# The spring migration of waders in Jastarnia, Gdansk Bay, Poland

*Arkadiusz Sikora & Wlodzimierz Meissner*

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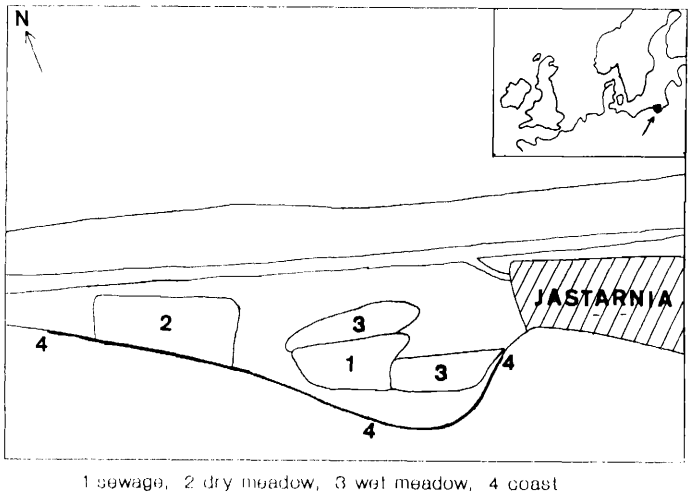
*Sikora, A., Ornithological Station, Institute of Ecology, Polish Academy of Sciences, 80-680 Gdansk 40, Poland.*
*Meissner, W., Department of Vertebrate Ecology & Zoology, University of Gdansk, Al. Pilsudskiego 46, 81-378 Gdynia, Poland.*

## INTRODUCTION

A study of spring wader migration in Gdansk Bay was undertaken in the Jastarnia area (57°17'N, 17°58'E) on the Hel Peninsula of Poland (Figure 1). The area is very attractive to waders owing to abundant food resources. Observations covered an area of 0.25 sq. km. Four habitats were present: sewage works (0.04 sq. km), wet meadow (0.04 sq. km), dry meadow (0.15 sq. km) and the shore of the Gdansk Bay (0.02 sq. km). The sewage works and wet meadow had a high water level in March and April, which gradually decreased to minimum in the second half of May. The dry meadow was partly flooded in March and April. The shore of the bay was a sandy beach 5-10 m wide. Growth of a distinct vegetation in the study area started in the second half of May.




1 sewage, 2 dry meadow, 3 wet meadow, 4 coast

Figure 1 Research area

## METHODS

Data were collected from 107 censuses carried out during five spring seasons (1984-1988). Observations took place at various time of day. The number of censuses in particular seasons was as follows: 1984 - 8, 1985 - 26, 1986 - 20, 1987 - 36 and 1988 - 17. Figure 2 shows the distribution of the number of censuses in subsequent 5-day periods between 12 March and 30 May 1984-1988.

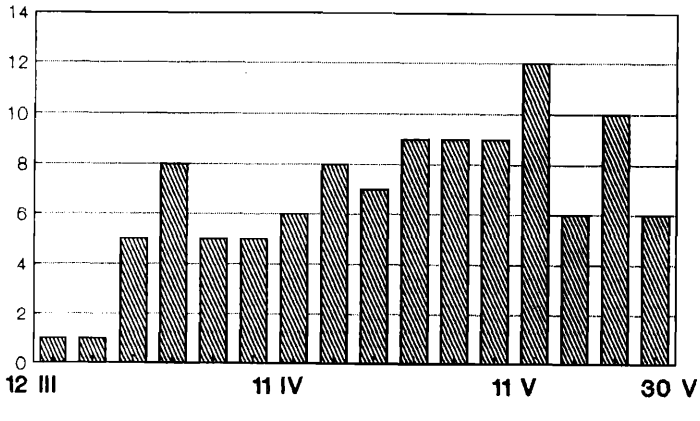



Figure 2. Distribution of the 107 censuses in subsequent 5-day periods (1984-1988).

