Results
of the Autumn 2010 Migratory Waterbird Counts in the Azov-Black Sea Coastal Wetlands of Ukraine, Georgia and Turkey

Wetlands International Black Sea programme

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This publication presents the results of the first simultaneous waterbird counts at key coastal wetlands in Ukraine, Georgia and Turkey

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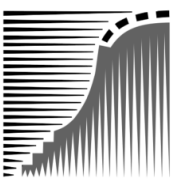

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Preamble

The coastal wetlands of the Black Sea Region attract millions of waterbirds all the year round. These wetlands make up a very important 'node' in the ecological networks – the flyways - for waterbirds migrating between their breeding and wintering areas. Recognizing the importance of these wetlands for waterbirds, Wetlands International has been putting much effort into developing and supporting an International Waterbird Census (IWC) in this area. Currently a lot of data on wintering waterbirds are available for the region. However, apart from its significance as a wintering area, this region plays a very important role for millions of African and Mediterranean wintering waterbirds during their seasonal movements between breeding and wintering grounds. Although migration has been identified as a very important phenomenon in waterbirds, there has traditionally not been a systematic approach to assessing the importance of sites during migration, or to estimating the numbers of birds using a site during migration. The equivalent of what the IWC does for wintering birds does not exist for birds during their autumn and spring migration. As a result there are a lot of gaps in our knowledge of waterbird migration in this region. In relation to this in the year 2009 Wetlands International started the project *Stop-over Black Sea: the importance of the Black Sea region in the migratory systems of waterbirds in the African-Eurasian Flyway* supported by BBI-MATRA fund. The main partners of Wetlands International for this project are: Environmental Association "Psovi"in Georgia, Doga Dernegi in Turkey and the Azov-Black Sea Ornithological Station in Ukraine.

The project is directed at the coastal wetlands of three Black Sea countries – Ukraine, Georgia and Turkey. The major objective of the project is an enhanced scientific basis for conservation and wise use of migratory waterbirds in the Black Sea area by enhancing capacity for waterbirds monitoring in the region. The sub-objectives of the project are the following**:**

- Gathering data and information on waterbird migration and monitoring developments by developing a census system for migratory waterbirds based on existing IWC infrastructure;
- Making data on migratory waterbirds available in way that is useful for stakeholders;
- Strengthening capacity, communication and coordination for migratory waterbirds monitoring and for the use of the results in the Black Sea region.

As mentioned above, IWC has already been successfully working in the Black Sea region over a long period and has developed an infrastructure and a methodological basis. The already functioning IWC infrastructure, as well as waterbird census experience accumulated in the region, was used as a framework for establishing in three Black Sea countries a waterbird census of a new type – Migratory Waterbird Census (MWC). The following steps were undertaken to develop and to launch MWC :

- Gap analysis of existing IWC data infrastructure;
- Development manual for MWC and list of key sites;
- Conducting training workshops in three countries for network of counters;
- Single waterbird counts (October, 2010) in key coastal wetlands of Ukraine, Georgia and Turkey;
- A series of waterbird counts covering the whole migratory season in one pilot wetland – Molochnyi Liman (Ukraine)

In the current report is presented the results of the two last activities.

1. Results of single waterbird counts at key coastal sites of Ukraine, Georgia and Turkey

The migratory season in the Black Sea region covers quite a long period – from the end of August until November. The species composition and number of birds constantly changes during this period. Restricted funding didn't allow us within the framework of the current project to conduct counts at different stages of migration at all key coastal wetlands in all three countries. In relation to this, during the first meeting of the Coordination Council, it was decided to conduct one count in the middle of the migratory season (first half of October), but to cover as many as possible key coastal sites in Georgia, Turkey and Ukraine.

Early October is the period of migration of most waterbird species in the region except for waders whose main passage is restricted to August-September. It was taken into consideration that by October in the species mix there would predominate not only dabbling ducks but also Pochards and Coots , which (having completed their moult) would go out into the extensive open shallow bays, and that geese and Common Cranes would have started their migration.

In October 2010 the first count of migratory waterbirds was conducted at key sites along the Azov-Black Sea coast of Ukraine, Georgia and Turkey. Given that during this period the weather is unstable and its variation may significantly affect the results of counts, instead of an exact date for counts only a "time corridor" - 7 -14 October was defined for this. The specific dates of counts were decided by local counters depending on weather conditions and their ability to conduct surveys (some of them were responsible for counts at several wetlands).

A week before the average date of the counts, the weather deteriorated significantly - temperature of the air dropped, strong winds blew and rain fell (at least on the Ukrainian part of the coast). However, by the time of the counts the weather had almost completely ameliorated, although the wind continued to remain quite strong and the waves on the water complicated bird counting. This is especially true for the birds that disperse widely over the area, such as Podiceps cristatus. At the same time, the wind played a positive role for counts of some other waterbird species, because they concentrated in bays sheltered from the wind, which facilitated their counts.

In total the counts covered 27 key sites along the Azov – Black Sea coast: 16 in Ukraine, 6 in Georgia and 5 in Turkey (Pic 1).

In Ukraine 23 people were involved in counting and data processing, in Turkey – 20 and in Georgia – 6. The list of participants and their contact details are in Appendix 1

Counts in Turkey and Georgia were conducted during two days – 9 – 10 October. In Ukraine due to the large number of wetland sites, the vast area of some wetlands (like Eastern Sivash) and changes in weather conditions, counts was conducted between 4 and 17 October, but the majority between 7 – 14 October 2010.

1.1. Ukraine

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Taking into account that the Ukrainian Azov-Black Sea Coast includes many wetlands of different types, and that there is no possibility to cover all of them by counts within the current project (because of funding restriction and limited number of available counters), it was decided to select only those wetlands which according to retrospective data from different seasons always support a large amount of waterbirds. The 16 wetlands selected are presented in Pic 1.

Brief characteristics of weather conditions

The temperature regime before the counts in September was, according to the average monthly data, 2-3^{o}C warmer than the long-term indices. But from the second five-day period of October, just before the beginning of the waterbird counts, there was a sharp decrease of temperature due to the passage of a deep atmospheric front. Further, the mean air temperature increased very slowly and, as a consequence,

the average monthly indices for October turned out to be 1-2 °C colder for a major part of Central and Eastern Europe. In the northern Black Sea and Sivash areas precipitation was much heavier in the period of the atmospheric front's passage than in the western and eastern parts of the region. More likely this fact had more influence on the quality of ground roads and accessibility of the coast for cars than on bird distribution.

During the first days of the count at Sivash (6-8 October) the force of the gusty easterly wind sometimes reached 20-24 m/sec. Naturally, such weather conditions impacted on the count results. Sometimes the effect was positive as due to the strong wind almost all Coots, Pochards, dabbling ducks and gulls kept to the leeward side of the shoreline, and due to this the completeness of their count at North-Eastern Sivash was at least 95%. At the same time, along Arabatska Spit not more than 45-50% of Pochards and Great Crested Grebes were counted because of roughness of the water

1.1.1. Ermakov Island

Date – 13/10/2010

At the Ermakov Island site a total of 6,265 waterbirds of 37 species were recorded (Table 1). The most abundant species were *Larus ridibundus* (1,452), *Fulica atra* (1,140), *Anas strepera* (924), *Phalacrocorax pygmaeus* (844) and *Phalacrocorax carbo* (670). Common counted species were Anas *crecca* (383), Chlidonias hybridus (200) and Anser anser (125)

Table 1. The number of waterbird species observed at Ermakov Island

N	Species	Number	N	Species	Number
1.	Podiceps cristatus	35	20.	Haliaeetus albicilla	3
2.	Pelecanus onocrotalus	1	21.	Fulica atra	1140
3.	Phalacrocorax carbo	670	22.	Charadrius dubius	1
4.	Phalacrocorax pygmaeus	844	23.	Vanellus vanellus	90
5.	Nycticorax nycticorax	12	24.	Recurvirostra avosetta	2
6.	Ardeola ralloides	9	25.	Tringa glareola	19
7.	Egretta alba	13	26.	Tringa nebularia	4
8.	Egretta garzetta	7	27.	Tringa totanus	10
9.	Ardea cinerea	6	28.	Tringa erythropus	4
10.	Ardea purpurea	2	29.	Philomachus pugnax	6
11.	Anser anser	125	30.	Calidris alpina	12
12.	Cygnus olor	19	31.	Gallinago gallinago	77
13.	Tadorna ferruginea	1	32.	Limosa limosa	8
14.	Anas platyrhynchos	86	33.	Larus ridibundus	1452
15.	Anas crecca	383	34.	Larus cachinnans	7
16.	Anas strepera	924	35.	Chlidonias hybridus	200
17.	Anas clypeata	55	36.	Hydroprogne caspia	8
18.	Aythya ferina	12	37.	Sterna hirundo	9
19.	Circus aeruginosus	9		**Total**	**6265**

1.1.2. Danube Delta

Date - 14-15/10/2010

In the Danube Delta a total of 32,288 waterbirds of 46 species were recorded (Table 2). The most abundant species were *Fulica atra* (12,036), *Aythya ferina* (4,272), *Anas crecca* (4,198), *Anas platyrhynchos* (4,181), *Anser anser* (1,407), *Larus cachinnans* (1,232), *Cygnus olor* (1017). Common species were *Anas penelope* (769), *Anas strepera* (736), *Calidris alpina* (585), *Phalacrocorax carbo* (467), *Phalacrocorax pygmaeus* (308), *Aythya fuligula* (300).

Table 2. The number of waterbird species observed in the Danube Delta

N	Species	Number	N	Species	Number
1.	Tachybaptus ruficollis	4	24.	Anas querquedula	10
2.	Podiceps nigricollis	45	25.	Anas clypeata	115
3.	Podiceps cristatus	64	26.	Aythya ferina	4272
4.	Pelecanus onocrotalus	1	27.	Aythya nyroca	13
5.	Pelecanus crispus	68	28.	Aythya fuligula	300
6.	Phalacrocorax carbo	467	29.	Bucephala clangula	5
7.	Phalacrocorax pygmaeus	308	30.	Mergus albellus	5
8.	Nycticorax nycticorax	4	31.	Circus aeruginosus	14
9.	Ardeola ralloides	1	32.	Haliaeetus albicilla	7
10.	Egretta alba	88	33.	Fulica atra	12036
11.	Egretta garzetta	6	34.	Pluvialis squatarola	6
12.	Ardea cinerea	18	35.	Vanellus vanellus	7
13.	Ardea purpurea	1	36.	Recurvirostra avosetta	61
14.	Platalea leucorodia	9	37.	Tringa nebularia	9
15.	Anser anser	1407	38.	Tringa erythropus	8
16.	Cygnus olor	1017	39.	Calidris alpina	585
17.	Cygnus cygnus	1	40.	Gallinago gallinago	2
18.	Tadorna tadorna	23	41.	Numenius arquata	32
19.	Anas platyrhynchos	4181	42.	Limosa limosa	12
20.	Anas crecca	4198	43.	Larus ridibundus	15
21.	Anas strepera	736	44.	Larus cachinnans	1232
22.	Anas penelope	769	45.	Hydroprogne caspia	1
23.	Anas acuta	107	46.	Sterna sandvicensis	18
				Total	**32288**

1.1.3. Sasyk Lake

Date – 6 – 7/10/2010

At Sasyk Lake a total of 6,112 waterbirds of 28 species were counted (Table 3). The most numerous species were *Larus ridibundus* (2,105), *Fulica atra* (1,160), *Anas platyrhynchos* (760), Anas *crecca* (510) and Cygnus *olor* (502). *Larus cachinnans* (258), *Podiceps cristatus* (210), *Phalacrocorax carbo* (188) were common species.

