Yamal and Taimyr Peninsula but even within these regions there are important areas for which data is still absent.

The timing and duration of spring was nearly everywhere similar to the long-term average. At the Baidaratskaya Gulf, at Northern Yamal, in the Yenisey river mouth, and especially on Wrangel island it was earlier than usual, while at the north-western Taimyr it was later than usual due to large amounts of snow. A late and cold spring was observed also at the Murman coast of the Barentz Sea and at Anadyr' estuary, while rapid snow-melt occurred in Bolshezemelskaya tundra and in several areas of Yamal. The weather during the breeding period was good in most areas for which there is information: it was warm and dry in east-European tundras, at Yamal, in the Yenisey mouth; rather warm at the Indigirka and further to the east. Rather cold or cold weather was observed only at the Murman coast and at the Taimyr. Rapid falls in temperature, which occurred in the middle/end of July at the northern, central and south-eastern Taimyr probably caused limited additional mortality of chicks. Early onset of winter at Wrangel island could also have affected the survival of late broods of waders.

Lemming numbers in most of the European tundras, at Yamal, on Kotelny island and at Chukotka were characterized as low or at population minima. At the Taimyr and Novaya Zemlya their number in many study areas reached average levels. In 13 out of 32 areas an increase in numbers was reported, and only at Wrangel island did the increase last for a second year. Other small mammals had depressed population levels almost everywhere; only for Yamal and for some areas of Chukotka were there indications of rather large and increasing number of voles.

Number and reproductive performance of predators was related to the distribution of small mammals. Arctic Foxes were absent or scarce almost everywhere west of the Yenisey, breeding was observed there only at Novaya Zemlya. At the Taimyr and on Wrangel island, where lemming numbers were larger, Arctic Foxes were also comparatively scarce, but during the breeding season occupied up to 50% of dens (the Pyasina river mouth). Single pairs bred also south of the Anadyr' estuary.

Among the avian specialized rodent-feeders, such as Snowy Owl and (or) Pomarine Skua, breeding occurred in low numbers at Novaya Zemlya, Northern Yamal, north-western Taimyr, Wrangel island, and probably Kotelny island and the extreme north-west of Chukotka. For other species respondents mentioned that they rarely bred. As for breeding in Rough-legged Buzzard, the data are different: in some areas these birds did not breed at all, in the others (east of the Middle Yamal, Central and Eastern Taimyr) they were numerous. Breeding failures and abandonment of nests were reported from Bolshezemelskaya tundra, north-eastern Yamal, and the surroundings of Dikson.

As for estimated breeding success in waders, respondents are surprisingly unanimous and consider that favourable weather conditions and the low predation rate resulted in successful breeding for these birds. In areas where precise data are available, estimates of breeding success range from average to high; the latter seems to be true for the whole tundra zone of Russia. Thus forecasts were correct, although breeding success was not the highest.

The increase in lemming populations recorded in different tundra areas in 1993 indicate that they will reach peak numbers by summer 1994, at least in some areas. If the weather conditions are favourable this will result in a noticeable decrease of predation pressure enabling high wader breeding success. Time will tell.

REFERENCE

Tomkovitch, P.S. (comp.) 1994. Breeding conditions for waders in Russian tundras in 1992. *Wader Study Group Bull.* 75: 20-26.