Main concentrations of migrating waders on the Kamchatka peninsula

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A first attempt has been made to locate migrating wader concentrations on the Kamchatka peninsula, Russia, which is located at the northern edge of the East Asia/Australasian flyway. Red-necked *Phalaropus lobatus* and Grey Phalaropes *P. fulicarius* form large moving concentrations in autumn of up to 15,000-20,000 birds in the sea near the north-eastern coast of Kamchatka. Whimbrel *Numenius phaeopus*, spread over the whole of Kamchatka in inland open areas with berry-fields. Numbers are variable and in autumn the extrapolated totals of this wader for the whole peninsula reaches 120,000-150,000 birds. Coastal waders are distributed during migration in all the estuaries, bays and lagoons, forming large concentrations in some areas, as indicated in Figure 2. Black-tailed *Limosa limosa* and Bar-tailed Godwits *Limosa lapponica*, Great Knot *Calidris tenuirostris* and Knot *C. canutus* migrate mostly along the western Kamchatka coast, while movements of Grey-tailed Tattler *Heteroscelus incanus* are more intense along the eastern coast of the peninsula.

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Была сделана первая попытка обнаружить скопления мигрирующих куликов на Камчатском полуострове (Россия), расположенном на северном краю Восточноазиатско-Австралазийского миграционного пути. Осенью плавунчики круглоносый *Phalaropus lobatus* и плосконосый *P.fulicarius* собираются в крупные, насчитывающие до 15,000-20,000 особей, подвижные скопления на море у северо-восточного побережья Камчатки. Средний кроншнеп *Numenius phaeopus* встречается по всему полуострову в открытых местностях с ягодниками. Численность этого вида колеблется, и осенью общее число, полученное путем экстраполяции для всего полуострова, достигает 120,000-150,000 особей. Во время миграции кулики морского побережья распространены по всем устьям рек, заливам и лиманам, и местами собираются в крупные скопления, как показано в рис. 2. Большой веретенник *Limosa limosa*, малый веретенник *L.lapponica*, большой песочник *Calidris tenuirostris* и исландский песочник *C.canutus* мигрируют преимущественно по западному побережью Камчатки, тогда как пролет пепельного улита *Heteroscelus incanus* более интенсивен по восточному побережью полуострова.

Introduction

Waders are one of the most numerous group of migrant birds on the Kamchatka peninsula. A total of 37 wader species are regular migrants there and seven more are vagrants. Very little attention, however, has been given to studies of wader migration in the region, and apart from one special study (Gerasimov & Gerasimov 1998) observations have previously only been discussed in several dispersed publications (Gerasimov 1980, 1988; Lobkov 1988). In this paper we make the first attempt to summarise all the data on concentrations of migratory waders on the Kamchatka peninsula, based on our observations from 1971 to 1993.

Autumn migration

Waders are most numerous on autumn migration. In autumn they are moving almost everywhere: over inland areas, including forests and mountains, and over the sea both along the coasts and offshore at least as far as 80 miles out (Red-necked Phalarope *Phalaropus lobatus* and Grey Phalarope *P. fulicarius*). Migration is most pronounced along the coast; along the eastern (oceanic) and western (the Sea of Ockhotsk) coasts migration differs in several respects, principally in species composition. Several species, for example Black-tailed *Limosa limosa* and Bar-tailed Godwits *L. lapponica*, Great Knot *Calidris teniurostris*, and Knot *C. canutus* are numerous on migration mostly along the Sea of Ockhotsk coasts,

whilst in the other parts of the Kamchatka peninsula they are rather scarce. Some species which are rare in the region, such as Spoon-billed Sandpiper *Eurhynorhyncus pygmeus* and Ruff *Philomachus pugnax*, also pass mainly along the western coast. There are no species that migrate only along the oceanic coast, although passage of Grey-tailed Tattler *Heteroscelus incanus* is more intense at the eastern coasts of the peninsula. On the western coasts migration during daylight hours is intense for many wader species, while along the eastern coast it has been observed only for Whimbrel *Numenius phaeopus* and sometimes phalaropes (over the sea) and small sandpipers *Calidris* spp.

