

Here is a concise presentation of information I've found on 192 pages of this book...  
Section headings are in bold.  
Scientific names are cited from the original text.

## **Introduction**

The results of studies carried out in the Chukotka and Kolyma (northeast Asia) in 1972-1980 are presented

## **Study areas, materials and methods**

The field studies were carried out in May through September in 1972–1974 (Vankarem lowland near Kolyuchin Bay, the Chukchi Sea); during the whole summer in 1975–1977 and 1980, in August and September 1979 on the tundra in the Chaun lowland, Western Chukotka; in May through June 1978 and in May through August 1979 in the lower reaches of the Kolyma River.

## **NO EXACT DATES**

The list of species occurring in the study area (Table 1, p. 7)  
(nesting, presumed nesting, nest sometimes, vagrant)

Estimated abundance of waders (Table 2, p. 8)  
[no numbers, just “grades” (very rare, rare, common, etc.)]

The number of automatic records of the incubation schedule (Table 3, p. 8)

	Number of nests	Total number of records (days)	Number of records in the egg-laying period
<i>Pluvialis squatarola</i>	4	68	11
<i>Pluvialis dominica fulva</i>	5	...	...
<i>Charadrius hiaticula</i>	2		
<i>Arenaria interpres</i>	6		
<i>Phalaropus lobatus</i>	9		
<i>Phalaropus fulicarius</i>	11		
<i>Phylomachus pugnax</i>	10		
<i>Calidris melanotos</i>	9		
<i>Calidris acuminata</i>	2		
<i>Eurynorhynchus pygmeus</i>	2		
<i>Calidris temminckii</i>	6		
<i>Calidris ferruginea</i>	3		
<i>Calidris alpina</i>	11		
<i>Calidris ptilocnemis</i>	1		
<i>Calidris mauri</i>	2		
<i>Tringa erythropus</i>	6		
<i>Tringa glareola</i>	1		
<i>Limicola falcinellus</i>	1		
<i>Gallinago gallinago</i>	2		
<i>Limosa lapponica</i>	1		
<i>Limnodromus griseus</i>	7		

It'll be logical, if the information we are looking for could be found in this section (below). But...

### Methods of survey (p. 9–10)

- surveys along the routes according to the “methods which are so widely used by Russian zoologists that there is no need to describe them”
- surveys along permanent 10-km routes in different types of tundra at least once every two or three days, in different time of the day and in any weather. Along these routes: displaying waders and broods were counted
- total counts of nests on the sample plots. The plots were square-shaped, 100 x 100 m. They were arranged in different habitats. Despite the fact that this method is effort-consuming, its use ensure most reliable results.

...

Almost all 988 nests found were described in accordance with generally accepted procedure.

I've translated this part (above) word by word.

**NOTHING MORE! NO DATES (even years!), NO NUMBER OF PLOTS, NO NUMBER OF NESTS OF EACH SPECIES FOUND ON EACH PLOT ... NOTHING.**

I even failed to find the total number of the nests of each species **FOUND** over the entire period of studies (not to mention the number of them found every year). Some lists of numbers are presented in a few tables (see below), but these are the number of nests **STUDIED** for different purposes.

Description of devices for automatic recording

A total of about 795 days of incubation in 21 wader species were analyzed on the basis of automatic records

About 200 birds were shot for studying their diet

### **Geography of the region**

#### **Species (brief essays)**

[habitats, phenology, behaviour, incubation, egg measurements, brood rearing, etc.)]

I've looked thoroughly through all these “essays” with the hope to find any required information. I've tried to pick up something useful, ‘though it seems that it’ll be of no use... Anyway, below are some notes on the dates and the number of found/examined nests I managed to find in this section:

#### *Pluvialis squatarola*

We found full fresh clutches on 13 to 23 June on the Vankarem lowland; on 10 to 25 June on the Chaun lowland. In the lower reaches of the Kolyma River Grey Plovers probably started egg-laying on 3 June in 1978 and 3-4 days later in 1979.

... Our observations of more than a dozen nests show that 26 to 30 days passed between completion of the clutch and the moment the chicks got rid of eggshells.

#### *Pluvialis dominica fulva*

We found full fresh clutches beginning from 15 June on the Vankarem lowland, beginning from 15 June on the Kolyma tundra. The nests (n = 11) looked like shallow cups 115 mm in diameter. ... In the lower reaches of the Kolyma River Pacific Golden Plovers probably started egg-laying on 3 June in 1978 and 3-4 days later in 1979.