## RESULTS

During the five spring seasons, 31 species of waders were recorded. The most numerous were: Wood Sandpiper *Tringa glareola*, Ruff *Philomachus pugnax*, Common Snipe *Gallinago gallinago*, Ringed Plover *Charadrius hiaticula* and Temminck's Stint *Calidris temminckii*. Proportional abundance of these and less numerous species is shown in Table 1. Oystercatcher *Haematopus ostralegus* and Lapwing *Vanellus vanellus* are not considered in Table 1 because the almost all

Table 1. Relative abundance (%) and total number of observed birds (N) at Jastarnia, Gdansk Bay in the period 12 March - 30 May, in years 1984-1988.

| Species | N | % |
|---|---|---|
| Wood Sandpiper *Tringa glareola* | 1721 | 31.7 |
| Ruff *Philomachus pugnax* | 1248 | 22.3 |
| Common Snipe *Gallinago gallinago* | 876 | 16.1 |
| Ringed Plover *Charadrius hiaticula* | 515 | 9.4 |
| Temminck's Stint *Calidris temminckii* | 289 | 5.3 |
| Redshank *Tringa totanus* | 213 | 4.0 |
| Dunlin *Calidris alpina* | 138 | 2.5 |
| Little Plover *Charadrius dubius* | 86 | 1.6 |
| Common Sandpiper *Tringa hypoleucos* | 59 | 1.1 |
| Curlew *Numenius arquata* | 53 | 1.0 |
| Greenshank *Tringa nebularia* | 53 | 1.0 |
| Spotted Redshank *Tringa erythropus* | 52 | 1.0 |
| Grey Plover *Pluvialis squatarola* | 30 | 0.5 |
| Green Sandpiper *Tringa ochropus* | 28 | 0.5 |
| Golden Plover *Pluvialis apricaria* | 21 | 0.4 |
| Black-tailed Godwit *Limosa limosa* | 19 | 0.4 |
| Avocet *Recurvirostra avosetta* | 15 | 0.3 |
| Little Stint *Calidris minuta* | 14 | 0.3 |
| Jack Snipe *Limnocryptes minimus* | 10 | 0.2 |
| Whimbrel *Numenius phaeopus* | 9 | 0.2 |
| Turnstone *Arenaria interpres* | 6 | 0.1 |
| Curlew Sandpiper *Calidris ferruginea* | 5 | + |
| Woodcock *Scolopax rusticola* | 3 | + |
| Terek Sandpiper *Xenus cinereus* | 3 | + |
| Great Snipe *Gallinago media* | 2 | + |
| Bar-tailed Godwit *Limosa lapponica* | 1 | + |
| Red-necked Phalarope *Phalaropus lobatus* | 1 | + |
| Knot *Calidris canutus* | 1 | + |

+ = relative abundance less than 0.1%

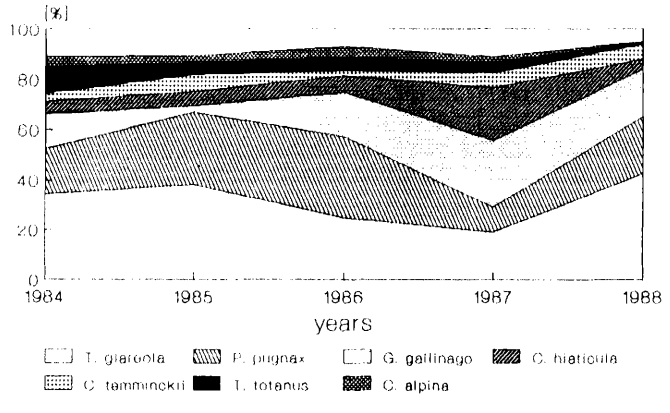



Figure 3 Domination of the seven most numerous species in subsequent seasons.

observations of these species were of locally breeding birds. Figure 3 compares the abundance of the seven most numerous species in each of the five seasons. The values for Redshank *Tringa totanus* seem to be a little lower because 2-3 pairs breed in the study area.