In general, nocturnal wader migration prevails. On autumn nights in Kronotsky Bay when dense clouds are low and the birds are thus flying at lower altitudes, the air is full of their calls. The birds are attracted to the illuminated parts of the coast, where they circle and seem to be even more "noisy and crowded".

During the day roosting waders concentrate along the coasts of the whole Kamchatka peninsula, in the shallow waters of estuaries and bays, and also on the coastal tundra. They include numerous small flocks, spread at a distance from each other, as well as large concentrations, of up to 15,000-20,000 individuals. Although simultaneous wader counts were not made on the peninsula, regular as well as occasional observations identified the areas where large aggregations of waders are observed annually. Flocks of dozens, hundreds or even several thousand Red-necked and Grey Phalaropes form "floating islands" almost everywhere in the sea near the coasts of eastern Kamchatka. Their locations are variable, and numbers differ from year to year. Consequently, only large areas of regular concentrations, where tens of thousand birds stop annually, can be outlined. They include the near-coastal waters of the north-eastern Kamchatka, and primarily the Karaga Bay, the coast of the Kamchatsky peninsula, in some years also the Kronotsky Bay and the coasts of Kronotsky peninsula (see also Dobrynina & Luleeva 1978). Whimbrels forage in small flocks and in

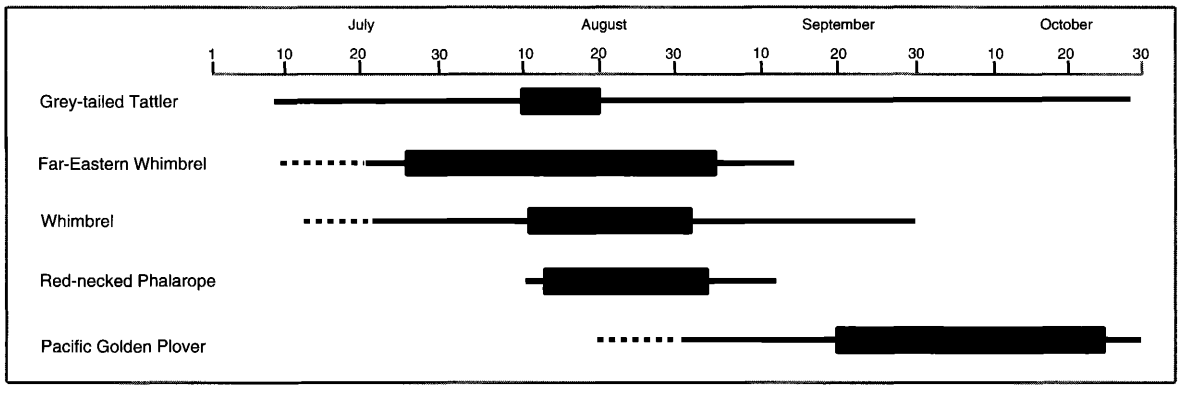

Figure 1. The dates of autumn migration of some waders at the Semyachiksky lagoon in 1975. The total migration period and the dates of the most intense migration (rectangle) are indicated.

Spring migration

The spring migration of waders passes rather quickly during May and early June, while the dates of autumn migration vary a lot, mainly due to the differences in timing of migration of different age groups. In many species the first birds that leave the breeding grounds even in summer are those adults that have left their broods or did not breed at all. They are followed by the successful breeders, and later by young waders. According to observations in the Kronotsky Nature Reserve the earliest migrating waders that appear in the first half of July, are Grey-tailed Tattlers *Heteroscelus brevipes*, Whimbrels and Turnstones *Arenaria interpres* (Figure 1). By the end of July the intensity of migration at the Kamchatka is rather high for Great Knot, Black-tailed and Bar-tailed Godwits, Red-necked Phalarope and Red-necked Stint *Calidris ruficollis*. The peak of migration falls in August. The last migrants are Pacific Golden Plovers *Pluvialis fulva* which can be seen in the agricultural fields of the Avacha river valley late in October and even in the beginning of November until the first snows.

aggregations from 100 to 5,000 birds in the numerous Crowberry *Empetrum nigrum* and Bog Whortleberry *Vaccinium uliginosum* fields over the whole peninsula. For this species areas of concentrations are difficult to locate, as they are very numerous and spread over the whole peninsula from the coast to the foothills of the mountains, and are not the same in different years.