Table 3. The number of waterbird species observed at Sasyk Lake

N	Species	Number	N	Species	Number
1.	Tachybaptus ruficollis	1	15.	Pandion haliaetus	2
2.	Podiceps cristatus	210	16.	Circus aeruginosus	7
3.	Phalacrocorax carbo	188	17.	Fulica atra	1160
4.	Egretta alba	14	18.	Pluvialis squatarola	6
5.	Egretta garzetta	7	19.	Tringa nebularia	3
6.	Ardea cinerea	11	20.	Tringa totanus	19
7.	Anser anser	34	21.	Philomachus pugnax	44
8.	Cygnus olor	502	22.	Calidris alpina	172
9.	Tadorna tadorna	28	23.	Gallinago gallinago	2
10.	Anas platyrhynchos	760	24.	Numenius arquata	6
11.	Anas crecca	510	25.	Larus ridibundus	2105
12.	Anas strepera	3	26.	Larus cachinnans	258
13.	Anas penelope	8	27.	Hydroprogne caspia	7
14.	Anas clypeata	41	28.	Sterna hirundo	4
				Total	**6112**

1.1.4. Dzhantsheiskoe and Malyi Sasyk lakes

Date – 7/10/2010

During counts at Dzhantsheiskoe Lake and Malyi Sasyk Lake a total 3,169 of waterbirds of 12 species were recorded (Table 4). The most abundant species were *Fulica atra* (1,885), *Phalacrocorax carbo* (645) and *Cygnus olor* (454).

Table 4. The number of waterbird species observed at Dzhantsheiskoe and Malyi Sasyk lakes

N	Species	Number	N	Species	Number
1.	Podiceps cristatus	73	7.	Anas platyrhynchos	68
2.	Phalacrocorax carbo	645	8.	Anas crecca	2
3.	Egretta alba	8	9.	Netta rufina	28
4.	Egretta garzetta	1	10.	Circus aeruginosus	2
5.	Cygnus olor	454	11.	Fulica atra	1885
6.	Tadorna ferruginea	2	12.	Numenius arquata	1
				Total	**3169**

1.1.5. Dniester Liman (northern part)

Date – 7 – 8/10/2010

At the Dniester Liman (northern part) site a total of 3,275 waterbirds of 28 species were counted (Table 5). The most numerous species were *Fulica atra* (1,530) and *Anas platyrhynchos* (436). Common species were *Phalacrocorax carbo* (297), *Anas crecca* (240), *Larus ridibundus* (232) and *Aythya fuligula* (177).

Table 5. The number of waterbird species observed at the Dniester Liman (northern part)

N	Species	Number	N	Species	Number
1.	Podiceps cristatus	21	15.	Anas clypeata	3
2.	Pelecanus crispus	11	16.	Aythya ferina	80
3.	Phalacrocorax carbo	297	17.	Aythya fuligula	177
4.	Phalacrocorax pygmaeus	36	18.	Circus aeruginosus	2
5.	Ardeola ralloides	1	19.	Haliaeetus albicilla	2
6.	Egretta alba	13	20.	Fulica atra	1530
7.	Ardea cinerea	2	21.	Calidris spp.	10
8.	Ardea purpurea	1	22.	Gallinago gallinago	2
9.	Anser anser	9	23.	Larus ichthyaetus	6
10.	Cygnus olor	30	24.	Larus minutus	1
11.	Anas platyrhynchos	436	25.	Larus ridibundus	232
12.	Anas crecca	240	26.	Larus cachinnans	73
13.	Anas strepera	2	27.	Chlidonias hybridus	6
14.	Anas querquedula	38	28.	Hydroprogne caspia	14
				Total	**3275**

1.1.6. Dnepro-Bugskii Liman

Date – 12 – 14/10/2010

At the Dnepro-Bugskii Liman site a total of 27,585 waterbirds of 26 species were counted (Table 6). The most abundant species were *Phalacrocorax carbo* (12,000), *Podiceps cristatus* (6,313), *Larus cachinnans* (3478) and *Larus ridibundus* (2,308). The common species were *Fulica atra* (982), *Aythya fuligula* (733), *Anas platyrhynchos* (644), *Podiceps nigricollis* (171), *Tadorna ferruginea* (150) and *Cygnus olor* (150). A large number of the gulls counted in the wetland were recognized only at genus level – Larus spp. (450).

Table 6. The number of waterbird species observed at the Dnepro-Bugskii Liman

N	Species	Number	N	Species	Number
1.	Gavia spp.	70	15.	Somateria mollissima	8
2.	Podiceps nigricollis	171	16.	Mergus merganser	10
3.	Podiceps cristatus	6313	17.	Grus grus	1
4.	Phalacrocorax carbo	12000	18.	Fulica atra	982
5.	Phalacrocorax pygmaeus	10	19.	Pluvialis squatarola	2
6.	Egretta alba	13	20.	Charadrius hiaticula	4
7.	Ardea cinerea	6	21.	Tringa nebularia	2
8.	Cygnus olor	150	22.	Tringa totanus	15
9.	Cygnus cygnus		23.	Philomachus pugnax	2
10.	Tadorna ferruginea	150	24.	Calidris alpina	6
11.	Anas platyrhynchos	644	25.	Limosa limosa	4
12.	Anas crecca	30	26.	Larus ridibundus	2308
13.	Aythya fuligula	733	27.	Larus cachinnans	3478
14.	Bucephala clangula	23	28.	Larus spp.	450
				Total	**27585**

1.1.7. Pokrovskaya Spit

Date – 14/10/2010

During counts at the Pokrovskaya Spit site a total of 11,836 waterbirds of 27 species were observed (Table 7). The most numerous species were *Anas platyrhynchos* (2,740), *Phalacrocorax carbo* (2,045), *Anas penelope* (1,350), *Anas crecca* (1,200) and *Calidris alpina* (1,000). Common species were *Larus cachinnans* (600), *Sterna sandvicensis* (500), *Anas clypeata* (430), *Somateria mollissima* (360), *Larus ridibundus* (270), *Fulica atra* (200), *Podiceps cristatus* (140) and *Tadorna tadorna* (120). A large number of the waders counted were identified only at genus level - *Calidris spp*. (500).

Table 7. The number of waterbird species observed at Pokrovskaya Spit

N	Species	Number	N	Species	Number
1.	Podiceps cristatus	140	16.	Fulica atra	200
2.	Phalacrocorax carbo	2045	17.	Pluvialis squatarola	75
3.	Egretta alba	7	18.	Charadrius hiaticula	37
4.	Cygnus olor	40	19.	Haematopus ostralegus	3
5.	Tadorna tadorna	120	20.	Tringa nebularia	3
6.	Anas platyrhynchos	2740	21.	Tringa totanus	11
7.	Anas crecca	1200	22.	Calidris alpina	1000
8.	Anas strepera	2	23.	Calidris canutus	8
9.	Anas penelope	1350	24.	Calidris alba	30
10.	Anas acuta	21	25.	Calidris spp.	500
11.	Anas clypeata	430	26.	Numenius arquata	82
12.	Anas spp.	20	27.	Larus ridibundus	270
13.	Somateria mollissima	360	28.	Larus genei	30
14.	Mergus serrator	7	29.	Larus cachinnans	600
15.	Mergus spp.	5	30.	Sterna sandvicensis	500
				Total	**11836**

1.1.8. Adzhigol Lakes

Date – 7/10/2010, 14/10/2010

During first count (7/10/2010) at the Adzhigol Lakes site a total of 2,445 waterbirds of 9 species were counted (Table 8) The most abundant species were *Anas platyrhynchos* (1,431), *Calidris alpina* (450), *Tadorna tadorna* (380). During the second count (14/10/2010) a total of 2,183 waterbirds of 8 species were counted, with the most abundant species *Tadorna tadorna* (1,100), *Anas platyrhynchos* (700) and *Calidris alpina* (330). For general results of Ukrainian counts (Tables 17, 31 and 32), for each species the higher number from the two counts was chosen, thus total amount of birds for Adzhigol Lakes was 3,199 of 12 species.

Table 8. The number of waterbird species observed at Adzhigol Lakes

N	Species	Number (7/10/2010)	Number (14/10/2010)
1.	Egretta alba	1	
2.	Cygnus olor	15	17
3.	Tadorna tadorna	380	1100
4.	Anas platyrhynchos	1431	700
5.	Anas penelope		30
6.	Anas acuta		1
7.	Pluvialis squatarola	4	4
8.	Philomachus pugnax	43	
9.	Calidris alpina	450	330
10.	Gallinago gallinago		1
11.	Larus cachinnans	6	
12.	Larus canus	115	
	TOTAL	**2445**	**2183**

1.1.9. Yagorlytskii Bay

Date - 7/10/2010

At the Yagorlytskii Bay site a total of 6,488 waterbirds of 19 species were counted (Table 9). The most abundant species were *Anas platyrhynchos* (5,104), *Cygnus olor* (502) and *Calidris alpina* (170). Common species were *Larus ridibundus* (67), *Larus genei* (50), *Egretta alba* (36), *Podiceps cristatus* (23) *and Tadorna tadorna* (21). Many of the dabbling ducks, Anatini, (400) were not identified at species level.

Table 9. The number of waterbird species observed in Yagorlytskii Bay

N	Species	Number	N	Species	Number
1.	Podiceps grisegena	5	11.	Anas spp.	400
2.	Podiceps cristatus	23	12.	Vanellus vanellus	4
3.	Phalacrocorax carbo	7	13.	Tringa nebularia	2
4.	Egretta alba	36	14.	Calidris alpina	170
5.	Ardea cinerea	2	15.	Calidris canutus	3
6.	Cygnus olor	502	16.	Gallinago gallinago	1
7.	Tadorna tadorna	21	17.	Numenius arquata	41
8.	Anas platyrhynchos	5104	18.	Larus ridibundus	67
9.	Anas strepera	10	19.	Larus genei	50
10.	Anas clypeata	31	20.	Larus cachinnans	9
				TOTAL	**6488**

1.1.10. Tendrovskii Bay and seawardside of Tendrovskaya Spit

Date – 10-14/10/2010

In Tendrovskii Bay and on the seawardside of Tendrovskaya Spit a total of 46,752 waterbirds of 34 species were counted (Table 10). The most abundant species were *Fulica atra* (15,760), *Phalacrocorax carbo* (5,874), *Anas platyrhynchos* (2,674), *Anas penelope* (2,660), *Podiceps cristatus* (2,111), *Cygnus olor* (1,636) and *Egretta alba* (1,315). Also recorded were *Aythya spp*. – 5,150, *Anas spp.*- 2,888, *Larus spp.* – 940, *Calidris spp.* - 470 and other wader spp. 1,820.

Table 10.The number of waterbird species observed in Tendrovskii Bay&seawardside of Tendrovskaya Spit

N	Species	Number	N	Species	Number
1.	Gavia arctica	1	21.	Pluvialis squatarola	44
2.	Podiceps grisegena	1	22.	Charadrius alexandrinus	6
3.	Podiceps cristatus	2111	23.	Vanellus vanellus	6
4.	Phalacrocorax carbo	5874	24.	Himantopus himantopus	1
5.	Egretta alba	1315	25.	Haematopus ostralegus	20
6.	Ardea cinerea	81	26.	Tringa totanus	15
7.	Platalea leucorodia	29	27.	Philomachus pugnax	16
8.	Cygnus olor	1636	28.	Calidris minuta	5
9.	Tadorna tadorna	130	29.	Calidris alpina	582
10.	Anas platyrhynchos	2674	30.	Calidris spp.	470
11.	Anas strepera	44	31.	Gallinago gallinago	5
12.	Anas penelope	2660	32.	Numenius arquata	39
13.	Anas acuta	1	33.	Waders spp.	1820
14.	Anas clypeata	10	34.	Larus ridibundus	281
15.	Anas spp.	2888	35.	Larus genei	80
16.	Aythya ferina	637	36.	Larus cachinnans	1335
17.	Aythya spp.	5150	37.	Larus canus	17
18.	Somateria mollissima	32	38.	Larus spp.	940
19.	Mergus serrator	35	39.	Sterna sandvicensis	1
20.	Fulica atra	15760		**TOTAL**	**46752**

1.1.11. Central Sivash

Date – 6 – 9/10/2010

During the count at the Central Sivash site a total of 54,090 waterbirds of 51 species were observed (Table 11). The most abundant species were *Tadorna tadorna* (9,131), *Anas platyrhynchos* (5,076), *Larus genei* (3,867), *Larus melanocephalus* (3,495), *Podiceps nigricollis* (3,217), *Larus canus* (2,842), *Anas clypeata* (1,538), *Grus grus* (1,478), *Calidris alpina* (1,209), Anas *penelope* (1,057). Common species were *Larus cachinnans* (757), *Aythya ferina* (684), *Eudromias morinellus* (585), *Recurvirostra avosetta* (477), *Phalacrocorax carbo* (398), *Fulica atra* (280), *Anas crecca* (279), *Philomachus pugnax* (268), *Podiceps cristatus* (135), *Cygnus olor* (117). A large number of birds were not identified at species level - Larus spp. – 12,828, Aythya spp. – 2,862, wader spp. – 732.