The observed species structure was related to habitat. The majority of Snipe (about 97%) were observed in the wet meadow. Ringed Plover, Ruff, Temminck's Stint preferred the sewage works and the abundance of Wood Sandpiper was similar in both the sewage works and wet meadow habitats.

**Wood Sandpiper**

The first birds were noted on 16 April. The majority of birds were seen in the first half of May (about 75%). The biggest flock consisted of 150 birds (12 May 1988). The spring migration ended on the turn of May and June (Figure 4).

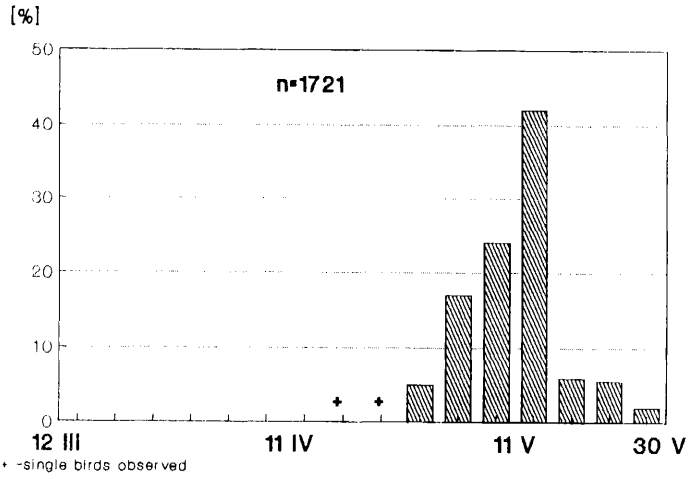



Figure 4. Timing of the Wood Sandpiper's spring migration

**Ruff**

The earliest bird was seen on 6 April. A spring migration peak occurred in the first half of May. About 75% of Ruffs were noted in this period. On average, males moved earlier than females. The maximum count of 200 birds was seen on 7 May 1985. The last Ruffs were seen in the second half of May (Figure 5).

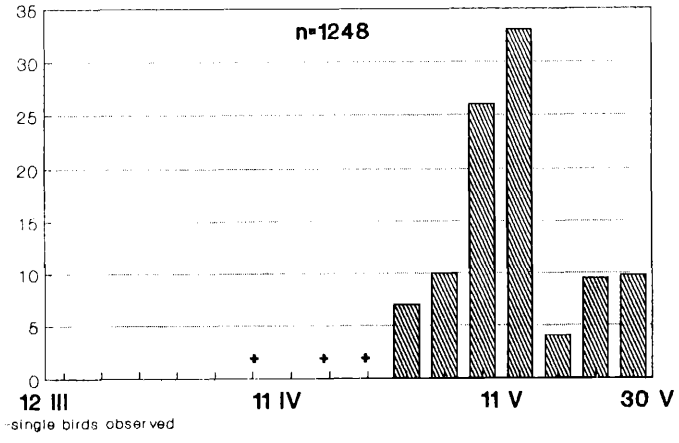



Figure 5. Timing of the Ruff's spring migration

### Common Snipe

The spring migration began in the last ten days of March. Most birds (about 75%) were noted between 10-30 April. The biggest flock of 150 Snipe was seen on 17 April 1986 (Figure 6).

