

FIELDWORK RESULTS OF WADER RESEARCH STATIONS WORKING IN POLAND IN 2006-2008

**Szymon Bzoma, Włodzimierz Meissner, Tomasz Janiszewski,
Magdalena Wybraniec, Magdalena Remisiewicz, Robert Krupa,
Radosław Kozik, Krzysztof Kaczmarek, Anna Kleszcz, Piotr Minias,
Radosław Włodarczyk, Krzysztof Lukoszek and Adam Wojciechowski**

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Sz. Bzoma, Department of Fish Resources, Sea Fisheries Institute in Gdynia, Kołłątaja 1, PL-81-332 Gdynia; W. Meissner, M. Remisiewicz, R. Kozik, Avian Ecophysiology Unit, Department of Vertebrate Ecology and Zoology, University of Gdańsk, Legionów 9, PL-80-441 Gdańsk, Poland; T. Janiszewski, P. Minias, R. Włodarczyk, Department of Teacher Training and Biodiversity Studies, University of Łódź, Banacha 1/3, PL-90-237, Łódź; M. Wybraniec, K. Lukoszek, Ornithological Section of the Student's Scientific Club of Biologists, Department of Biosystematics, University of Opole, Oleska 22, PL-45-052 Opole; R. Krupa, Department of Zoology, University of Warmia and Mazury in Olsztyn, Oczapowskiego 5, PL-10-975 Olsztyn; K. Kaczmarek, Medical University of Łódź, Kościuszki 4, PL-90-319 Łódź; A. Kleszcz, Students' Ornithological Section, University of Łódź, Banacha 1/3, PL-90-237 Łódź; A. Wojciechowski, Daniecka 2/3, PL-46-040 Ozimek, Poland.

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DESCRIPTION OF RINGING STATIONS AND THEIR ACTIVITIES

In 2006-2008 six wader research stations operated in Poland – one of them (Kwiecewo) was active during spring migration, the remaining ones worked during the autumn migration of waders and started ringing in late June or in July. Locations of all described stations are shown in Figure 1. Detailed descriptions of each station were provided in earlier papers (Bargiel and Włodarczyk 1998, Ściborski *et al.* 2005, Wojciechowski and Hebda 2005).

Kwiecewo (KW)

Studies were conducted in spring, from the end of April till mid-May in all three seasons of study. The ringing site was located near village Kwiecewo (53°56'N, 20°19'E)

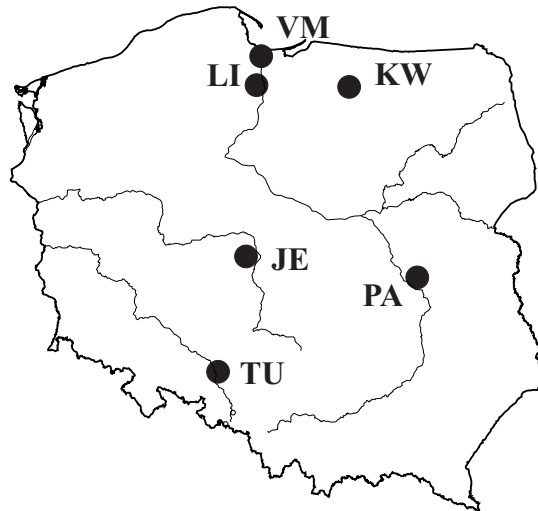


Fig. 1. Locations of Polish wader research stations active in 2006-2008: JE – Jeziorsko, KW – Kwieciewo, LI – Lisewo, PA – Pawłowice, TU – Turawa, VM – Vistula Mouth

about 20 km from the town of Olsztyn (north-eastern Poland). The ringing site was on the bank of a small and shallow water reservoir (about 60 ha) that emerged several years earlier after flooding meadows among arable fields. The sides of this lake were partly covered by reedbeds and rushes, and at some places by wet meadows attractive for waders. Waders were caught in 6-8 mist-nets, occasionally with tape luring, and in 10 walk-in traps. The main aim of these studies was to catch Wood Sandpipers (*Tringa glareola*) to study sex differences in their migration strategy, hence this species was the most numerous among ringed waders.