For example in Kronotsky Nature Reserve, which covers 9,640 km^2, there are seven places where Whimbrels concentrate in dozens, hundreds or thousands of individuals, reaching an overall total of 6,000 birds (in 1984). If we try to extrapolate these data for the whole of Kamchatka, it gives us a total of 120,000-150,000 birds roosting during the daytime. For Whimbrel, which is the traditional game bird in Kamchatka, as well as for some other wader species, there has probably been a recent decrease in numbers. The area between the Napana and Tigil rivers lost their importance as a place of autumn wader concentrations by the beginning of the 1980s due to disturbance and over-hunting of

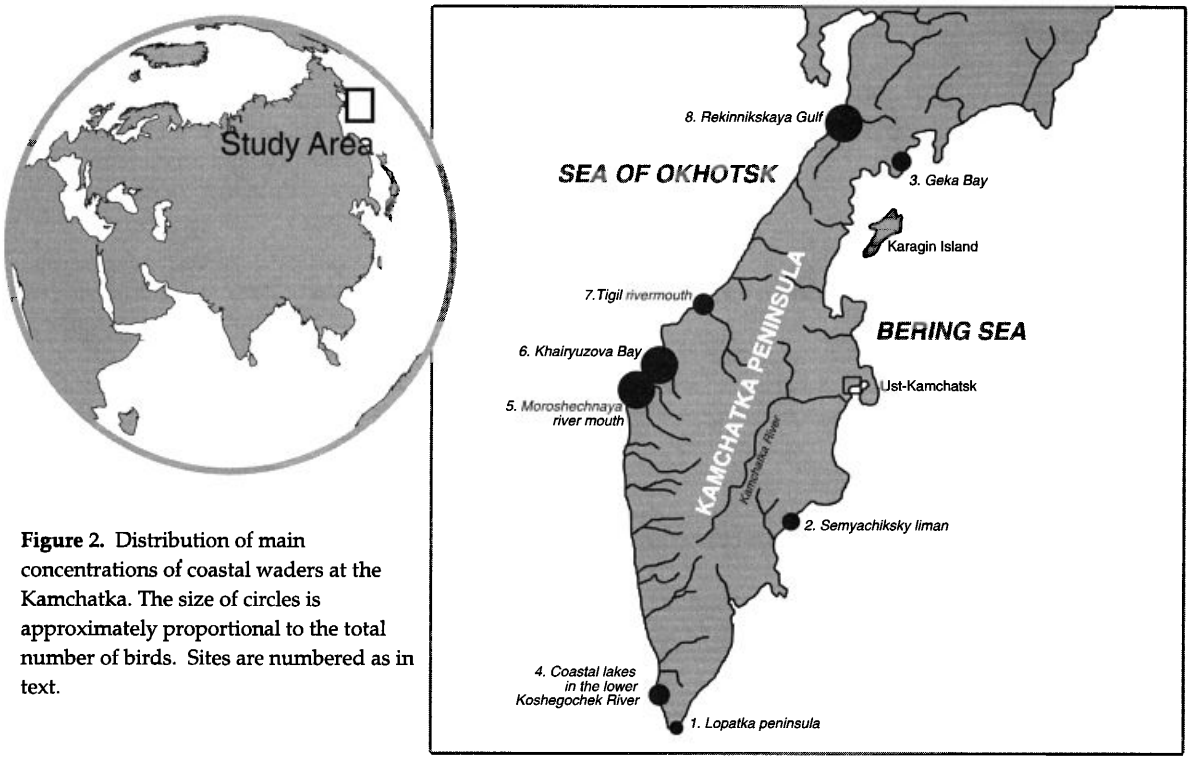

Figure 2. Distribution of main concentrations of coastal waders at the Kamchatka. The size of circles is approximately proportional to the total number of birds. Sites are numbered as in text.

birds. In earlier years thousands of birds could be recorded there according to local inhabitants. A similar situation developed by 1976 with coastal berry-fields in the area between the Berezovaya and Karymskaya rivers near Zhupanovo settlement, but after the settlement was abolished, numbers of staging Whimbrel started to increase again.