#### *Charadrius hiaticula*

We found fresh full clutches along the coast of Kolyuchin Bay on 23 to 27 June. In the Chaun lowland, only one clutch was found (10 June 1975).

... Nests (n = 26) usually were found in localities lacking any vegetation ...

#### *Eudromias morinellus*

No nests found

*Arenaria interpres*

A nest with a fresh clutch of 4 eggs was found on 17 June 1974.

In some places we found up to 4 nests within 0.5-ha area

... along the northern coast of the Kolyuchin Bay their density reached 1.5 pairs/1 km<sup>2</sup> [nothing about nest density]

The sizes of nests (n = 140): ...

First clutches were found on 6 June 1974 and on 14 June 1973; on the Chaun lowland the egg-laying period started on 1 to 12 June (in different years).

*Tringa glareola*

Only one nest was found on the Chaun lowland on 25 June 1980

two nests were found over the entire study period in Khalerchin tundra [no dates]

*Tringa nebularia*

No nests

*Tringa erythropus*

On the tundra in the lower reaches of the Kolyma River, the nesting density was 10 nests/km<sup>2</sup>

... all 17 examined nests of this species were located ...

*Actitis hypoleucos*

“Nesting”, but nothing about nests

*Xenus cinereus*

No nests

*Phalaropus lobatus*

In the lower reaches of the Kolyma River, their nesting density was 5–6 nests/km<sup>2</sup>

On the Belyaka Spit, the first full clutch was found on 22 June 1973 and on 4 June in 1974

Nests found (n = 8) [??? - see below] contained: 62 nests - 4 eggs each, 15 nests - 3 eggs, 1 nest - 1 egg. [nothing about the dates - when were all these nests found?]

*Phalaropus fulicarius*

On the tundra near Kolyuchin Bay, their nesting density was 20 nests/km<sup>2</sup> in 1973 and 1974; in some places it reached 100 nests/km<sup>2</sup>

On the Belyaka Spit, the egg-laying period started on 7 to 23 June

... Almost all nests found (n = 126) looked like ...

*Phylomachus pugnax*

On the Belyaka Spit, a nest with two eggs was found on 13 June, during the process of egg-laying

On the Chaun lowland, their nesting density in 1976 was 20 nests/km<sup>2</sup>

We found a nest with a clutch of two eggs on 13 June 1974 on Vankarem lowland. In the subsequent years, the egg-laying period started there between 3 and 10 July.

All nests found (n = 55) were covered with high vegetation ...

*Eurynorhynchus pygmeus*

On Vankarem lowland close to Kolyuchin Bay, nesting density in suitable habitats was 50 nests/km<sup>2</sup>

Beginning of the egg-laying period - on 20 June 1973 and 13 June 1974

[A table with characteristics (size, number of eggs, etc.) of 10 nests]

*Caliopis minuta*

No nests found

*Calidris ruficollis*

“Nesting”, but nothing about nests

*Calidris subminuta*

No nests

*Calidris temminckii*

Nests (n = 38) look like round shallow holes ....

Three nests contained 3 eggs each, one nest - 5 eggs, and the rest of the nests - 4 eggs each

*Calidris bairdii*

“Nesting”, but no nests found

*Calidris ferruginea*

the egg-laying period probably started on 7-8 June (1975)

Nests found over the entire study period [1973-1980] (n = 24) looked like ....

*Calidris alpina*

The nesting density was 50 nests/km<sup>2</sup> in some areas of the Vankarem lowland and up to 70 nests/km<sup>2</sup> on the Chaun lowland

Nests found (n = 89) looked like relatively deep cups ...

*Calidris ptilocnemis*

Only one nest found, with four eggs incubated “no longer than a week” - found “a few days after 23 June 1973”

*Calidris acuminata*

One nest found on 27 June 1978

In a nest found in 1979 the fourth egg was laid on 18 June [no details]. It was a sole nest with the known date of clutch completion

All examined nests (n = 4) looked like round deep cups ...

*Calidris melanotos*

Dates of the beginning of the egg-laying period differed greatly between years

Examined nests (n = 49) were placed ...