Lisewo (LI)

In 2006-2008 studies were carried out from the beginning of July to the first decade of September, during the autumn migration of waders. The ringing station was located on the eastern bank of the lower Vistula near village Lisewo (54°06'N, 18°50'E, near Tczew, northern Poland) on a grazed pasture. Waders were trapped in 18-21 walk-in traps placed along the sandy river bank. During the period of low water level birds were also caught on temporarily emerging sandy islets. During high water level, when meadows were partly flooded, walk-in traps were placed on the meadow. Usually 3-6 mist-nets for night catching were open in the evenings on the sandy islets or on the meadows. Tape lures with calls of selected wader species were used to attract birds into the nets. Waders were counted daily along a 1.5 km long section of the river bank. The fieldwork at Lisewo was focused on studies of migration strategy of the Common Sandpiper (*Actitis hypoleucos*), using colour-marking scheme, together with bird counts and ring reading during boat cruises along the 10 km long section of the Vistula. In 2007 we began colour-marking of the Curlew (*Numenius arquata*) (altogether 42 indiv. ringed). In addition, the study on the ecology of the Pied Wagtail

(*Motacilla alba*) and the Yellow Wagtail (*M. flava*) in the post-breeding period was carried out.

Pawłowice (PA)

The ringing station was located on the eastern bank of the middle Vistula near village Pawłowice (51°36'N, 21°38'E, near Dęblin, central Poland). In 2006-2008 field studies were carried out from the end of June or beginning of July to late August or early September. Waders were caught in 15-21 walk-in traps and 3-7 mist-nets (with tape luring at nights in 2006 and 2007), placed on sandy banks and islets. Birds were also counted daily along a 2.5 km long section of the river bank. The main aims of the fieldwork at Pawłowice were: to identify the migration dynamics of the most numerous waders, and to collect data on biometrics and feeding ecology of the Wood Sandpiper and Common Sandpiper, which were the key species of two research projects considering inland migration strategies of waders in Poland.

Vistula Mouth (VM)

Studies were carried out in 2007 in two periods: 10 July – 6 August and 22 September – 11 October, and in 2008 in the period from 10 July to 10 October. The ringing station was located at the Baltic coast, on the western bank of the main Vistula mouth (54°22'N, 18°57'E, near Gdańsk, northern Poland). Waders were caught in 5-14 walk-in traps placed on the sandy coastline. Birds were counted in the area of sandy coast and islets. The aim of the activity was to safeguard the colony of Sandwich Terns (*Sterna sandvicensis*) on the islands from the tourist pressure and to preliminary recognize current conditions for ringing waders by the WRG KULING in the area, where waders were previously ringed in 1983-2000 (Gromadzka 1998).

Jeziorsko (JE)

The ringing camp at the Jeziorsko reservoir (51°45'N, 18°40'E, near village Glinno, central Poland) worked from mid-July till the second decade of September. 2006 was the last year with the standard water management at the reservoir. In 2007 and 2008 the water level started to lower later than usually, *i.e.* during the first days of September, while during previous summers it used to begin lowering after 15 of June. As a result, during the last two seasons the traditional catching places were flooded during the majority of the fieldwork period. Only small fluctuations of the water level caused by hot weather or rains created muddy areas suitable for waders. This resulted in smaller numbers of ringed birds and lesser diversity of wader species in these two years. To improve catching efficiency, voice stimulation was introduced to attract birds to the traps. The calls of the Common Snipe (*Gallinago gallinago*) were mainly used. Other catching techniques were the same as in the previous seasons. Birds were caught using walk-in traps and mist-nets. In 2008 tape luring was used regularly during the whole ringing period, in 2007 calls were used only occasionally.

Turawa (TU)

Field studies were conducted in autumn in periods: 15 July – 8 September 2006, 7 July – 14 September 2007, 6 July – 29 August 2008. The ringing station was located in the eastern part of the Turawa reservoir (maximum size 7.5×3.2 km) near the Mała Panew mouth ($50^{\circ}43'N$, $18^{\circ}10'E$, south-western Poland). Birds were caught in 35-40 walk-in traps, occasionally in 10-35 spring traps and exceptionally in 2-4 mist-nets with tape luring. Traps were placed along muddy and sandy banks of the lake, on the sandy islets created by the river and on mud covered by the Reed Mannagrass (*Glyceria maxima*). The sides of the lake near the study area were covered mainly by reeds, rushes, grasses and willows. The water regime was similar in all studied years with the low water level from the beginning of July till September. However, even slight differences of the water level affected numbers of some species, because the catching site was flat. In 2007 during the lower water level some sandy islets emerged and they attracted stints (genus *Calidris*) and large muddy area with Reed Mannagrass thickets opened, which was suitable for rails and crakes (family *Rallidae*). Because of that 2007 was the best season ever for catching these species. In 2008 foraging conditions for these species apparently got worse because of long and strong storms that caused rise of the water level and hindered effective catching. In 2008 the special data on the Common Snipe were collected in cooperation with Student's Ornithological Section, University of Łódź, which conducted research at the Jeziorsko reservoir.