However, the total number of Whimbrel on autumn migration in the whole Kamchatka peninsula has declined since 1979. At the Kronotsky Nature Reserve, in the monitored area close to the Semyachiksky liman (lagoon), numbers in the days of peak migration in 1990-1993 were only about 34-40% of the numbers recorded in 1972-1979. This decline has became most obvious since 1980-1982. By the beginning of the 1980s the number of Far Eastern Curlews *Numenius madagascariensis* had also declined noticeably. Nowadays, we know of no area with large concentrations. The largest aggregations of up to 100-200 birds are formed in July at the Moroshechnaya river mouth and in the Semyachiksky liman (lagoon), where probably both breeding and non-breeding birds gather on the shallow waters and nearby boggy areas.
From current knowledge it is only possible to list those areas where waders concentrate on coastal mudflats. Although our data are incomplete, as they are collected simultaneously with other field studies, their publication will be useful for attracting attention to the need for a special inventory of the most significant wader concentrations of Kamchatka. This is extremely important for elaborating conservation measures, as the human transformation of coastal areas is now in progress.

Therefore, quantitative data are of vital significance, although in general it is known that large and small wader concentrations occur in almost all lagoons, bays and estuaries of the Kamchatka peninsula, particularly at the Zhupanova, Storozh, Malamvayam, Emivayam rivers, at the Makarievsky liman, and in the Karaga Bay as well as in other areas.

The most important known areas of wader concentrations at the marine coasts of Kamckatka during migration period are shown in Figure 2. Below we briefly summarise their characteristics according to the same numbering.

Eastern coast, from south to north

1. Lopatka peninsula

In autumn (August - first half of September) up to 500-700 birds can gather simultaneously. In different periods, either together or at different times the following species occur: Knot, Dunlin *Calidris alpina*, Red-necked Stint, other small sandpipers, Mongolian Plover *Charadrius mongolus*, and Turnstone. At the beaches of the whole peninsula (50 km coastline) dispersed flocks of small sandpipers, totalling *c.* 300 birds were also recorded. Counts were made in 1987.

2. Semyachiksky liman

Up to 2,000 birds gather in spring (20-30 May - early June) and in autumn (August - early September). Dunlin, Gray-tailed Tattler, and in some years Red-necked Stint are prevailing. In July up to 40-100 Far Eastern Curlews have been recorded in different years. Counts have been made from 1972 to 1993.

3. Geka Bay

Hundreds of waders in spring (late in May Turnstone are prevailing), and up to 3,000-5,000 in autumn (second half of July and August). In autumn Red-necked Stint was the most numerous. Counts were made in 1977.

Western coast, from south to north

4. Coastal lakes in the lower Koshegochek river

In autumn (August and early September) up to 2,000-4,000 waders can concentrate simultaneously, Whimbrel, Knot, Black-tailed and Bar-tailed Godwits are the principal wader species. Counts were made in 1987.

5. The Moroshechnaya river mouth (estuary and tundra near the river mouth)

Up to 15,000 waders in spring (20-30 May - early June). At this time Great Knot and Bar-tailed Godwit usually prevail, Knot, Dunlin and Red-necked Stint are also numerous, and up to 180 Spoon-billed Sandpipers can gather simultaneously. In autumn (second half of July - August) there are up to 15,000-20,000 waders, Black-tailed and Bar-tailed Godwits, Great Knot, Knot, Red-necked Stint, and Whimbrel are the dominant species; up to 200 Far Eastern Curlews can also gather there (Gerasimov *et al.* 1992).

6. The Khairyuzova Bay

Up to 9,000-10,000 waders in autumn (second half of July - August); Black-tailed and Bar-tailed Godwits, Great Knot and Red-necked Stint prevail. Counts were made in 1983.

7. The Tigil river mouth (estuary and nearby boggy areas)

Up to 1,000 waders in autumn (second half of July - August), with Dunlin, Great Knot and Black-tailed Godwit prevailing. Counts were made in 1983.

8. Rekinnikskaya Gulf mostly in the mouth of the Rekinniki and Kuivivayam rivers

Up to 15,000 waders in autumn (second half of July - August), Great Knot, Black-tailed and Bar-tailed Godwits, Dunlin, and Red-necked Stint are the most numerous. Counts were made in 1991.

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