

AVIFAUNA OF THE FISHPOND COMPLEX „LIPNIAK” IN THE LUBLIN REGION

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Summary. The fishponds „Lipniak” are located in Rawa village (the province of Lublin, eastern Poland), about 45 km to the north-west of Lublin. The complex consists of 13 carp ponds surrounded by a forest and meadows. The total surface area of the ponds is 118.83 ha. The research was carried out in the breeding season in 2004 and 2005, and during the whole year 2007 (a total of 60 censuses). The subject of the study were 57 species belonging to the group of waterfowl, among them 22 breeding species. Among the breeding species there were 7 species which belonged to *Passeriformes*. 4 species of birds from the „Polish Red Data Book of Animals” [Głowaciński 2001] were also breeding on the fishponds: Little Bittern *Ixobrychus minutus*, Bittern *Botaurus stellaris*, Little Crake *Porzana parva*, and Bluethroat *Luscinia svecica cyanecula*. The most numerous breeding species were the Mallard *Anas platyrhynchos* (17–28 pairs) and the Coot *Fulica atra* (9–27 pairs). The largest abundance of species was observed during the migration period, when 36 species were recorded (35 species in the spring and 19 species in autumn). The most numerous species were the Mute Swan *Cygnus olor* (the maximum of 158 individuals), the Mallard (max 549 ind.), the Coot (max 357 ind.), and also the Wigeon *Anas penelope* (max 86 ind.), the Pochard *Aythya ferina* (max 80 ind.), the Black-headed Gull *Larus ridibundus* (max 78 ind.), and the Grey Heron *Ardea cinerea* (max 52 ind.). In winter these reservoirs were insignificant for aquatic birds.

Key words: waterfowl, fishponds, Lublin region

INTRODUCTION

Fishponds play a very important role in the protection of waterfowl [Dyrcz 1989]. This kind of habitat is a dwelling place for many species of birds in the breeding season [Wesołowski and Winiecki 1988]. The fishpond complex described below is one of the many such complexes in Lubelszczyzna (the Lublin region) [Dobrowolski 1995, Guziur *et al.* 2003]. This region is characterised by a large share of fishponds, however, the state of investigations of the fishponds is unsatisfactory as there only exist a small number of papers on the subject [Wójciak *et al.* 2005].

The described ponds are close to fishponds in Samokłęski and the two reservoirs are fed by the same river. The studies of the avifauna in the breeding season have shown that „Lipniak” ponds are poorer in bird life in comparison with the reservoirs in Samokłęski. This mainly concerns the number of species and individuals of birds which were observed during migration and, to a lesser degree, the number of breeding species and pairs [Nieoczym 2007].

MATERIALS AND METHODS

The research was carried out in the fishpond complex „Lipniak” in the village of Rawa (Michów commune, Lubartów district, province of Lublin), about 45 km to the north of Lublin. The ponds are situated in the vicinity of Pradolina Wieprza in the northern edge of Wysoczyzna Lubartowska, in the south-eastern part of Nizina Południowopodlaska [Kondracki 2002].

The ponds are surrounded by meadows and a forest. One of the reservoirs is located nearly entirely in the forest. The area consists of ten active ponds (from about 4 ha to about 30 ha in size) and three small abandoned ponds overgrown with rushes. The total area of the ponds is 118.83 ha. The area of rushes in a majority of the reservoirs is small (8–16%), with the exception of two reservoirs where the rushes occupy 34 and 77% of the area. The reservoirs are fed by water from the river Minina which falls into the nearby river Wieprz. Most of the ponds were drained in October and remained empty in winter to be filled again in March. Only two reservoirs remained filled throughout winter. They were drained in April and filled again at the beginning of May.

The studies of waterfowl were carried out in the breeding season in the years 2004 and 2005, and throughout the year 2007. In the period from April to June, four surveys were conducted per month. Outside of the breeding season and in the winter (December–February) of 2007, the surveys were done once per ten days and once every month, respectively.

Individuals of waterfowl *Non-Passeriformes* were scrupulously counted on the individual ponds. In the research of breeding birds, some methods were used from papers of Ranozek [1983] and Czapulak *et al.* [1988]. The numbers of some of the breeding species were estimated using the playback method [Dombrowski *et al.* 1993].