Table 11. The number of waterbird species observed in Central Sivash

N	Species	Number	N	Species	Number
1.	Tachybaptus ruficollis	22	30.	Porzana spp.	1
2.	Podiceps nigricollis	3217	31.	Fulica atra	280
3.	Podiceps grisegena	1	32.	Pluvialis spp.	1
4.	Podiceps cristatus	135	33.	Charadrius hiaticula	2
5.	Phalacrocorax carbo	398	34.	Charadrius alexandrinus	3
6.	Botaurus stellaris	1	35.	Eudromias morinellus	585
7.	Nycticorax nycticorax	1	36.	Charadrius spp.	1

N	Species	Number	N	Species	Number
8.	Egretta alba	70	37.	Vanellus vanellus	98
9.	Egretta garzetta	2	38.	Arenaria interpres	3
10.	Ardea cinerea	62	39.	Recurvirostra avosetta	477
11.	Ardea purpurea	1	40.	Tringa nebularia	39
12.	Ciconia ciconia	5	41.	Tringa stagnatilis	5
13.	Anser anser	61	42.	Actitis hypoleucos	1
14.	Anser albifrons	55	43.	Philomachus pugnax	268
15.	Cygnus olor	117	44.	Calidris minuta	5
16.	Tadorna ferruginea	3	45.	Calidris alpina	1209
17.	Tadorna tadorna	9131	46.	Calidris alba	1
18.	Anas platyrhynchos	5076	47.	Calidris spp.	13
19.	Anas crecca	279	48.	Gallinago gallinago	12
20.	Anas strepera	12	49.	Numenius arquata	27
21.	Anas penelope	1057	50.	Limosa limosa	70
22.	Anas acuta	1	51.	Wader spp.	732
23.	Anas clypeata	1538	52.	Larus ichthyaetus	5
24.	Anas spp.	150	53.	Larus melanocephalus	3495
25.	Aythya ferina	684	54.	Larus minutus	21
26.	Aythya spp.	2862	55.	Larus genei	3867
27.	Circus aeruginosus	1	56.	Larus cachinnans	757
28.	Haliaeetus albicilla	22	57.	Larus canus	2842
29.	Grus grus	1478	58.	Larus spp.	12828
				TOTAL	**54090**

1.1.12. Eastern Sivash

6 -12/10/2010

In Eastern Sivash a total of 674,986 waterbirds of 66 species were observed (Table 12). The most abundant species were *Fulica atra* (230,411), *Aythya marila* (161,434), *Phalacrocorax carbo* (42,110), *Anas platyrhynchos* (41,068), *Anas penelope* (25,966), *Aythya ferina* (24,336), *Aythya fuligula* (23,580), *Calidris alpina* (17,173), *Larus ridibundus* (12,912), *Larus cachinnans* (12,530), *Podiceps cristatus* (12,253), *Larus melanocephalus* (10,000), *Larus canus* (8,330), *Tadorna tadorna* (7,258), *Anas crecca* (5,374), *Podiceps nigricollis* (4,426), *Cygnus olor* (3,972), *Larus genei* (3,832), *Anas acuta* (3,574), *Recurvirostra avosetta* (2,051), *Philomachus pugnax* (1,672), *Anas querquedula* (1,288), *Egretta alba* (1,268), *Anas clypeata* (1,155). Strong wind and sometimes rain during the first days of the counts led to incompete counts of some species - Great Crested Grebe (70-75%), ducks (30-40%) and waders (20%).

Table 12. The number of waterbird species observed in Eastern Sivash

N	Species	Number	N	Species	Number
1.	Tachybaptus ruficollis	740	35.	Pluvialis squatarola	536
2.	Podiceps nigricollis	4426	36.	Pluvialis apricaria	1
3.	Podiceps grisegena	15	37.	Charadrius hiaticula	4
4.	Podiceps cristatus	12253	38.	Charadrius dubius	7
5.	Phalacrocorax carbo	42110	39.	Charadrius alexandrinus	17
6.	Egretta alba	1268	40.	Vanellus vanellus	68
7.	Egretta garzetta	56	41.	Recurvirostra avosetta	2051
8.	Ardea cinerea	310	42.	Haematopus ostralegus	1
9.	Ardea purpurea	1	43.	Tringa nebularia	224
10.	Platalea leucorodia	1	44.	Tringa totanus	491
11.	Anser anser	25	45.	Tringa erythropus	1
12.	Anser albifrons	300	46.	Tringa stagnatilis	26
13.	Cygnus olor	3972	47.	Xenus cinereus	1
14.	Tadorna ferruginea	121	48.	Philomachus pugnax	1672

N	Species	Number	N	Species	Number
15.	Tadorna tadorna	7258	49.	Calidris minuta	90
16.	Anas platyrhynchos	41068	50.	Calidris ferruginea	3
17.	Anas crecca	5374	51.	Calidris alpina	17173
18.	Anas strepera	7	52.	Calidris alba	391
19.	Anas penelope	25966	53.	Gallinago gallinago	3
20.	Anas acuta	3574	54.	Numenius arquata	207
21.	Anas querquedula	1288	55.	Numenius phaeopus	38
22.	Anas clypeata	1155	56.	Limosa limosa	22
23.	Anas sp.	11310	57.	Limosa lapponica	34
24.	Netta rufina	38	58.	Larus ichthyaetus	2
25.	Aythya ferina	24336	59.	Larus melanocephalus	10000
26.	Aythya nyroca	1	60.	Larus minutus	364
27.	Aythya fuligula	23580	61.	Larus ridibundus	12912
28.	Aythya marila	161434	62.	Larus genei	3832
29.	Aythya sp.	150	63.	Larus cachinnans	12530
30.	Bucephala clangula	3	64.	Larus canus	8330
31.	Mergus serrator	18	65.	Larus spp.	1010
32.	Grus grus	318	66.	Gelochelidon nilotica	1
33.	Rallus aquaticus	2	67.	Sterna sandvicensis	52
34.	Fulica atra	230411	68.	Sterna hirundo	3
				TOTAL	**674 986**

1.1.13. Utlyukskii Liman

Date – 4/10/2010

During the counts at the Utlyukskii Liman a total of 114,385 waterbirds of 25 species were observed (Table 13). The most abundant species were *Fulica atra* (79,395), *Larus melanocephalus* (15,750), *Larus ridibundus* (13,860). Common species were *Calidris alpina* (1,326), *Anas platyrhynchos* (1,303), *Tadorna tadorna* (951), *Cygnus olor* (617), *Larus cachinnans* (340), *Aythya ferina* (270).

Table 13. The number of waterbird species observed at the Utlyukskii Liman

N	Species	Number	N	Species	Number
1.	Tachybaptus ruficollis	21	15.	Fulica atra	79395
2.	Podiceps nigricollis	120	16.	Pluvialis squatarola	2
3.	Podiceps cristatus	124	17.	Vanellus vanellus	44
4.	Phalacrocorax carbo	1	18.	Philomachus pugnax	38
5.	Egretta alba	6	19.	Calidris alpina	1326
6.	Egretta garzetta	2	20.	Calidris spp.	8
7.	Ardea cinerea	5	21.	Numenius arquata	11
8.	Cygnus olor	617	22.	Numenius phaeopus	1
9.	Tadorna tadorna	951	23.	Waders spp.	15
10.	Anas platyrhynchos	1303	24.	Stercorarius parasiticus	2
11.	Anas crecca	121	25.	Larus melanocephalus	15750
12.	Netta rufina	51	26.	Larus ridibundus	13860
13.	Aythya ferina	270	27.	Larus cachinnans	340
14.	Gallinula chloropus	1		**Total**	**114 385**

1.1.14. Molochnyi Liman

Date – 3 - 4/10/2010

At the Molochnyi Liman a total of 14,901 waterbirds of 24 species were counted (Table 14). The most abundant species were *Larus ridibundus* (7,133), *Calidris alpina* (2,218), *Grus grus* (1,586), *Anas platyrhynchos* (1,479), *Larus cachinnans* (801). Common species were *Anas crecca* (299), *Recurvirostra avosetta* (220), *Egretta garzetta* (167), *Larus genei* (130), *Ardea cinerea* (109).

Table 14. The number of waterbird species observed at the Molochnyi Liman

N	Species	Number	N	Species	Number
1.	Phalacrocorax carbo	24	14.	Recurvirostra avosetta	220
2.	Egretta alba	86	15.	Haematopus ostralegus	2
3.	Egretta garzetta	167	16.	Tringa nebularia	20
4.	Ardea cinerea	109	17.	Tringa totanus	3
5.	Tadorna tadorna	3	18.	Philomachus pugnax	68
6.	Anas platyrhynchos	1479	19.	Calidris alpina	2218
7.	Anas crecca	299	20.	Numenius arquata	305
8.	Anas penelope	50	21.	Numenius phaeopus	7
9.	Anas querquedula	40	22.	Waders spp.	11
10.	Aythya marila	20	23.	Larus ridibundus	7133
11.	Grus grus	1586	24.	Larus genei	130
12.	Pluvialis squatarola	78	25.	Larus cachinnans	801
13.	Vanellus vanellus	24	26.	Larus spp.	18
				Total	**14901**

1.1.15. Obitochnaya Spit and Bay

Date – 16/10/2010

At the Obitochnaya Spit and Bay a total of 14,137 waterbirds of 25 species were counted (Table 15). The most abundant species were *Fulica atra* (5,000), *Phalacrocorax carbo* (4,500), *Anas platyrhynchos* (3,000). Common species were *Anser anser* (400), *Cygnus olor* (293), *Larus ridibundus* (250), *Calidris alpina* (150), *Larus genei* (120).

Table 15. The number of waterbird species observed at Obitochnaya Spit and Bay

N	Species	Number	N	Species	Number
1.	Tachybaptus ruficollis	60	15.	Mergus spp.	4
2.	Podiceps cristatus	25	16.	Fulica atra	5000
3.	Phalacrocorax carbo	4500	17.	Pluvialis squatarola	1
4.	Egretta alba	17	18.	Recurvirostra avosetta	3
5.	Ardea cinerea	9	19.	Haematopus ostralegus	1
6.	Anser anser	400	20.	Tringa totanus	4
7.	Cygnus olor	293	21.	Calidris ferruginea	20
8.	Tadorna tadorna	70	22.	Calidris alpina	150
9.	Anas platyrhynchos	3000	23.	Numenius arquata	3
10.	Anas acuta	1	24.	Larus minutus	10
11.	Anas clypeata	26	25.	Larus ridibundus	250
12.	Netta rufina	13	26.	Larus genei	120
13.	Aythya nyroca	2	27.	Larus cachinnans	85
14.	Aythya sp.	70		**Total**	**14137**

1.1.16. Berdyanskaya Spit and Bay

Date – 17/10/2010

At Berdyanskaya Spit and Bay a total of 25,666 waterbirds of 20 species were counted (Table 16). The most abundant species were Anatidae - *Anas platyrhynchos* (5,000) and *Anas spp.* (more than 8,000), as well as *Fulica atra* (7,650), *Phalacrocorax carbo* (4,191). Quite common were *Cygnus olor* (243), *Larus ridibundus* (160), *Egretta alba* (74), *Podiceps cristatus* (69), *Anser anser* (65) and *Aythya ferina* (57). Due to quite strong wind the count was incomplete – about 30% of total number of the waterbirds was missed

Table 16. The number of waterbird species observed at Berdyanskaya Spit and Bay

N	Species	Number	N	Species	Number
1.	Tachybaptus ruficollis	30	12.	Aythya ferina	57
2.	Podiceps cristatus	69	13.	Aythya nyroca	2
3.	Phalacrocorax carbo	4191	14.	Fulica atra	7650
4.	Egretta alba	74	15.	Arenaria interpres	1
5.	Ardea cinerea	23	16.	Recurvirostra avosetta	2
6.	Anser anser	65	17.	Tringa totanus	1
7.	Cygnus olor	243	18.	Numenius arquata	4
8.	Anas platyrhynchos	5000	19.	Larus ridibundus	160
9.	Anas acuta	2	20.	Larus genei	22
10.	Anas clypeata	46	21.	Larus cachinnans	24
11.	Anas spp.	8000		**Total**	**25666**

1.1.17. Summary data of waterbird counts in Ukraine

A total of 1,045,134 waterbirds of 90 bird species were counted in October 2010 at the 16 sites (Table 17). The number of counted birds per site varied from 3,169 at the Dzhantasheiskoe Lake&Malyi Sasyk Lake site to 674,986 at the Eastern Sivash site.