*Calidris canutus*

A nest with two eggs with cracks was found on 27 July 1974 on the Belyaka Spit (very late clutch)

[nothing more about nests]

*Calidris mauri*

A fresh clutch was found on 30 June 1973. In 1974, the egg-laying started approximately on 14 June

*Calidris alba*

No nests

*Limicola falcinellus*

A nests with 4 eggs was found on 2 July (eggs had been laid not earlier than 2-3 days before the nest was found)

*Gallinago gallinago*

A nest with 4 eggs was found on the Chaun lowland on 7 July 1977

Over the entire study period, 3 nests were found in the lower reaches of the Kolyma River (all in 1978)

1<sup>st</sup>: when the nest was found [no date], eggs were incubated for 2-3 days

2<sup>nd</sup> and 3<sup>rd</sup>: when the nest was found on 25 June, eggs were incubated for about a week

*Gallinago stenura*

No nests

*Numenius phaeopus*

No nests

*Limosa lapponica*

Three examined nests looked like relatively deep round cups ...

A nest was found on 1 June 1978 when chicks were hatching

*Limnodromus griseus*

We found fresh full clutches up to 20 June 1973 on the Belyaka Spit, up to 1 July 1975 on the Chaun lowland; up to 18 June 1978 and 3 July 1979 on the Kolyma tundra

Nests found (n = 39) looked like shallow cups ...

**Feeding and foraging behaviour**

Nothing about nests

**Northeastern tundra as a shorebird habitat**

A lot of tables with the nesting densities (nests/km<sup>2</sup>) in various habitats, but **the number of nests found is indicated nowhere.**

Below I cite (partially) some tables in which the number of nests under study is indicated. Maybe one can judge about the number of nests found IN THE BEGINNING of the incubation period from Tables 22 & 23.

The number of nests indicated in Table 16: Nest constructions [lining composition, lining density, etc.]

<i>Pluvialis squatarola</i>	29
<i>Calidris canutus</i>	1
<i>Calidris alba</i>	69
<i>Eurynorhynchus pygmeus</i>	16
<i>Calidris temminckii</i>	38
<i>Calidris mauri</i>	20
<i>Calidris ptilocnemis</i>	4
<i>Pluvialis dominica fulva</i>	11
<i>Limosa lapponica</i>	4
<i>Charadrius hiaticula</i>	26
<i>Calidris alpina</i>	89
<i>Phalaropus fulicarius</i>	126
<i>Phylomachus pugnax</i>	55
<i>Limnodromus griseus</i>	18
<i>Calidris melanotos</i>	49
<i>Tringa erythropus</i>	17
<i>Phalaropus lobatus</i>	78
<i>Gallinago gallinago</i>	4
<i>Calidris bairdii</i>	2
<i>Tringa glareola</i>	2
<i>Calidris ferruginea</i>	8
<i>Calidris acuminata</i>	4
<i>Limicola falcinellus</i>	1

## Breeding biology

### *Pre-nesting period*

Arrival

Mating and territorial behaviour

### *Incubation period*

- comparison between the body weight of incubating bird and the weight of incubated clutch
- temperature of the brood patch
- duration of the egg-laying period (Table 22, p. 137)

	Number of nests	Egg-laying period		Days of incubation prior to appearance of first cracks (days)	Interval between the first cracks and hatching (days)
		Interval of laying of the first three eggs	Interval between the first and the last eggs		
<i>Pluvialis squatarola</i>	11	40-48	60-96	23-26	2-6

<i>Pluvialis dominica fulva</i>	3	...	...	...	...
<i>Charadrius hiaticula</i>	9				
<i>Arenaria interpres</i>	9				
<i>Tringa erythropus</i>	6				
<i>Phalaropus lobatus</i>	10				
<i>Phalaropus fulicarius</i>	27				
<i>Phylomachus pugnax</i>	14				
<i>Eurynorhynchus pygmeus</i>	6				
<i>Calidris temminckii</i>	8				
<i>Calidris ferruginea</i>	12				
<i>Calidris melanotos</i>	10				
<i>Limnodromus griseus</i>	8				
<i>Calidris mauri</i>	4				

Table 23 (p. 140)  
Warming of incomplete clutches

Species	Between the 1 <sup>st</sup> and 2 <sup>nd</sup> eggs		Between the 2 <sup>nd</sup> and 3 <sup>rd</sup> eggs		Between the 3 <sup>rd</sup> and 4 <sup>th</sup> eggs	
	Period of recording (day)	Time of warming (hrs)	Period of recording (day)	Time of warming (hrs)	Period of recording (day)	Time of warming (hrs)
<i>Pluvialis squatarola</i>	1	1.20	4	3.05-4.10	8	8.30-11.00
<i>Charadrius hiaticula</i>	1	...	1	...	2	...
<i>Arenaria interpres</i>	2		4		7	
<i>Tringa erythropus</i>	2		5		8	
<i>Phalaropus lobatus</i>	3		4		6	
<i>Phalaropus fulicarius</i>	3		6		12	
<i>Phylomachus pugnax</i>	2		4		10	
<i>Eurynorhynchus pygmeus</i>	–		2		4	
<i>Calidris temminckii</i>	2		2		4	
<i>Calidris ferruginea</i>	–		2		4	
<i>Calidris alpina</i>	2		6		10	
<i>Calidris melanotos</i>	–		3		10	
<i>Calidris mauri</i>	–		1		1	
<i>Limnodromus griseus</i>	3		4		4	