RESULTS

In the researched complex, 57 species of waterfowl were recorded, including 22 breeding species (Tab. 1). The breeding species of waterfowl belonging to *Passeriformes* were Savi's Warbler *Locustella luscinioides*, Sedge Warbler *Acrocephalus schoenobaenus*, Reed Warbler *Acrocephalus scirpaceus*,

Table 1. Number and density (number of breeding pairs/10 ha) of *Non-Passeriformes* waterfowl breeding pairs on „Lipniak” fishponds in the years 2004–2005 and 2007

Species	2004	2005	2007	Density
<i>Tachybaptus ruficollis</i>	2	1	2	0.1–0.2
<i>Podiceps cristatus</i>	4	3	8	0.3–0.7
<i>Ixobrychus minutus</i>	0	1	1	0–0.1
<i>Botaurus stellaris</i>	2	0	2	0–0.2
<i>Cygnus olor</i>	6	6	6	0.5
<i>Anser anser</i>	2	6	6	0.2–0.5
<i>Anas strepera</i>	0	0	7	0–0.6
<i>Anas platyrhynchos</i>	20	17	28	1.4–2.4
<i>Aythya ferina</i>	0	0	1	0–0.1
<i>Aythya fuligula</i>	0	1	3	0–0.3
<i>Circus aeruginosus</i>	6	9	7	0.5–0.8
<i>Rallus aquaticus</i>	4	0	5	0–0.4
<i>Porzana parva</i>	2	1	2	0.1–0.2
<i>Gallinula chloropus</i>	5	3	6	0.3–0.5
<i>Fulica atra</i>	11	9	27	0.8–2.3

Great Reed Warbler *Acrocephalus arundinaceus*, Reed Bunting *Emberiza schoeniclus*, Scarlet Rosefinch *Carpodacus erythrinus*, and Bluethroat *Luscinia svecica cyanecula* (1–2 pairs). 4 species of birds from the „Polish Red Data Book of Animals” [Głowaciński 2001] were also breeding on the fishponds: Little Bittern *Ixobrychus minutus*, Bittern *Botaurus stellaris*, Little Crake *Porzana parva* and Bluethroat *Luscinia svecica cyanecula*.

36 species were observed during migration. The largest number of migrating species was recorded during the spring passage – 35 species, compared to the 19 species observed in autumn. The fishponds were insignificant for waterfowl in winter.

Below is a review of all the species of waterfowl observed in the „Lipniak” complex, with the exception of *Passeriformes*. The dates of the occurrence of the species are given in months divided into ten-day periods (the months are given in Roman numerals and the decades of the months in Arabic numerals in the index).

Black-throated Diver *Gavia arctica*. 1 immature ind. was observed on 22nd May 2007.

Little Grebe *Tachybaptus ruficollis*. The birds were recorded in the period V¹–IX². 1–2 ind. were observed during the breeding season. Maximum number of individuals: 11th August 2007 – 11 ind., including 6 young birds.

Red-necked Grebe *Podiceps grisegena*. There were three observations of 1 ind. during passages: 12th April 2004, 3rd and 11th October 2007.

Great Crested Grebe *Podiceps cristatus*. Extreme observations: 25th March 2004 – 2 ind., 24th October 2007 – 1 ind. The largest number of the birds were observed during autumn migration on 11th August 2007 – 32 ind.

Black-necked Grebe *Podiceps nigricollis*. 1 ind. was recorded during the

spring passage on 17th April 2007 and there were 2 ind. seen on 14th July 2007.

Great Cormorant *Phalacrocorax carbo*. A few birds were observed regularly in the period of VI²–VII² and IX¹–X² in 2007. The most abundant record was made on 16th September 2007 – 21 ind., the earliest observation: 25th March 2004 – 2 ind.

Grey Heron *Ardea cinerea*. The birds were observed regularly during all the year, usually from a few to a dozen or so individuals, with their maximum numbers recorded on 11th April 2005 – 52 ind. and 3rd July 2007 – 48 ind. 1 ind. was also observed in winter. A breeding colony was found in the nearby forest, in the south-western direction. There were 137 nests there in 2004 and 86 nests in 2007 (S. Aftyka – personal communication).

Great Egret *Egretta alba*. Usually a few individuals were regularly observed in the period of VI²–XI¹ in 2007. The most numerous observation was made on 11th August 2007 – 38 ind., the earliest observations were made on 11th April 2005 and 12th April 2004 – 1 ind.

Little Bittern *Ixobrychus minutus*. One record of a calling male in the breeding season was made on 20th June 2007. Feathers of young birds were found in the breeding season of 2005 (S. Aftyka – personal communication).

Bittern *Botaurus stellaris*. Males called in the period of III³–VI².

Black Stork *Ciconia nigra*. 1 ind. was observed on 3rd April 2007.