According the survey results the most numerous species were (Pic.2) *Fulica atra* (357,429), *Aythya marila* (161,454), *Anas platyrhynchos* (75,050), *Phalacrocorax carbo* (73,417), *Larus ridibundus* (41,045), *Anas penelope* (31,890), *Aythya ferina* (30,348), *Larus melanocephalus* (29,245), *Calidris alpina* (25,053), *Aythya fuligula* (24,790), *Podiceps cristatus* (2,596), *Larus cachinnans* (21,535).

Table 17. The waterbird species observed at 16 sites in Ukraine and their total numbers

1.	Gavia arctica	1	51.	Gallinula chloropus	1
2.	Gavia spp.	70	52.	Fulica atra	357429
3.	Tachybaptus ruficollis	878	53.	Pluvialis squatarola	754
4.	Podiceps nigricollis	7979	54.	Pluvialis apricaria	1
5.	Podiceps grisegena	22	55.	Pluvialis spp.	1
6.	Podiceps cristatus	21596	56.	Charadrius hiaticula	47
7.	Pelecanus onocrotalus	2	57.	Charadrius dubius	8
8.	Pelecanus crispus	79	58.	Charadrius alexandrinus	26
9.	Phalacrocorax carbo	73417	59.	Eudromias morinellus	585
10.	Phalacrocorax pygmaeus	1198	60.	Charadrius spp.	1
11.	Botaurus stellaris	1	61.	Vanellus vanellus	341
12.	Nycticorax nycticorax	17	62.	Arenaria interpres	4
13.	Ardeola ralloides	11	63.	Himantopus himantopus	1
14.	Egretta alba	3029	64.	Recurvirostra avosetta	2816
15.	Egretta garzetta	248	65.	Haematopus ostralegus	27

16.	Ardea cinerea	644	66.	Porzana sp.	1
17.	Ardea purpurea	6	67.	Tringa glareola	19
18.	Platalea leucorodia	39	68.	Tringa nebularia	306
19.	Ciconia ciconia	5	69.	Tringa totanus	569
20.	Anser anser	2126	70.	Tringa erythropus	13
21.	Anser albifrons		71.	Tringa stagnatilis	31
22.	Cygnus olor	9609	72.	Actitis hypoleucos	1
23.	Cygnus cygnus	1	73.	Xenus cinereus	1
24.	Tadorna ferruginea	277	74.	Philomachus pugnax	2157
25.	Tadorna tadorna	18835	75.	Calidris minuta	100
26.	Anas platyrhynchos	75050	76.	Calidris ferruginea	23
27.	Anas crecca	12636	77.	Calidris alpina	25053
28.	Anas strepera	1740	78.	Calidris canutus	11
29.	Anas penelope	31890	79.	Calidris alba	422
30.	Anas acuta	3708	80.	Calidris spp.	1001
31.	Anas querquedula	1376	81.	Gallinago gallinago	105
32.	Anas clypeata	3450	82.	Numenius arquata	758
33.	Anas spp.	22768	83.	Limosa limosa	116
34.	Netta rufina	130	84.	Numenius phaeopus	46
35.	Aythya ferina	30348	85.	Limosa lapponica	34
36.	Aythya nyroca	18	86.	Waders spp.	2578
37.	Aythya fuligula	24790	87.	Stercorarius parasiticus	2
38.	Aythya marila	161454	88.	Larus ichthyaetus	13
39.	Aythya spp.	8232	89.	Larus melanocephalus	29245
40.	Bucephala clangula	31	90.	Larus minutus	396
41.	Somateria mollissima	400	91.	Larus ridibundus	41045
42.	Mergus albellus	5	92.	Larus genei	8131
43.	Mergus serrator	60	93.	Larus cachinnans	21535
44.	Mergus merganser	10	94.	Larus canus	11304
45.	Mergus spp.	9	95.	Larus spp.	15246
46.	Pandion haliaetus	2	96.	Chlidonias hybridus	206
47.	Circus aeruginosus	56	97.	Gelochelidon nilotica	1
48.	Haliaeetus albicilla	13	98.	Hydroprogne caspia	30
49.	Grus grus	3383	99.	Sterna sandvicensis	571
50.	Rallus aquaticus	2	100.	Sterna hirundo	16
				Total	**1045134**

1.2. Georgia

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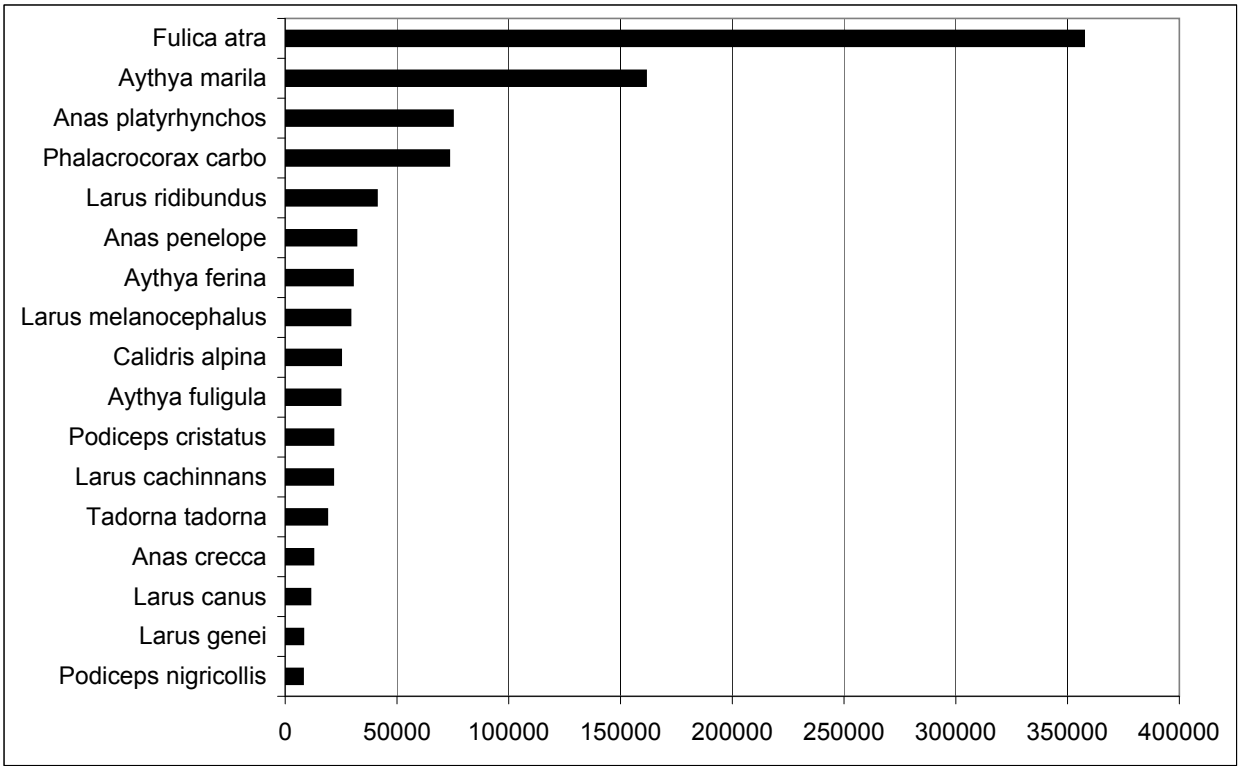
The autumn counts of migratory waterbirds were conducted in two phases, the first during the October 9-10, 2010, and the second during November 11-12, 2010. The study area encompassed the Georgian Black Sea coast and its coastal wetlands including lakes, marshes, and river mouths. In total 6 sites were selected, some of which consisted of various environmental features (sub-sites)[1], the sites included:

[1] The November counts were confined only to 1st, 3rd and 6th sites from the provided list.



Pic. 2 The most common waterbird species observed at all 16 sites along Ukraine's coast

- Black Sea Coast between Anaklia-R.Churia Mouth;
- Black Sea Coast between R.R. Khobi and Rioni, and Partotskali Lake;
- Lake Paliastomi;
- Black Sea Coast between R.Supsa Mouth and Lake Paliastomi Channel, and Khidmaghala Fishponds;
- Ispani Marshes;
- Chorokhi Delta.

Six counters with previous experience in conducting wintering waterbird censuses were involved in the project (see Appendix 1). On October 8th, the day before starting the counts, a working meeting was arranged, the purpose of which was preparation for the counts, introduction to the methodology of the counts and bird identification, as well as other issues, related to organization of counts, access to sites, logistics etc.

The counts started at 9.00 a.m.. On 9th of October three sites were surveyed, namely Anaklia Churia, Khobi-Rioni, and Paliastomi Lake, whereas on October 10 – Supsa-Paliastomi Channel, Ispani Marshes and Chorokhi Delta were covered. Each site was visited by two counters.

The weather during the entire count period all over the study area was cloudy and periodically rainy, although, the weather conditions did not hamper the counts. Hunters' activity and shooting, however, were among the most significant hindering factors, leading to disturbance to birds, and low number of birds in the nearby waterbodies.

For bird identification and counts each group was equipped with binoculars and telescopes, as well as field guides. Counts in most areas were conducted along transects. On Paliastomi Lake and in peat cuttings boats were used. GPS was applied for registering the counting positions.

1.1.1. Black Sea Coast between Anaklia-R.Churia Mouth

Date – 9/10/2010, 11/11/2010

In this section the counts was conducted by two individuals, starting from Anaklia village heading on foot southwards, along the coast, crossing the River Churia and down to the River Khobistskali. During the counts in October, the weather was cloudy, while in November it was sunny. Active hunting was not observed, no other hampering factors were encountered during the working process, except for several shots heard in the distance, which did not disturb the process. In the lakes/ponds located along the coastline, local fishermen were fishing. During the October counts 604 individuals of 16 birds species were recorded (Table 18), the absolute majority of which were *Fulica atra* (499). During the November counts 514 birds of 22 species were recorded.

Table 18. The number of waterbird species observed at the Black Sea Coast site between Anaklia-R.Churia Mouth

N	Species	Number (09/10/2010)	Number (11/11/2010)
1.	Podiceps cristatus		11
2.	Tachybaptus ruficollis	4	22
3.	Phalacrocorax carbo	2	14
4.	Ardea cinerea	17	16
5.	Ardea purpurea		1
6.	Egretta alba		13
7.	Egretta garzetta		3
8.	Cygnus spp.	4	
9.	Anas platyrhynchos	6	19
10.	Anas strepera	40	43
11.	Anas clypeata		7
12.	Anas crecca	9	
13.	Netta rufina	5	
14.	Aythya fuligula	6	
15.	Aythya ferina		5
16.	Fulica atra	499	304
17.	Porphyrio porphyrio	1	
18.	Gallinula chloropus	1	
19.	Pluvialis squatarola	3	
20.	Calidris alpina		14
21.	Calidris alba		8
22.	Actitis hypoleucos		4
23.	Larus michahellis		13
24.	Sterna hirundo		1
25.	Sterna albifrons	1	
26.	Chlidonias leucopterus		1
27.	Alcedo atthis	3	5
28.	Haliaeetus albicilla		2
29.	Pandion haliaetus		1
30.	Circus aeruginosus	3	7
	TOTAL	**604**	**514**

1.2.2. Black Sea Coast between R.R. Khobi and Rioni, and Partotskali Lake

Date – 9/10/2010

In this section the counts started in the vicinity of Kulevi, from where the observers walked southwards to the Riv. Rioni Delta. Afterwards, a count was performed on the Partotskali Lake. The weather was

cloudy. Active hunting was not observed, and there was no other disturbance. In this section 92 individuals of 12 bird species were registered (Table 19), *Calidris alpina* being most abundant (30) followed by *Larus michahellis* (25), as for Partotskali Lake, only 1 *Scolopax rusticola* and 1 *Haliaeetus albicilla* were registered.