- temperature limits in wader nests during the egg-laying period (Table 24, p. 140): the number of records, min and max temperature inside artificial eggs
- average daily temperatures in two Dunlin nests (Table 25, p. 143): days of incubation, clutch of 4 eggs, clutch of 3 eggs
- involvement of males and females in incubation (Table 26, p. 145)

Species	Number of nests	Sex	Male's share in incubation (%)	Number of shifts of partners on the nest	Time of incubation by a partner between shifts (hrs)	
					Max	Min
<i>Pluvialis squatarola</i>	11	m,f	50	2-16	13.00	1.30

<i>Pluvialis dominica fulva</i>	3	...	...	...	...	...
<i>Charadrius hiaticula</i>	9					
<i>Arenaria interpres</i>	9					
<i>Tringa erythropus</i>	6					
<i>Phalaropus lobatus</i>	10					
<i>Phalaropus fulicarius</i>	27					
<i>Phylomachus pugnax</i>	14					
<i>Eurynorhynchus pygmeus</i>	5					
<i>Calidris temminckii</i>	8					
<i>Calidris ferruginea</i>	4					
<i>Calidris alpina</i>	12					
<i>Calidris ptilocnemis</i>	2					
<i>Calidris acuminata</i>	2					
<i>Calidris melanotos</i>	10					
<i>Limnodromus griseus</i>	8					
<i>Limosa lapponica</i>	1					
<i>Gallinago gallinago</i>	2					

- the schedule of nest warming in the beginning, the middle, and the end of the incubation period (Table 27, p. 147):

- duration of an individual nest recesses (min)
- relative duration of nest recess (% of 24 hrs)
- average total time of nest recess (hrs)
- average time of clutch warming (% of 24 hrs)

Stages of incubation:

- 1 - beginning
- 2 - middle
- 3 - end

Records made during 3 days of incubation were analyzed for each stage.

Species	Number of nests			...	...	...
	1	2	3			
<i>Pluvialis squatarola</i>	3	4	4			
<i>Pluvialis dominica fulva</i>	—	3	1			
<i>Charadrius hiaticula</i>	2	2	2			
<i>Arenaria interpres</i>	4	5	4			
<i>Phalaropus lobatus</i>	6	8	8			
<i>Phalaropus fulicarius</i>	8	9	7			
<i>Phylomachus pugnax</i>	6	9	8			
<i>Eurynorhynchus pygmeus</i>	2	2	2			
<i>Calidris temminckii</i>	8	6	6			
<i>Calidris alpina</i>	7	8	8			
<i>Calidris ptilocnemis</i>	-	-	1 (2 days)			
<i>Calidris melanotos</i>	4	8	8			
<i>Limnodromus griseus</i>	7	7	4			
<i>Calidris mauri</i>	1	2	2			
<i>Limosa lapponica</i>		1	1			

<i>Tringa erythropus</i>	2	6	6			
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Stability of temperature conditions in the nests (inside artificial eggs) (Table 28, p. 148)

Variability in the nest shifts in Grey Plovers (fig. 46, p. 149)

... etc.

### Nesting success and protection from predators

In the tundra zone of Northeast Asia, 9.5 to 56.2 % of clutches are lost in various wader species in different years. In the years of depression of rodent populations this figure can reach 90 %.