White Stork *Ciconia ciconia*. A species breeding in the vicinity of the fishponds. The earliest observation was made on 25th March 2004 – 1 ind.

Mute Swan *Cygnus olor*. The most abundant observations were made in 2007, the number of the birds increased starting from the first decade of May, the largest numbers of the birds were observed in the period of VI²–VIII² – 83–158 ind. The latest record: 13th November 2007 – 1 pair and 5 juvenile individuals, one record in winter: 3rd January 2007 – 2 ind.

Greylag Goose *Anser anser*. The largest numbers of the birds were observed in April and in the first half of May, maximum record: 7th May 2007 – 37 ind. The earliest observation: 15th March 2007 – 1 ind.

Wigeon *Anas penelope*. Recorded eight times, mainly during spring passage. The earliest observation: 15th March 2007 – 19♂11♀., the most abundant observation: 3rd April 2007 – 86 ind., the latest observation: 24th September 2007 – 2 ind.

Gadwall *Anas strepera*. Birds were regularly observed in April and May, the most numerous observation: 7th and 22nd May 2007 – 12♂8♀ and 10♂♀, respectively. Recorded once in autumn: 16th September 2007 – 8 ind.

Common Teal *Anas crecca*. The species was observed during spring migration, the earliest and the most abundantly on 28th March 2007 – 13♂8♀. Recorded twice during autumn migration on 3rd and 16th September 2007, 5 and 24 ind., respectively.

Mallard *Anas platyrhynchos*. The birds were seen during all the year, most

abundantly from June to the first half of September, then the largest number of birds were observed on 11th August 2007 – 549 ind. The number of birds was decreasing significantly (from a few hundred to a dozen or so) from the third decade of September. The latest record: 6th November 2007 – 1♂, one observation in winter: 26th February 2007 – 1♂♀. During spring passages usually several dozen of individuals were observed, most abundantly on 28th March 2007 – 85 ind.

Garganey *Anas querquedula*. The species was seen only during spring migration, from a few to a dozen or so individuals. The earliest record: 15th March 2007 – 1♂, the largest number: 1st April 2004 and 11th April 2007 – 12 ind.

Shoveler *Anas clypeata*. The birds occurred irregularly during spring migration, the earliest and the most abundant record: 12th April 2004 – 21♂15♀.

Pochard *Aythya ferina*. A few individuals were observed irregularly during spring passage, the earliest: 15th March 2007 – 1♂. The largest number of birds, usually several dozen of individuals were during moulting, maximum record: 3rd July 2007 – 80 ind. The latest observation: 3rd October 2007 – 8 ind.

Tufted Duck *Aythya fuligula*. The birds occurred irregularly during most of the year, from a few to a dozen or so individuals. The earliest record: 15th March 2007 – 5♂3♀, the most abundant record: 6th June 2007 – 12♂6♀, the latest record: 24th October 2007 – 2 ind.

Goldeneye *Bucephala clangula*. One pair recorded twice on 13th May 2005 and 22nd May 2007.

Goosander *Mergus merganser*. One pair was observed on 24th March 2005.

White-tailed Eagle *Haliaeetus albicilla*. One adult individual was seen irregularly during all the year. One immature individual was observed on 11th October 2007. It was breeding in the nearby forest (S. Aftyka – personal communication)

Marsh Harrier *Circus aeruginosus*. The earliest observation: 25th March 2004 – 2♂1♀, the latest observation: 3rd September 2007 – 5 ind.

Montagu's Harrier *Circus pygargus*. A male was recorded in the breeding season – twice in 2004 and once in 2005.

Crane *Grus grus*. 1–5 ind. were observed several times in the complex in the period March–May. The species were probably breeding in the vicinity of the fishponds.

Water Rail *Rallus aquaticus*. Maximum number of individuals was recorded on 9th June 2007 – 6 ind., the earliest record: 12th April 2004 – 1 ind. The species did not occur in 2005.

Little Crane *Porzana parva*. The birds were regularly recorded in May and June in 2007, maximally: 3 ind.

Moorhen *Gallinula chloropus*. The most abundant record: 9th June 2007 – 4 ind., the earliest record: 22nd April 2004 – 2 ind., the latest record: 24th September 2007 – 2 ind.

Coot *Fulica atra*. The species was regularly observed during most of the

year. The largest number of individuals was observed in the period of June-October. In that period, the maximum number of the birds was recorded on 11th August 2007 – 357 ind. The earliest record: 28th March 2007 – 6 ind., the latest record: 13th November 2007 – 2 ind. The maximum number of birds during the spring passage was observed on 17th April 2007 – 31 ind.