Table 19. The number of waterbird species observed at the of Black Sea Coast site between R.R. Khobi and Rioni, and Partotskali Lake

N	Species	Number	N	Species	Number
1.	Phalacrocorax carbo	1	7.	Calidris alba	1
2.	Ardea cinerea	2	8.	Arenaria interpres	1
3.	Ardea purpurea	1	9.	Pluvialis squatarola	11
4.	Anas platyrhynchos	14	10.	Scolopax rusticola	1
5.	Charadrius alexandrius	2	11.	Larus michahellis	25
6.	Calidris alpina	30	12.	Haliaeetus albicilla	3
				Total	**92**

1.2.3. Paliastomi Lake

Date – 9/10/2010

On Paliastomi Lake the birds were counted by motor-boat. The weather was cloudy, with light rain, accompanied by small waves on the lake. The birds were basically concentrated along the shore and channel; small numbers of birds were flying over the lake. The counts started at the peat excavation areas, later the motor-boat proceeded approximately at 30-50 m distance along the shore of Paliastomi Lake, in an anti-clockwise direction. The lake Small Paliastomi was also checked, along with the river-mouths of riv. Pichora and riv. Kaparcha. During the counts no disturbance occurred. In total 1,114 birds of 18 species were counted there, among them *Phalacrocorax carbo* (522) was the most abundant, other species in larger numbers included *Anas platyrhynchos* (172), *Sterna hirundo* (115), *Anas crecca* (66), *Larus michahellis* (64) and others (Table 20)

Table 20. The number of waterbird species observed at Paliastomi Lake

N	Species	Number	N	Species	Number
1.	Podiceps cristatus	4	10.	Anas clypeata	1
2.	Podiceps grisegena	1	11.	Aythya ferina	4
3.	Tachybaptus ruficollis	14	12.	Fulica atra	2
4.	Phalacrocorax carbo	522	13.	Larus michahellis	64
5.	Ardea cinerea	51	14.	Larus genei	7
6.	Egretta alba	8	15.	Sterna hirundo	115
7.	Egretta garzetta	40	16.	Sterna albifrons	35
8.	Anas platyrhynchos	172	17.	Alcedo atthis	4
9.	Anas crecca	66	18.	Circus aeruginosus	4
				Total	**1114**

1.2.4. Black Sea coast between R.Supsa Mouth and Paliastomi Lake Channel, and Khidmaghala Fishponds

Date: 10/10/2010, 12/11/2010

The counts were conducted along the transect starting from the Paliastomi Channel and continued to the River Supsa. During the October counts, the birds were mainly concentrated at the Paliastomi Channel and nearby ponds. As for the coastal section, wading birds and small flocks of gulls were recorded here. Separately the counts were conducted at the Khidmagala Ponds, where only 2 *Ardea cinerea* and 1 *Circus aeruginosus* were observed. The weather was cloudy and slightly rainy. At the given section in total 307 birds of 16 species were registered (Table 21), dominated by *Larus michahellis* (85), *Calidris alba* (54),

Larus minutus (44), *Egretta garzetta* (37) and *Calidris alpina* (26). In November, the weather condition was different, sunny and warm. However, only 105 birds of 12 species were recorded.

Table 21. The number of waterbird species observed at the Black Sea Coast site between R.Supsa mouth and Lake Paliastomi Channel, and Khidmaghala Fishponds

N	Species	Number (10/10/2010)	Number (12/11/2010)
1.	Podiceps cristatus	15	8
2.	Tachybaptus ruficollis	5	12
3.	Phalacrocorax carbo	4	2
4.	Ardea cinerea	5	25
5.	Egretta alba	3	2
6.	Egretta garzetta	37	9
7.	Fulica atra	1	7
8.	Charadrius dubius	1	
9.	Calidris alpina	26	
10.	Calidris canutus	1	
11.	Calidris alba	54	
12.	Larus minutus	44	3
13.	Larus michahellis	85	27
14.	Sterna hirundo	25	7
15.	Alcedo atthis		1
16.	Circus aeruginosus	1	2
	TOTAL	**307**	**105**

1.2.5. Ispani Marshes

Date – 10/10/2010

Counts were conducted next to the fish ponds and surrounding channels located in the north-western part of the site. The weather was partially sunny; no preventative factors were met. Despite this, Ispani territory was not distinguished by numbers or diversity of birds. In total 13 birds of 5 species were recorded there (Table 22).

Table 22. The number of waterbird species observed in the Ispani Marshes

N	Species	Number
1.	Tachybaptus ruficollis	3
2.	Ardea cinerea	6
3.	Egretta garzetta	2
4.	Alcedo atthis	1
5.	Circus aeruginosus	1
	TOTAL	**13**

1.2.6. Chorokhi Delta

Date – 10/10/2010, 12/11/2010

On the Chorokhi Delta counts were conducted along the transect starting from east of the site towards the sea (west) on the left bank of the river, passing by the fishponds. Separate counts were conducted in the northern part of the site (right bank) along the fish ponds, near the landfill site. In October, the weather was rather rainy and accordingly the sea was stormy. Furthermore, local hunters were active in the river delta, and thus periodically shots were heard. The birds were mainly observed/counted in flight,

except for flocks of *Larus michahellis* concentrated on the islands. In total 1,889 birds of 16 species were recorded (Table 23), with the majority represented by *Larus michahellis* (1,787). During the November counts, the weather was sunny and warm. In total 1,800 birds of 11 species were recorded that day, with *Larus michahellis* being the most abundant.

Table 23. The number of waterbird species observed in the R.Chorokhi Delta

N	Species	Number (10/10/2010)	Number (12/11/2010)
1.	Podiceps cristatus	6	7
2.	Tachybaptus ruficollis	1	26
3.	Phalacrocorax carbo	2	28
4.	Ardea cinerea	42	4
5.	Ardea purpurea	2	1
6.	Egretta alba	1	2
7.	Egretta garzetta	4	3
8.	Botaurus stellaris	1	
9.	Anas strepera	2	
10.	Fulica atra	1	1
11.	Tringa totanus	11	
12.	Gallinago gallinago	13	
13.	Burhinus oedicnemus	5	
14.	Larus michahellis	1787	1721
15.	Alcedo atthis	9	5
16.	Circus aeruginosus	2	2
	TOTAL	**1889**	**1800**

1.2.7. Summary data of waterbird counts in Georgia

A total of 4,005 waterbirds of 39 bird species (Table 24) were counted in October 2010 at the six sites: 604 at the Black Sea Coast site between Anaklia - R.Churia mMouth, 92 at the Black Sea Coast site between R. Khobi and R.Rioni, and Partotskali Lake, 1,114 at Paliastomi Lake, 307 at the Black Sea Coast site between R.Supsa mouth and Paliastomi Lake, 13 in Ispani Marshes, 1,889 in Chorokhi Delta. According the survey results the most numerous species were (Pic.3) *Larus michahellis* (1,961), *Phalacrocorax carbo* (531), *Fulica atra* (503), *Anas platyrhynchos* (192), *Sterna hirundo* (140) and *Ardea cinerea* (123).

In November 2010, counts at three sites totalled 2,419 waterbirds of 23 species: 514 at the Black Sea Coast site between Anaklia - R.Churia mouth, 105 at Black Sea Coast site between R.Supsa mouth and Paliastomi Lake, 1800 in Chorokhi Delta. The most numerous species were *Larus michahellis* (1,761) and *Fulica atra* (312).

Table 24. The waterbird species observed at 6 sites in Georgia and their total numbers

N	Species	Number (Oct.2010)	Number (Nov.2010)
1.	Podiceps cristatus	25	26
2.	Podiceps grisegena	1	
3.	Tachybaptus ruficollis	27	60
4.	Phalacrocorax carbo	531	44
5.	Ardea cinerea	123	45
6.	Ardea purpurea	3	2

N	Species	Number (Oct.2010)	Number (Nov.2010)
7.	Egretta alba	12	17
8.	Egretta garzetta	83	15
9.	Botaurus stellaris	1	
10.	Cygnus spp.	4	
11.	Anas platyrhynchos	192	19
12.	Anas strepera	42	43
13.	Anas crecca	75	
14.	Anas clypeata	1	7
15.	Netta rufina	5	
16.	Aythya ferina	4	5
17.	Aythya fuligula	6	
18.	Fulica atra	503	312
19.	Porphyrio porphyrio	1	
20.	Gallinula chloropus	1	
21.	Charadrius dubius	1	
22.	Charadrius alexandrius	2	
23.	Calidris alpina	56	14
24.	Calidris canutus	1	
25.	Calidris alba	55	8
26.	Actitis hypoleucos		4
27.	Tringa totanus	11	
28.	Arenaria interpres	1	
29.	Pluvialis squatarola	14	
30.	Gallinago gallinago	13	
31.	Scolopax rusticola	1	
32.	Burhinus oedicnemus	5	
33.	Larus minutus	44	3
34.	Larus michahellis	1961	1761
35.	Larus genei	7	
36.	Sterna hirundo	140	8
37.	Sterna albifrons	36	
38.	Chlidonias leucopterus		1
39.	Alcedo atthis	17	11
40.	Haliaeetus albicilla	3	2
41.	Pandion haliaetus		1
42.	Circus aeruginosus	11	11
	TOTAL	**4005**	**2419**

1.2. Turkey

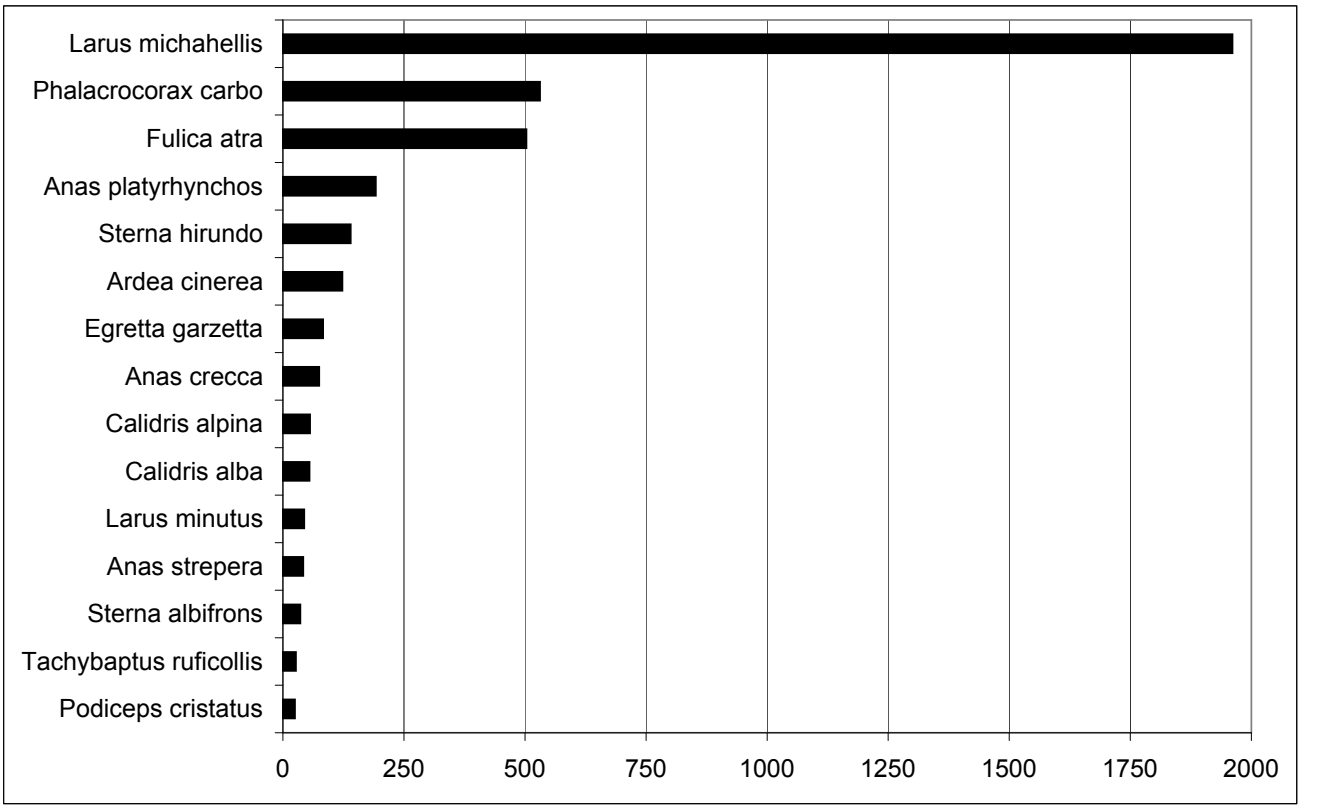
Akarsu F.