Some indices of nesting success in waders (Table 34, p. 171)

[columns: Number of nests under study; Mean clutch size; Incubation characteristics of eggs (number of nests, hatchability %, number of unfertilized eggs, eggs with dead embryos); Number of chicks at hatching; Number of families observed before fledging of chicks; Number of “grown up” chicks per brood)]

	Number of nests under study	Mean clutch size	...	...	...	
<i>Pluvialis squatarola</i>	29	4	4			
<i>Pluvialis dominica fulva</i>	11	3	1			
<i>Charadrius hiaticula</i>	26	2	2			
<i>Arenaria interpres</i>	69	5	4			
<i>Calidris alpina</i>	89					
<i>Calidris mauri</i>	20					
<i>Calidris temminckii</i>	38					
<i>Calidris ptilocnemis</i>	2					
<i>Eurynorhynchus pygmeus</i>	16					
<i>Calidris acuminata</i>	4					
<i>Calidris melanotos</i>	49					
<i>Phylomachus pugnax</i>	55					
<i>Limnodromus griseus</i>	39					
<i>Limosa lapponica</i>	3					
<i>Tringa erythropus</i>	17					
<i>Calidris ferruginea</i>	8	8	8			
<i>Gallinago gallinago</i>	3					
<i>Phalaropus fulicarius</i>	126					
<i>Phalaropus lobatus</i>	78					
<i>Limicola falcinellus</i>	1					

Materials on nest losses in various waders (Table 35, p. 174)

	Number of nests under study	Number of lost clutches			% of lost clutches
		Depredated	Flooded	Abandoned	
<i>Pluvialis squatarola</i>	29	3	1	-	13.8
<i>Pluvialis dominica fulva</i>	8	1	-	2	37.5
<i>Charadrius hiaticula</i>	19	6	-	-	31.6



<i>Arenaria interpres</i>	48	4	1	-	10.4
<i>Calidris alpina</i>	51	16	3	2	41.2
<i>Calidris temminckii</i>	18	5	2	-	38.9
<i>Calidris ptilocnemis</i>	2	-	-	-	-
<i>Calidris mauri</i>	20	8	-	-	40.0
<i>Eurynorhynchus pygmeus</i>	16	7	-	-	43.7
<i>Calidris melanotos</i>	23	8	-	-	23.1
<i>Phylomachus pugnax</i>	43	14	-	3	39.5
<i>Limnodromus griseus</i>	25	10	1	3	56.0
<i>Limosa lapponica</i>	2	-	-	-	-
<i>Tringa erythropus</i>	17	2	-	2	23.5
<i>Phalaropus fulicarius</i>	98	42	2	3	47.9
<i>Phalaropus lobatus</i>	52	18	1	4	44.2

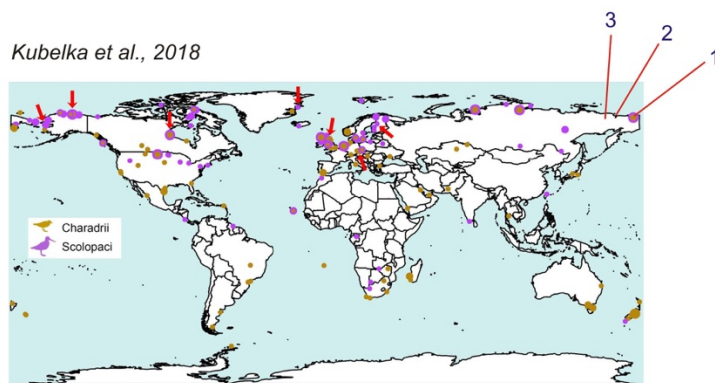
NO OTHER FIGURES IN THIS SECTION.

### Ecological groups of waders related to habitat characteristics

### References

#### For your info:

A single, though large ( $\geq 4$  populations) dot can be found on their Fig. 1S on the Chukchi Peninsula, whereas Kondratyev worked in three different areas there



Kondratyev, 1982 (p. 6)

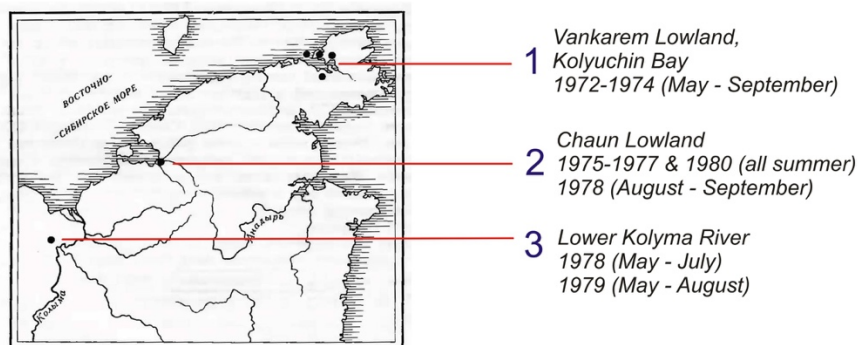


Рис. 1. Схема районов исследований  
Кругиками обозначены места стационарных работ