Lapwing *Vanellus vanellus*. The birds were only observed during spring migration, usually a few individuals. The earliest and the most abundantly they were seen on 5th March 2007 – 12 ind.

Grey Plover *Pluvialis squatarola*. Recorded twice during autumn migration in 2007: on 11th October – 5 ind., 24th October – 3 ind.

Little Ringed Plover *Charadrius dubius*. 1–3 ind. were observed during spring migration in April 2004 and 2007.

Snipe *Gallinago gallinago*. 1 ind. was seen on 17th April 2007.

Black-tailed Godwit *Limosa limosa*. Recorded once: on 30th April 2004 – 4 ind.

Curlew *Numenius arquata*. 1 ind. was observed on 22nd April 2004.

Redshank *Tringa totanus*. Recorded twice: on 30th April 2004 – 2 ind. and 3rd April 2007 – 1 ind.

Green Sandpiper *Tringa ochropus*. Recorded three times, 1–2 ind. in April in 2004 and 2007.

Wood Sandpiper *Tringa glareola*. Two observations in 2004: 22nd April – 5 ind., 30th April – 2 ind.

Common Sandpiper *Actitis hypoleucos*. Recorded six times, 1–2 ind. in 2004 and 2007, the earliest record: 30th April 2004 – 2 ind., the latest record: 2nd August 2007 – 1 ind.

Herring Gull/Caspian Gull *Larus argentatus/L. cachinnas*. There were nine records, mostly in 2007, usually 1–2 ind., the earliest observation was made on 28th March 2007 – 1 ind., the latest on 6th November 2007 – 2 ind., the largest number: 11th April 2005 – 24 ind.

Black-headed Gull *Larus ridibundus*. The birds were regularly observed in the period of March–July, from a few to a few dozen individuals. The earliest observation: 15th March 2007 – 3 ind., the latest observation: 6th November 2007 – 1 ind., the most abundant observation: 14th July 2007 – 78 ind.

Common Tern *Sterna hirundo*. This species was the most often observed tern on the fishponds. It was seen regularly from May to July, 1–7 ind.

Little Tern *Sternula albifrons*. 2 ind. recorded each time during three censuses carried out in August 2007 and 1 ind. recorded on 25th May 2004.

Whiskered Tern *Chlidonias hybrida*. 1 ind. was seen on 30th April 2004 and 20th June 2007.

White-winged Tern *Chlidonias leucopterus*. The birds were observed on 11th June 2004 – 4 ind. and in 2007: 14th May – 20 ind. and 27th June – 2 ind. (including 1 ind. which left the complex with prey).

Black Tern *Chlidonias niger*. 2 ind. were recorded on 17th June 2004.

Kingfisher *Alcedo atthis*. 1 ind. recorded twice on 8th July 2004 and 9th June 2007.

DISCUSSION

The fishpond complex „Lipniak” is significant mainly for breeding species of waterfowl. However, in comparison with the nearby complex in Samokłęski, these fishponds are poorer in birds during both the breeding season and migration. The number of breeding species in „Lipniak” was only slightly lower than in Samokłęski. The density of breeding pairs of a majority of the species on the researched ponds was similar to the results obtained in Samokłęski. Only in the case of some species was the number of pairs significantly lower. This concerned grebes (especially the lack of breeding red-necked grebes), diving ducks (Pochard, Tufted Duck) and coots (Tab. 1). The density of breeding pairs of these birds was 70–90% lower than in Samokłęski. Gadwall (probably 1 breeding pair in Samokłęski) and Mute Swan (density in Samokłęski: 0.1–0.4 pairs/10 ha) showed a higher density. A breeding species not found in Samokłęski was Greylag Goose which was found in „Lipniak” [Nieoczym 2007]. The number of rare and endangered breeding species listed in the „Polish Red Data Book of Animals” [Głowaciński 2001] was similar for both complexes [Nieoczym 2006]. Worth mentioning is the occurrence of breeding Bluethroat, the number of which has been decreasing in Poland [Tomiałojć and Stawarczyk 2003].