The field surveys were carried out on 9-10 October 2010 in five survey areas including the Sinop Coast, the Kızılırmak Delta, the Amasra Coast, the Sakarya Delta and Terkos Lake with 20 different observers (see Appendix 1). In the survey, binoculars, telescopes and GPS devices were used to collect data. Every point and transect the start-finish coordinates were recorded. Following the agreed methodology, all observers stayed at least 30 minutes at each point.

1.3.1. Kızılırmak Delta

Date – 10/10/ 2010

In the Kızılırmak Delta 53 waterbirds species were recorded (Table 25). *Fulica atra* (9,610), *Anas*



Pic. 3 The most common waterbird species observed at all 6 sites along Georgia's coast

crecca (3,194)*, Anas platyrhynchos* (1,930) were the three most abundant waterbird species observed. The records were taken from 12 different point counts and two transects.

Table 25. The number of waterbird species observed in the Kızılırmak Delta

N	Species	Number	N	Species	Number
1.	Tachybaptus ruficollis	91	28.	Pluvialis squatarola	34
2.	Podiceps nigricollis	12	29.	Pluvialis apricaria	21
3.	Podiceps cristatus	38	30.	Charadrius dubius	3
4.	Pelecanus crispus	4	31.	Charadrius alexandrinus	19
5.	Phalacrocorax carbo	32	32.	Vanellus vanellus	44
6.	Phalacrocorax pygmaeus	8	33.	Tringa ochropus	31
7.	Ardeola ralloides	2	34.	Tringa glareola	24
8.	Egretta alba	12	35.	Tringa nebularia	18
9.	Egretta garzetta	667	36.	Tringa totanus	97
10.	Ardea cinerea	60	37.	Tringa erythropus	1
11.	Ardea purpurea	1	38.	Tringa stagnatilis	1
12.	Cygnus olor	9	39.	Actitis hypoleucos	1
13.	Calidris ferruginea	1	40.	Philomachus pugnax	12
14.	Anas platyrhynchos	1930	41.	Calidris alpina	28
15.	Anas crecca	3194	42.	Gallinago gallinago	28
16.	Anas strepera	1469	43.	Numenius arquata	1
17.	Anas penelope	243	44.	Numenius phaeopus	1
18.	Anas acuta	23	45.	Limosa limosa	90
19.	Anas querquedula	2	46.	Larus ridibundus	69
20.	Anas clypeata	393	47.	Larus armenicus	1
21.	Netta rufina	18	48.	Larus fuscus	2
22.	Aythya ferina	572	49.	Larus michahellis	209
23.	Aythya fuligula	2	50.	Larus canus	4
24.	Oxyura leucocephala	4	51.	Sterna nilotica	2

N	Species	Number	N	Species	Number
25.	Gallinula chloropus	86	52.	Sterna sandvicensis	1
26.	Porphyrio porphyrio	121	53.	Sterna albifrons	16
27.	Fulica atra	9610		**Total**	**19362**

1.3.2. Sinop Coast

Date – 10/10/ 2010

During the Sinop Coast survey, 15 different waterbird species were recorded (Table 26). *Fulica atra* (1,980)*, Larus michahellis* (47) and *Aythya ferina* (36) were the three most abundant waterbird species observed along the Sinop Coast. The records were taken from seven different point counts and one transect.

Table 26. The number of waterbird species observed along the Sinop Coast

N	Species	Number	N	Species	Number
1.	Tachybaptus ruficollis	12	9.	Aythya fuligula	33
2.	Podiceps grisegena	1	10.	Rallus aquaticus	1
3.	Podiceps cristatus	34	11.	Gallinula chloropus	5
4.	Phalacrocorax carbo	25	12.	Fulica atra	1980
5.	Phalacrocorax aristotelis	7	13.	Calidris alpina	1
6.	Ardea cinerea	31	14.	Lymnocryptes minimus	9
7.	Anas platyrhynchos	13	15.	Larus michahellis	47
8.	Aythya ferina	36		**Total**	**2235**

1.3.3. Amasra Coast

Date – 9/10/ 2010

During the Amasra Coast survey, 13 different waterbird species were observed (Table 27). *Larus michahellis* (731), *Phalacrocorax carbo* (38) and *Larus minutus* (36) were the three most abundant waterbird species observed along the Amasra Coast. The records were taken from 7 different points using point count methodology.

Table 27. The number of waterbird species observed along the Amasra Coast

N	Species	Number	N	Species	Number
1.	Tachybaptus ruficollis	14	8.	Charadrius dubius	1
2.	Phalacrocorax carbo	38	9.	Larus minutus	36
3.	Phalacrocorax aristotelis	6	10.	Larus ridibundus	24
4.	Egretta alba	1	11.	Larus fuscus	9
5.	Ardea cinerea	9	12.	Larus michahellis	731
6.	Platalea leucorodia	1	13.	Chlidonias hybridus	3
7.	Gallinula chloropus	14		**Total**	**887**

1.3.4. Sakarya Delta

Date – 10/10/ 2010

During the Sakarya Delta survey, 22 different waterbird species were observed (Table 28). *Larus michahellis* (264)*, Podiceps cristatus* (54) and *Larus ridibundus* (37) were the three most abundant waterbird species observed in the Sakarya Delta. The records were taken from five different points using point count methodology.

Table 28.The number of waterbird species observed in Sakarya Delta

N	Species	Number	N	Species	Number
1.	Tachybaptus ruficollis	16	12.	Pluvialis squatarola	1
2.	Podiceps cristatus	54	13.	Charadrius dubius	3
3.	Phalacrocorax carbo	36	14.	Haematopus ostralegus	3
4.	Phalacrocorax aristotelis	1	15.	Tringa glareola	1
5.	Ardeola ralloides	1	16.	Calidris alpina	2
6.	Ardea cinerea	5	17.	Larus ridibundus	37
7.	Anas clypeata	1	18.	Larus fuscus	1
8.	Mergus serrator	1	19.	Larus michahellis	264
9.	Circus aeruginosus	1	20.	Chlidonias hybridus	12
10.	Gallinula chloropus	7	21.	Sterna sandvicensis	9
11.	Fulica atra	24	22.	Alcedo atthis	1
				Total	**481**

1.3.5. Terkos Lake

Date – 10/10/ 2010

During the Terkos Lake survey, 25 waterbirds species were observed (Table 29). *Fulica atra* (1,528), *Larus michahellis* (262) and *Podiceps cristatus* (164) were the three most abundant waterbird species observed at Terkos Lake. The records were taken from six different point counts and one transect count.

Table 29. The number of waterbird species observed at Terkos Lake

N	Species	Number	N	Species	Number
1.	Tachybaptus ruficollis	19	14.	Rallus aquaticus	1
2.	Podiceps cristatus	164	15.	Porzana parva	1
3.	Phalacrocorax carbo	29	16.	Gallinula chloropus	2
4.	Phalacrocorax aristotelis	1	17.	Fulica atra	1528
5.	Phalacrocorax pygmaeus	4	18.	Gallinago gallinago	5
6.	Ardeola ralloides	9	19.	Larus melanocephalus	1
7.	Egretta alba	15	20.	Larus minutus	1
8.	Egretta garzetta	41	21.	Larus michahellis	262
9.	Ardea cinerea	18	22.	Chlidonias hybridus	29
10.	Ciconia nigra	3	23.	Sterna sandvicensis	4
11.	Anas platyrhynchos	4	24.	Sterna hirundo	5
12.	Anas crecca	1	25.	Alcedo atthis	13
13.	Circus aeruginosus	3		**Total**	**2163**

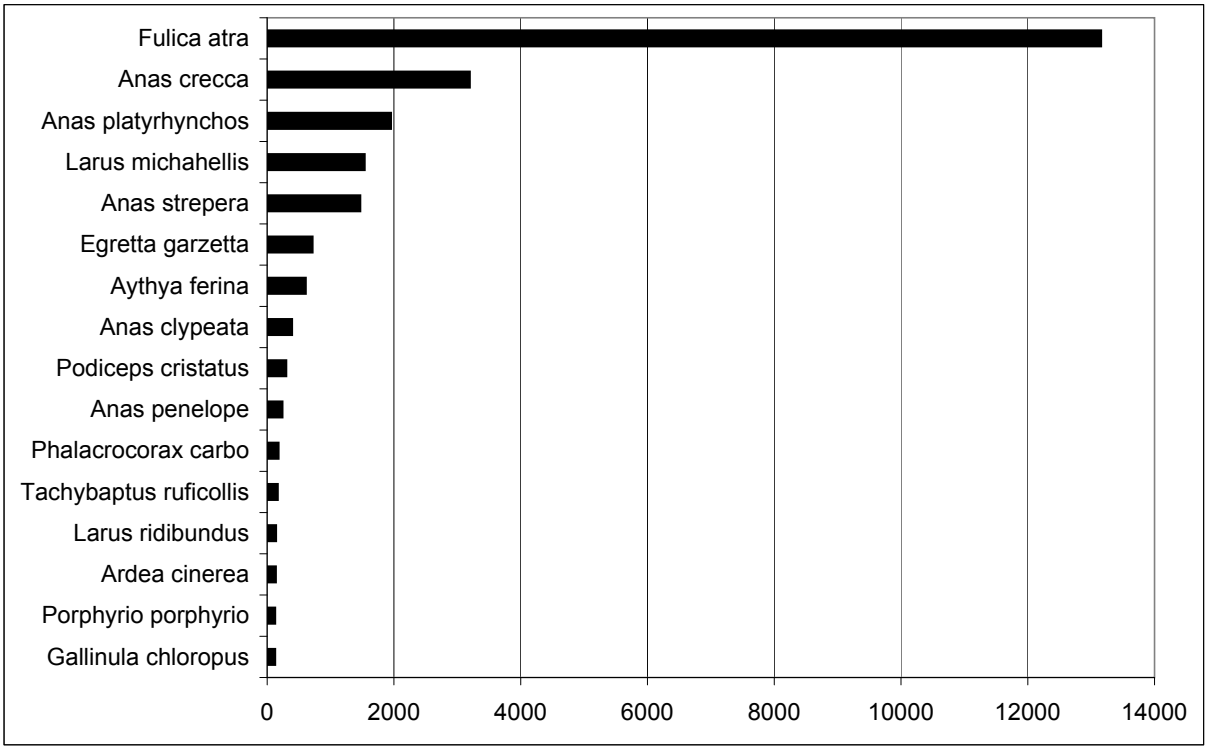
1.3.6. Summary data of waterbird counts in Turkey

A total of 25,128 waterbirds belonging to 68 different species (Table 30) were observed at the 5 sites from 36 points and 4 transect routes: 19,362 waterbirds were observed in the Kızılırmak Delta, 2,235 waterbirds were recorded along the Sinop Coast, 2,163 waterbirds at Terkos Lake, 887 waterbirds along the Amasra Coast and finally 481 waterbirds were recorded in the Sakarya Delta. According to survey results, *Fulica atra* (13,142), *Anas crecca* (3,195)*, Anas platyrhynchos* (1,947) were the three most abundant species observed during the counts (Pic.4).