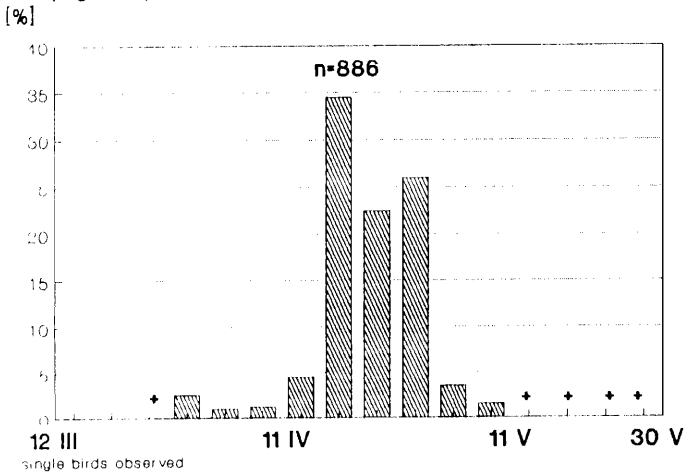



Figure 6 Timing of the Common Snipe's spring migration.

### Ringed Plover

The spring migration was prolonged in duration. The first observations were made on 24 March. There were two peaks in abundance. The first one was only weakly distinguished and prolonged in length and occurred on the turn of March and April with a maximum count of 28 birds (9 April 1987). This was probably of the nominate subspecies. The second, a quite distinct peak, with a maximum of 60 birds (25 May 1987) may refer to more northern populations (*tundrae*). The last birds were observed on the turn of May and June (Figure 7).

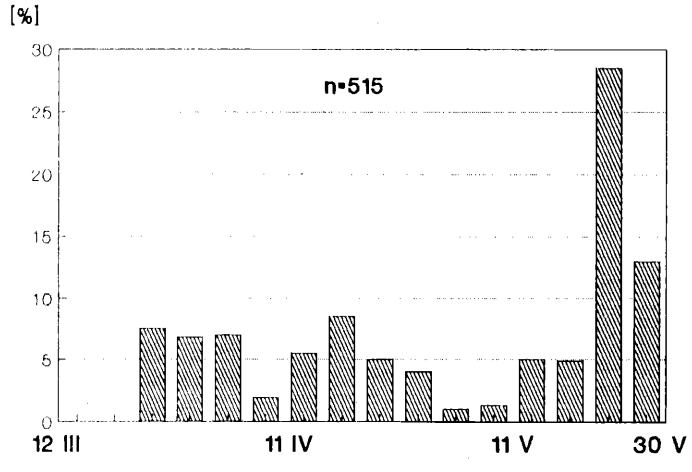



Figure 7 Timing of the Ringed Plover's spring migration.

### Temminck's Stint

The first birds were noted on 1 May. The short period of spring migration with one peak took place in the second half of May. A maximum count of 50 birds was observed (14 May 1985). The last birds were seen on the 25 May (Figure 8).

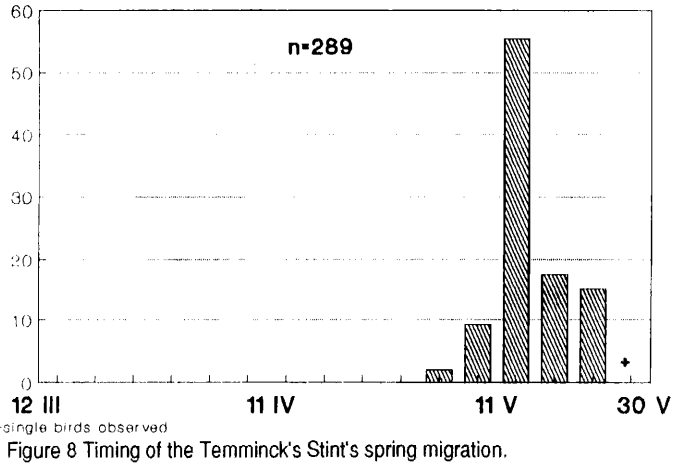



Figure 8 Timing of the Temminck's Stint's spring migration.

The area surveyed is one of a very few places on the Polish part of Baltic coast where waders are abundant during spring passage. Up to 350 birds were simultaneously noted here. For comparison the autumn migrations here in Jastarnia in the years 1984-1988 (unpublished data) was several times more intensive than the spring migration. In the autumn the species structure was quite different from that in spring. The most numerous species in autumn was Dunlin *Caldris alpina*.

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