The breeding avifauna of the fishponds Lipniak is considerably poorer than that of other complexes which are important wildfowl refuges [Dobrowolski 1995, Bukacińska *et al.* 1996, Sidło *et al.* 2004]. The reason behind this situation is the lack of suitable nesting sites. The majority of reservoirs, with their sparse rush vegetation, do not provide good nesting conditions [Dobrowolski 1995, Buczek *et al.* 1997, Wesołowski and Winiecki 1998]. Also, the ponds do not have islands which are essential for ducks and gulls during the breeding season. Besides, dikes are not covered abundantly with bushes, which influences the number of recorded breeding birds [Dobrowolski 1995]. The next important thing are the surroundings of the ponds. The meadows and forests in the neighbourhood of the „Lipniak” complex are important for many species of birds, particularly for the endangered ones [Bukacińska *et al.* 1996]. Additionally, there are no buildings in the vicinity of the reservoirs and human penetration of the area is minimal. Therefore, in the breeding season birds such as the White-tailed Eagle, which nested in the nearby forest, and the Crane, which breeds in Pradolina Wieprza and Nizina Południowopodlaska, were observed. In the forest, nests of Grey Herons can be found which constitute one of the larger breeding colonies of Grey Heron in Lubelszczyzna. The breeding conditions on the fishponds were also good for Greylag Goose which is a scarce breeding species in Lubelszczyzna [Wójciak *et al.* 2005].

There were fewer species and individuals of birds than in Samokłęski dur-

ing the migration period, too [Nieoczym 2007]. The number of species in spring was similar to data collected in Tarnawatka and Imielty Ług which are well-known fishponds in Lubelszczyzna [Cios *et al.* 2004]. In Lipniak, the most numerous species were Mute Swan (maximum of 158 individuals), Mallard (max 549 ind.), Coot (max 357 ind.), and also Wigeon (max 86 ind.), Pochard (max 80 ind.), Black-headed Gull (max 78 ind.), and Grey Heron (max 52 ind.). These ponds were significant for Mute Swan during moulting in 2007. For the sake of comparison, a maximum of about 200 mute swans were observed on the fishponds in Siemień which are the largest moulting site for Mute Swan in Lubelszczyzna [Buczek and Buczek 1988]. Similar results were obtained on other important fishponds in Poland [Cempulik 1985, Cieślak *et al.* 1991, Dolata 1993]. The remaining species of *Anseriformes* did not occur numerous during moulting and passages; this also concerns Lipniak's most numerous species of Mallard and Pochard [Buczek and Buczek 1988, Cieślak *et al.* 1991, Dyrz *et al.* 1991, Dolata 1993, Goławski *et al.* 2002, Szyra 2003]. The described ponds were insignificant for waders (*Charadriiformes*) because of the lack of empty reservoirs in spring and late draining of the ponds in autumn [Dobrowolski 1995].

CONCLUSION

The research on the avifauna of the fishponds in Lipniak shows that this area is of local importance for waterfowl. Similarly to a majority of fishponds, the described complex is important mainly for breeding waterfowl, among them four species which are rare or endangered in Poland. For the group of species which are usually numerous on fishponds in the breeding season (Little Grebe, Great Crested Grebe, Gadwall, Mallard, Pochard, Tufted Duck, Marsh Harrier, Moorhen, Coot), the results were worse compared with other fishponds only in the case of grebes, the Pochard, the Tufted Duck, and the Coot. This area did not play an important role during passages. One exception was the considerable number of moulting Mute Swans. The studied ponds were insignificant for migratory waders *Charadriiformes*.

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Streszczenie. Stawy rybne „Lipniak” znajdują się w miejscowości Rawa (gmina Michów, powiat Lubartów, woj. lubelskie), ok. 45 km na północ od Lublina. Kompleks składa się z 13 zbiorników o powierzchni 118,83 ha. Badania prowadzono w sezonie lęgowym w latach 2004 i 2005 oraz w cyklu rocznym w 2007 r. (w sumie 60 kontroli). Stwierdzono 57 gatunków ptaków wodno-błotnych, spośród których 22 uznano za lęgowe. Wśród tych ostatnich: bączek, bąk, zielonka i podróżniczek wymienione są w „Polskiej czerwonej księdze zwierząt” [Głowaciński 2001]. Najliczniejszymi gatunkami lęgowymi były krzyżówka (17–28 par) i łyska (9–27 par). Najwięcej gatunków ptaków odnotowano podczas migracji – 36 gatunków (35 gatunki wiosną i 19 jesienią). Najliczniejszymi ptakami były: krzyżówka (549 os.), łyska (357 os.), łabędź niemy (158 os.) oraz świstun (86 os.), głowienka (80 os.), śmieszka (78 os.) czapla siwa (52 os.). W miesiącach zimowych stawy nie miały znaczenia dla ptaków wodno-błotnych.

Słowa kluczowe: ptaki wodno-błotne, stawy rybne, Lubelszczyzna