Table 30. The waterbird species observed at 5 sites in Turkey and their total numbers

N	Species	Number	N	Species	Number
1.	Tachybaptus ruficollis	152	35.	Pluvialis squatarola	35
2.	Podiceps nigricollis	12	36.	Pluvialis apricaria	21
3.	Podiceps grisegena	1	37.	Charadrius dubius	7
4.	Podiceps cristatus	290	38.	Charadrius alexandrinus	19

N	Species	Number	N	Species	Number
5.	Pelecanus crispus	4	18.	Vanellus vanellus	44
6.	Phalacrocorax carbo	160	19.	Haematopus ostralegus	3
7.	Phalacrocorax aristotelis	15	20.	Tringa ochropus	31
8.	Phalacrocorax pygmaeus	12	21.	Tringa glareola	25
9.	Ardeola ralloides	12	22.	Tringa nebularia	18
10.	Egretta alba	28	23.	Tringa totanus	97
11.	Egretta garzetta	708	24.	Tringa erythropus	1
12.	Ardea cinerea	123	25.	Tringa stagnatilis	1
13.	Ardea purpurea	1	26.	Actitis hypoleucos	1
14.	Platalea leucorodia	1	27.	Philomachus pugnax	12
15.	Ciconia nigra	3	28.	Calidris ferruginea	1
16.	Cygnus olor	9	29.	Calidris alpina	31
17.	Anas platyrhynchos	1947	30.	Lymnocryptes minimus	9
18.	Anas crecca	3195	31.	Gallinago gallinago	33
19.	Anas strepera	1469	32.	Numenius arquata	1
20.	Anas penelope	243	33.	Numenius phaeopus	1
21.	Anas acuta	23	34.	Limosa limosa	90
22.	Anas querquedula	2	35.	Larus melanocephalus	1
23.	Anas clypeata	394	36.	Larus minutus	37
24.	Netta rufina	18	37.	Larus ridibundus	130
25.	Aythya ferina	608	38.	Larus armenicus	1
26.	Aythya fuligula	35	39.	Larus fuscus	12
27.	Oxyura leucocephala	4	40.	Larus michahellis	1513
28.	Mergus serrator	1	41.	Larus canus	4
29.	Circus aeruginosus	4	42.	Chlidonias hybridus	44
30.	Rallus aquaticus	2	43.	Sterna nilotica	2
31.	Porzana parva	1	44.	Sterna sandvicensis	14
32.	Gallinula chloropus	114	45.	Sterna hirundo	5
33.	Porphyrio porphyrio	121	46.	Sterna albifrons	16
34.	Fulica atra	13142	47.	Alcedo atthis	14
				TOTAL	**25128**



Pic. 4 The most common waterbird species observed at all 5 sites along Turkey's coast

1.4 General results of single October 2010 counts in Ukraine, Georgia and Turkey

Kostiushyn V.

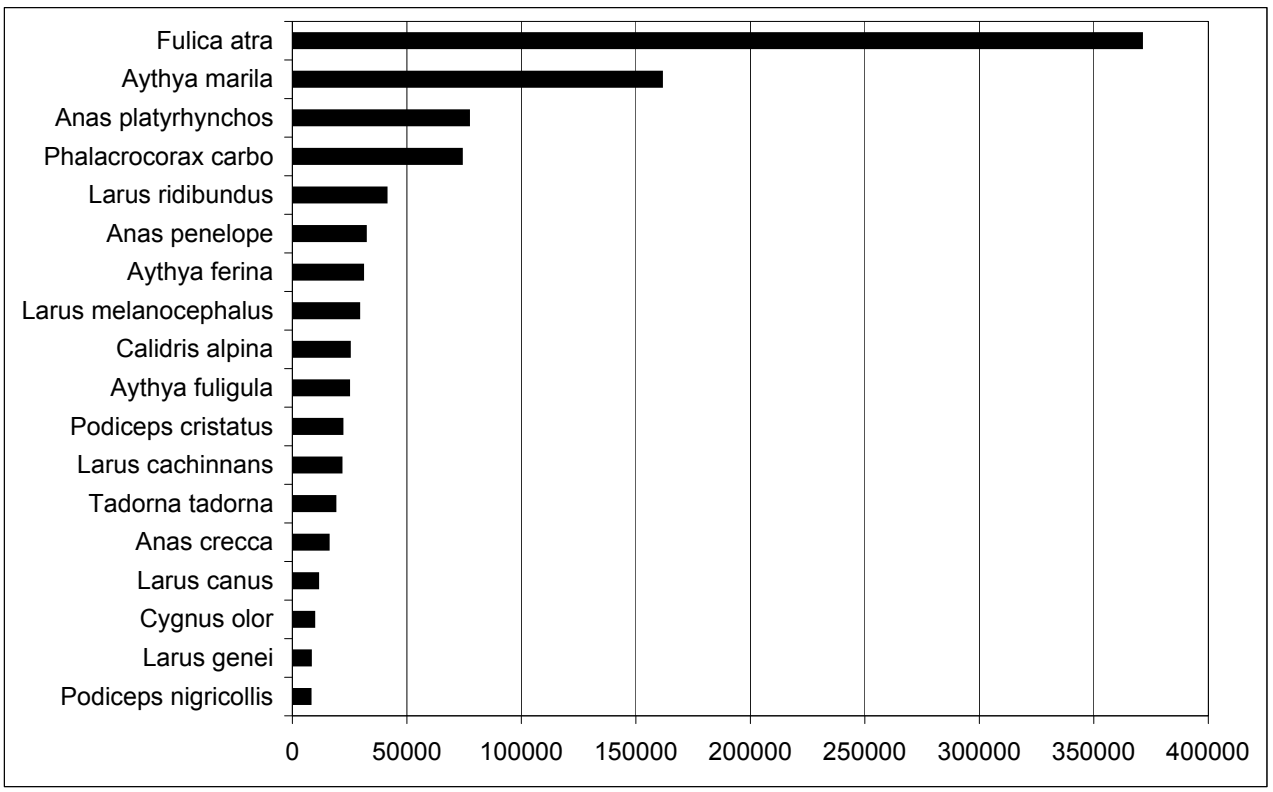
The October 2010 counts of migratory waterbird species covered 27 key sites along the Azov – Black Sea Coast in three coutries: 16 in Ukraine, 6 in Georgia and 5 in Turkey. The list of count sites is presented in Table 31. The number of birds per site varied between 13 in Ispani Marshes (Georgia) to 674,986 in Eastern Sivash (Ukraine). The most important sites, where amount of birds exceeded 10,000, are the following:

Eastern Sivash (674,986), Utlyukskii Liman (114,385), Central Sivash (54,090), Tendrovskii Bay&seaward side of Tendrovskaya Spit (46,752), Danube Delta (32,288), Dnepro-Bugskiy Liman (27,585), Berdyanskaya Spit and Bay (25,666), Kizilirmak Delta (24,362), Molochnyi Liman (14,901), Obitochnaya Spit and Bay (14,137) and Pokrovskaya Spit (11,836). All of them are located on the Ukrainian Azov-Black Sea coast, excluding the Kizilirmak Delta, which is in Turkey (Pic.1)

In total 1,074,281 birds of 104 species were counted: in Ukraine – 1,045,134 birds, in Georgia - 4,019 birds, in Turkey – 30,128 birds,. Distribution of counted waterbirds is shown in Pic.5.

According the survey results the most numerous species were *Fulica atra* (371,074), *Aythya marila* (161,454), *Anas platyrhynchos* (77,189), *Phalacrocorax carbo* (74,108), *Larus ridibundus* (41,175), *Anas penelope* (32,133), *Aythya ferina* (30,960) and *Larus melanocephalus* (29,246). The list of the most numerous species and their proportions in the total is presented in Pic.6.

Distribution of the ten most numerous species at the counted wetlands is presented in Pics.7 - 16. More detailed data on the October 2010 bird counts in all three countries is shown below in Table 32.



Pic.6 The most common waterbird species observed at all 27 sites

Table 31. List of count sites and number of birds per site

N	Country	Site name	Number of birds
1	Ukraine	Ermakov Island	6265
2	Ukraine	Danube Delta	32288
3	Ukraine	Sasyk Lake	6112
4	Ukraine	Dzhantsheiskoe Lake&Malyi Sasyk Lake	3169
5	Ukraine	Dniestrovskii Liman (northern part)	3275
6	Ukraine	Dnepro-Bugsky Liman	27585
7	Ukraine	Pokrovskaya Spit	11836
8	Ukraine	Adzhigol Lakes	3199
9	Ukraine	Yagorlytskii Bay	6488
10	Ukraine	Tendrovskii Bay&seaward side of Tendrovskaya Spit	46752
11	Ukraine	Central Sivash	54090
12	Ukraine	Eastern Sivash	674986
13	Ukraine	Utlyukskii Liman	114385
14	Ukraine	Molochnyi Liman	14901
15	Ukraine	Obitochnaya Spit and Bay	14137
16	Ukraine	Berdyanskaya Spit and Bay	25666
		Sub-total	**1045134**
17	Georgia	Black Sea Coast between Anaklia - R.Churia mouth	604
18	Georgia	Black Sea Coast between R. Khobi and R.Rioni, and Partotskali Lake	92
19	Georgia	Paliastomi Lake	1114
20	Georgia	Black Sea Coast between R.Supsa mouth and Paliastomi Lake	307
21	Georgia	Ispani Marshes	13
22	Georgia	Chorokhi Delta	1889
		Sub-total	**4019**
23	Turkey	Kizilirmak Delta	19362
24	Turkey	Sinop Coast	2235
25	Turkey	Amasra Coast	887
26	Turkey	Sakarya Delta	481
27	Turkey	Terkos Lake	2163
		Sub-total	**25128**
		Total	**1074281**

Table 32. Summarized data of October 2010 waterbird counts in Ukraine, Georgia and Turkey

1.	Gavia arctica	1	59.	Fulica atra	371074
2.	Gavia spp.	70	60.	Burhinus oedicnemus	5
3.	Tachybaptus ruficollis	1057	61.	Pluvialis squatarola	803
4.	Podiceps nigricollis	7991	62.	Pluvialis apricaria	22
5.	Podiceps grisegena	24	63.	Pluvialis spp.	1
6.	Podiceps cristatus	21911	64.	Charadrius hiaticula	47
7.	Pelecanus onocrotalus	2	65.	Charadrius dubius	16
8.	Pelecanus crispus	83	66.	Charadrius alexandrinus	47
9.	Phalacrocorax carbo	74108	67.	Charadrius spp.	1
10.	Phalacrocorax aristotelis	15	68.	Eudromias morinellus	585
11.	Phalacrocorax pygmeus	1210	69.	Vanellus vanellus	385
12.	Botaurus stellaris	2	70.	Arenaria interpres	5
13.	Nycticorax nycticorax	17	71.	Himantopus himantopus	1
14.	Ardeola ralloides	23	72.	Recurvirostra avosetta	2816
15.	Egretta alba	3069	73.	Haematopus ostralegus	30
16.	Egretta garzetta	1039	74.	Tringa ochropus	31
17.	Ardea cinerea	890	75.	Tringa glareola	44
18.	Ardea purpurea	10	76.	Tringa nebularia	324
19.	Platalea leucorodia	40	77.	Tringa totanus	677
20.	Ciconia ciconia	5	78.	Tringa stagnatilis	32
21.	Ciconia nigra	3	79.	Actitis hypoleucos	2
22.	Anser anser	2126	80.	Xenus cinereus	1
23.	Anser albifrons	355	81.	Philomachus pugnax	2169
24.	Tringa erythropus	14	82.	Calidris minuta	100
25.	Cygnus olor	9618	83.	Tadorna ferruginea	277
26.	Cygnus cygnus	1	84.	Calidris ferruginea	24
27.	Cygnus spp.	4	85.	Calidris alpina	25140
28.	Tadorna tadorna	18835	86.	Calidris canutus	12
29.	Anas platyrhynchos	77189	87.	Calidris spp.	1001
30.	Anas crecca	15906	88.	Calidris alba	477
31.	Anas strepera	3251	89.	Lymnocryptes minimus	9
32.	Anas penelope	32133	90.	Gallinago gallinago	151
33.	Anas acuta	3731	91.	Scolopax rusticola	1
34.	Anas querquedula	1378	92.	Numenius arquata	759
35.	Anas spp.	22768	93.	Numenius phaeopus	47
36.	Anas clypeata	3845	94.	Limosa limosa	206
37.	Netta rufina	153	95.	Limosa lapponica	34
38.	Aythya ferina	30960	96.	Waders spp.	2578
39.	Aythya nyroca	18	97.	Stercorarius parasiticus	2
40.	Aythya fuligula	24831	98.	Larus ichthyaetus	13
41.	Aythya marila	161454	99.	Larus melanocephalus	29246
42.	Aythya spp.	8232	100.	Larus minutus	477
43.	Bucephala clangula	31	101.	Larus ridibundus	41175

44.	Somateria mollissima	400	102.	Larus genei	8138
45.	Oxyura leucocephala	4	103.	Larus fuscus	12
46.	Mergus albellus	5	104.	Larus cachinnans	21535
47.	Mergus serrator	61	105.	Larus michahellis	3474
48.	Mergus merganser	10	106.	Larus spp.	15246
49.	Mergus spp.	9	107.	Larus canus	11308
50.	Pandion haliaetus	2	108.	Larus armenicus	1
51.	Circus aeruginosus	71	109.	Chlidonias hybridus	250
52.	Haliaeetus albicilla	16	110.	Gelochelidon nilotica	3
53.	Grus grus	3383	111.	Hydroprogne caspia	30
54.	Rallus aquaticus	4	112.	Sterna sandvicensis	585
55.	Porzana parva	1	113.	Sterna hirundo	161
56.	Porzana spp.	1	114.	Sterna albifrons	52
57.	Gallinula chloropus	116	115.	Alcedo atthis	31
58.	Porphyrio porphyrio	122		**TOTAL**	**1074281**

2. Results of a series of counts at the Molochnyi Liman (Ukraine) during the autumn 2010 migratory season

Chernichko J., Chernichko R., Diadicheva E. and Vinokurova S.