RESULTS OF RINGING AT ALL THE STATIONS

Results of wader ringing at Polish research stations are given in Tables 1-3. In 2006-2008 the following species were the most numerous caught: the Dunlin (*Calidris alpina* – 3099 indiv. in total), Wood Sandpiper (2744 indiv.), Common Sandpiper

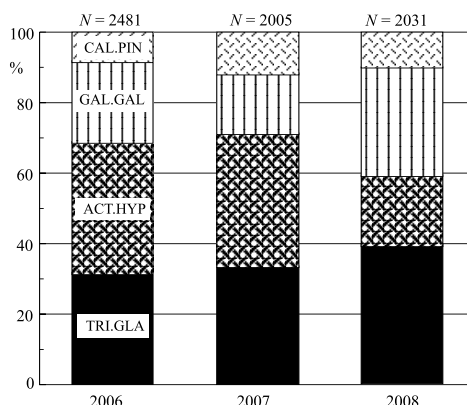


Fig. 2. Comparison of proportions of the four most numerous species of waders: the Dunlin (CAL.PIN), Common Snipe (GAL.GAL), Common Sandpiper (ACT.HYP), Wood Sandpiper (TRI.GLA), ringed during 2006-2008 autumn seasons at stations Lisewo, Jeziorsko, Pawłowice and Turawa. Sample sizes are given.

(2260 indiv.) and Common Snipe (1543 indiv.). The proportions of these four species caught inland during autumn migration are shown in Figure 2.

The Dunlin, with only 201 birds ringed in 2006, became the most numerously ringed wader from 2007, when the ringing station at the Vistula Mouth started its work. The ringing effort at this station was relatively low, with only a few traps used (up to 14 in the end of 2008), but in the past this place was well known as the best site in Poland for catching coastal waders (Gromadzka 1998). Apart from the Dunlin, only the Common Sandpipers exceeded 100 caught individuals at the Vistula Mouth in 2007 and 2008.

Wood Sandpipers were caught at all inland stations, especially at Jeziorsko and Turawa. Considering the short fieldwork period of Kwiecewo, relatively high numbers of Wood Sandpipers were ringed there in spring.

Table 1
Numbers of waders ringed in Poland in 2006 at five wader ringing stations.
Stations' abbreviations as in the text and Figure 1.

	KW	LI	PA	JE	TU	TOTAL
<i>Actitis hypoleucos</i>		208	224	174	313	919
<i>Arenaria interpres</i>		3		1		4
<i>Calidris alpina</i>		54	1	57	89	201
<i>Calidris canutus</i>		1		1	2	4
<i>Calidris ferruginea</i>		9		8	12	29
<i>Calidris minuta</i>		7	1	4	14	26
<i>Calidris temminckii</i>		23	5	8	21	57
<i>Charadrius dubius</i>		26	41	11	95	173
<i>Charadrius hiaticula</i>		7	6	8	17	38
<i>Gallinago gallinago</i>	6	51	58	245	215	575
<i>Gallinago media</i>			2		1	3
<i>Limicola falcinellus</i>		5		19	6	30
<i>Limosa lapponica</i>		1				1
<i>Limosa limosa</i>			1			1
<i>Lymnocyptes minimus</i>	2					2
<i>Numenius arquata</i>		43				43
<i>Phalaropus lobatus</i>				5		5
<i>Philomachus pugnax</i>	13	44	3	28	11	99
<i>Tringa erythropus</i>		2		1	3	6
<i>Tringa glareola</i>	69	93	72	395	232	861
<i>Tringa nebularia</i>		4		5	3	12
<i>Tringa ochropus</i>		11	4	15	8	38
<i>Tringa totanus</i>		6	6	11	6	29
<i>Vanellus vanellus</i>	1	5	3	23	10	42
Total	91	603	427	1019	1058	3198

Common Sandpipers were not represented among birds caught in spring at Kwiecewo. At Jeziorsko, their catch numbers decreased rapidly in consecutive seasons due to the expansion of willow bushes at the reservoir, which reduced large open muddy areas. Moreover, the ringing camp was moved away from the river bank, where this species preferred to forage.

Common Snipes were caught mainly at Turawa and Jeziorsko, but also, in smaller numbers, at Lisewo and Pawłowice.

Table 2
Numbers of waders ringed in Poland in 2007 at six wader ringing stations.
Stations' abbreviations as in the text and in Figure 1.

	KW	LI	PA	JE	TU	VM	TOTAL
<i>Actitis hypoleucos</i>		228	319	7	203	41	798
<i>Arenaria interpres</i>		3			2	6	11
<i>Calidris alba</i>					2	15	17
<i>Calidris alpina</i>		110	1	48	73	890	1122
<i>Calidris canutus</i>		11			1	20	32
<i>Calidris ferruginea</i>		30		10	38	31	109
<i>Calidris minuta</i>		12	1	25	45	23	106
<i>Calidris pusilla</i>						1	1
<i>Calidris temminckii</i>	1	23	4		16		44
<i>Charadrius dubius</i>		77	9		82		168
<i>Charadrius hiaticula</i>		23	3	12	7	13	58
<i>Gallinago gallinago</i>	3	24	35	62	220		344
<i>Haematopus ostralegus</i>						3	3
<i>Limicola falcinellus</i>		3	5		5		13
<i>Limosa lapponica</i>		5				6	11
<i>Lymnocyptes minimus</i>	2						2
<i>Numenius arquata</i>		12					12
<i>Numenius phaeopus</i>						1	1
<i>Phalaropus lobatus</i>		1		1			2
<i>Philomachus pugnax</i>	4	52	1	36	18	1	112
<i>Pluvialis squatarola</i>				1		12	13
<i>Tringa erythropus</i>						2	2
<i>Tringa glareola</i>	286	36	82	288	269		961
<i>Tringa nebularia</i>		7	2				9
<i>Tringa ochropus</i>		5	4		13		22
<i>Tringa totanus</i>		9	3	5	8	4	29
<i>Tryngites subruficollis</i>						1	1
<i>Vanellus vanellus</i>	1				3		4
<i>Xenus cinereus</i>					1	1	2
Total	297	671	469	495	1006	1071	4009

Table 3
Number of waders ringed in Poland in 2008 at six wader ringing stations.
Stations' abbreviations as in the text and Figure 1.

	KW	LI	PA	JE	TU	VM	TOTAL
<i>Actitis hypoleucos</i>		100	78		222	143	543
<i>Arenaria interpres</i>		2			1	20	23
<i>Calidris alba</i>		1				51	52
<i>Calidris alpina</i>		131	13	2	54	1576	1776
<i>Calidris canutus</i>		1				25	26
<i>Calidris ferruginea</i>		52	1	1	13	65	132
<i>Calidris maritima</i>						1	1
<i>Calidris minuta</i>		18	4	1	5	46	74
<i>Calidris temminckii</i>		13	2		16	1	32
<i>Charadrius dubius</i>		36	9		100	6	151
<i>Charadrius hiaticula</i>		40	17	4	2	35	98
<i>Gallinago gallinago</i>	2	26	15	348	233		624
<i>Haematopus ostralegus</i>						3	3
<i>Limicola falcinellus</i>			1		1	10	12
<i>Limosa lapponica</i>						17	17
<i>Lymnocyptes minimus</i>	1	1					2
<i>Numenius arquata</i>		37					37
<i>Numenius phaeopus</i>		2				1	3
<i>Phalaropus lobatus</i>					1		1
<i>Philomachus pugnax</i>	1	12	19	16	8	15	71
<i>Pluvialis apricaria</i>	1					1	2
<i>Pluvialis squatarola</i>						15	15
<i>Tringa erythropus</i>	1		2	3		3	9
<i>Tringa glareola</i>	107	16	23	350	420	6	922
<i>Tringa nebularia</i>		2			2	2	6
<i>Tringa ochropus</i>		8	1	4	17		30
<i>Tringa stagnatilis</i>			1				1
<i>Tringa totanus</i>		7	1	2	9	31	50
<i>Vanellus vanellus</i>		1	1	7	1		10
Total	113	506	188	738	1105	2073	4723

The Little Ringed Plover (*Charadrius dubius*) was also caught in relatively high numbers – more than 150 individuals per year, mainly at Turawa and Lisewo.

In the described period (2006-2008) altogether 34 species of waders were caught at all the stations. These included some rarities: the Purple Sandpiper (*Calidris maritima*) – in 2008, the Semipalmated Sandpiper (*Calidris pusilla*) – in 2007, the Buff-Breasted Sandpiper (*Tryngites subruficollis*) – in 2007, all at the Vistula Mouth; the Great Snipe (*Gallinago media*) – 3 indiv. in 2006, at Turawa and Pawłowice; the Marsh Sandpiper (*Tringa stagnatilis*) – in 2008 at Pawłowice; the Terek Sandpiper (*Xenus cinereus*) –

2 indiv. in 2007, at the Vistula Mouth and Turawa. Some waders were ringed in Poland at the sites other than the described ringing stations, but their numbers were small and would not change substantially this overview.

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