To gain a better understanding on the timing of migration of different birds species, 6 two-days counts were conducted at the Molochnyi Liman, located on the Azov Sea Coast of Ukraine (Pic.17). Counts were conducted about every ten days during the whole autumn migratory season:

- 18 - 19.08.2010
- 02 - 03.09.2010
- 16 - 17.09.2010
- 03 - 04.10 2010
- 14 - 15.10.2010
- 28 - 29.10.2010

Each count covers the same standard monitoring area (*wetland + terrestrial part*). Terrestrial birds were counted on line transect 100+100 m width. Counts were conducted only during the days with normal weather conditions. To minimize influence of short term weather fluctuations on counts results, each of the six counts was repeated and the data obtained was compared. For each bird species the higher number of registrations within each two-days of counting was used for final calculations. In total during 6 two-day counts 134,459 birds of 117 species were counted, among which were 56 waterbird species. The results of the count data after final calculation (selecting maximum per two-days and excluding duplicate data), are in table 33.

Table 33. Summarized data of 6 migratory waterbird counts at the Molochnyi Liman in Autumn 2010

№	Species	Dates of counts						
		18-19 Aug	2-3 Sept	16-17 Sept	3 – 4 Oct	14-15 Oct	28-29 Oct	Total
1.	Podiceps nigricollis	3						3
2.	Podiceps grisegena		4					4
3.	Podiceps cristatus	10						10
4.	Phalacrocorax carbo	620	1363	63		66	6	2118
5.	Egretta alba	250	190	96	19	18	18	591
6.	Egretta garzetta	738	956	586	4			2284
7.	Ardea cinerea	171	220	131	25	14	3	564
8.	Platalea leucorodia	7	2					9
9.	Anser anser	2	8	5				15
10.	Anser albifrons						100	100
11.	Tadorna ferruginea		1					1
12.	Tadorna tadorna	71	163	237	3	41	280	795
13.	Anas platyrhynchos	1500	1686	1245	1100	2008	5900	13439
14.	Anas crecca	60	463	324	1	60	120	1028
15.	Anas penelope		9	13	50		500	572
16.	Anas acuta					9		9
17.	Anas querquedula	534						534
18.	Anas clypeata	8	4				20	32
19.	Aythya ferina			3				3
20.	Aythya marila				20			20
21.	Grus grus	105	203	35		15		358
22.	Crex crex					1		1
23.	Fulica atra	10						10
24.	Pluvialis squatarola	305	343	139	8	28	55	878
25.	Charadrius hiaticula		1					1
26.	Vanellus vanellus	6	50	49	24			129

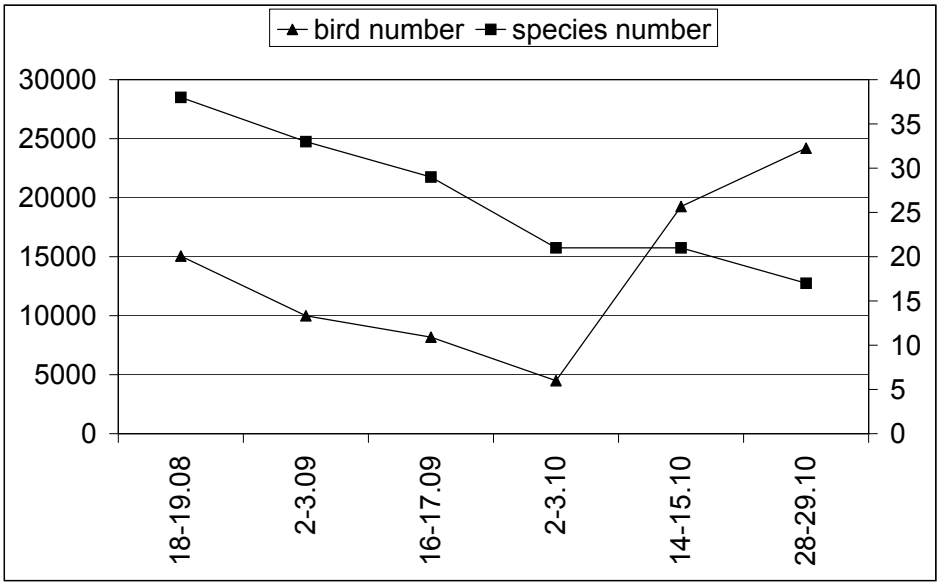
№	Species	Dates of counts						
		18-19 Aug	2-3 Sept	16-17 Sept	3 – 4 Oct	14-15 Oct	28-29 Oct	Total
27.	Arenaria interpres	20	2					22
28.	Recurvirostra avosetta	312	255	186	175	62	4	994
29.	Haematopus ostralegus	383	138	33	2	1		557
30.	Tringa ochropus			1				1
31.	Tringa glareola	14		8				22
32.	Tringa nebularia	97	42	12	20	3	1	175
33.	Tringa totanus	33		73		12		118
34.	Tringa erythropus	1						1
35.	Tringa stagnatilis			1				1
36.	Philomachus pugnax	1196	360	423	50			2029
37.	Calidris minuta					200		200
38.	Calidris ferruginea	2250		30				2280
39.	Calidris alpina	200	60	450	900	8750	4600	14960
40.	Calidris sp.		50					50
41.	Limicola falcinellus	50						50
42.	Gallinago gallinago					3		3
43.	Numenius arquata	140	181	102	144	58	36	661
44.	Numenius phaeopus				7			7
45.	Limosa limosa	16	4					20
46.	Glareola pratincola			1				1
47.	Waders sp.	100						100
48.	Larus ichthyaetus	5	2	2				9
49.	Larus melanocephalus						6100	6100
50.	Larus ridibundus	4691	2816	2751	1700	5780	2150	19888
51.	Larus genei		30	185	70			285
52.	Larus cachinnans	447	288	997	150	304	4300	6486
53.	Larus canus					1820		1820
54.	Larus sp.	200			18			218
55.	Chlidonias leucopterus	8						8
56.	Chlidonias sp.	70						70
57.	Gelochelidon nilotica	5	14					19
58.	Hydroprogne caspia		2					2
59.	Sterna hirundo	113	78					191
60.	Sterna albifrons	300	3					303
	Total species number	**38**	**33**	**29**	**21**	**21**	**17**	**57**
	Total birds number	**15051**	**9991**	**8181**	**4490**	**19253**	**24193**	**81159**

From table 33 and Pic.19 it follows that from the middle of August until the beginning of October the number of waterbirds decreased, and there is a strong correlation between number of species and number of birds. From the beginning of October the formation of the wintering ornitho-complex gradually develops: the number of species does not increase, but the amount of birds grows due to the increase of some species of gulls. Intensification of bird migration in November led to increasing of the overall number of waterbirds .

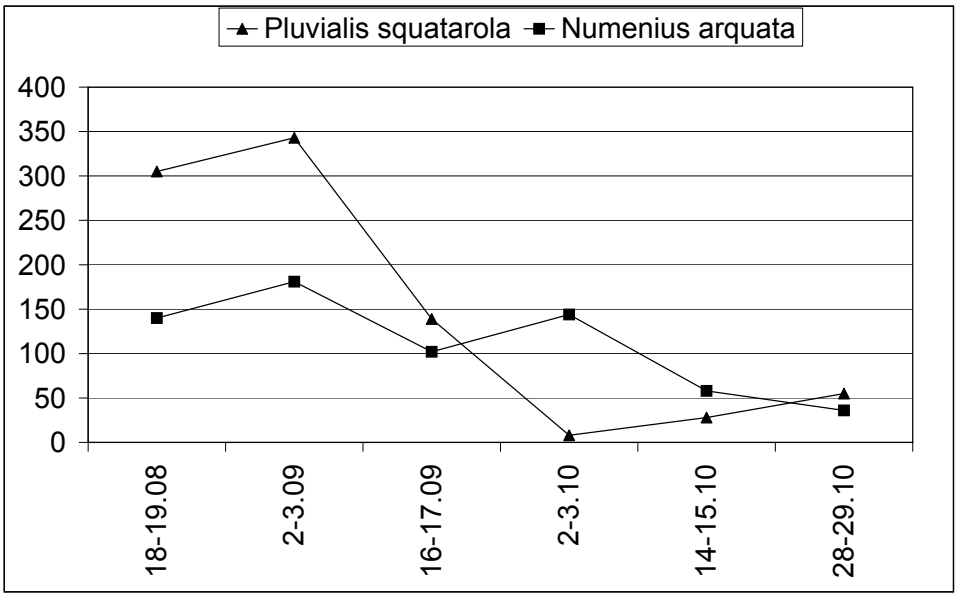
As an example, dynamic of numbers of five selected waterbird species is represented in Pic.20

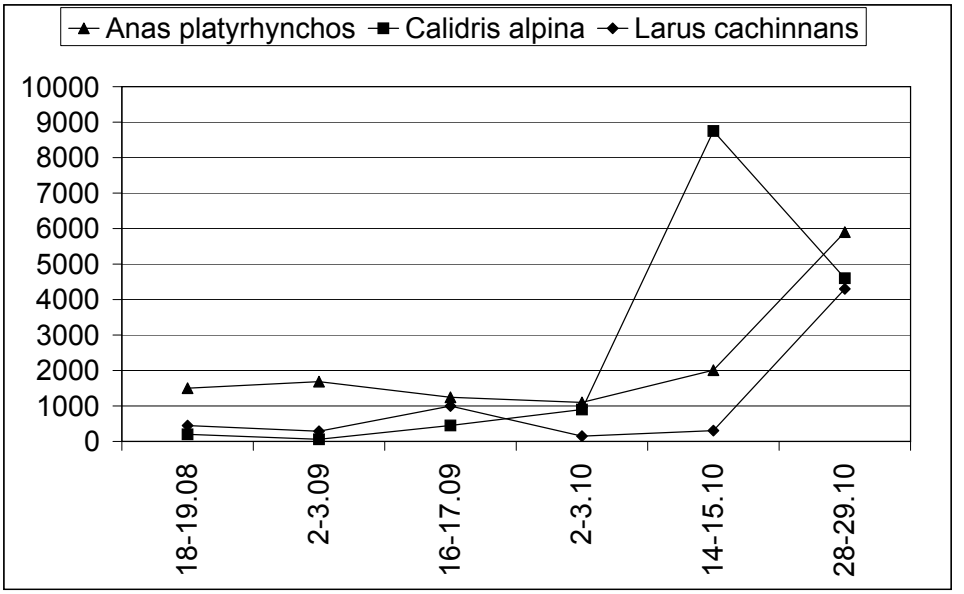
Further evidence of objectivity of the dynamics of species composition and bird numbers, dicussed above, can be seen on the diagram of species composition resemblance (by the Jaccard index) between doubled counts (Pic.21)

The diagram shows that due to different migration times for different waterbird species the resemblance in species composition between counts decreases but in October the resemblance grows because of the beginning of formation of the wintering bird species complex.

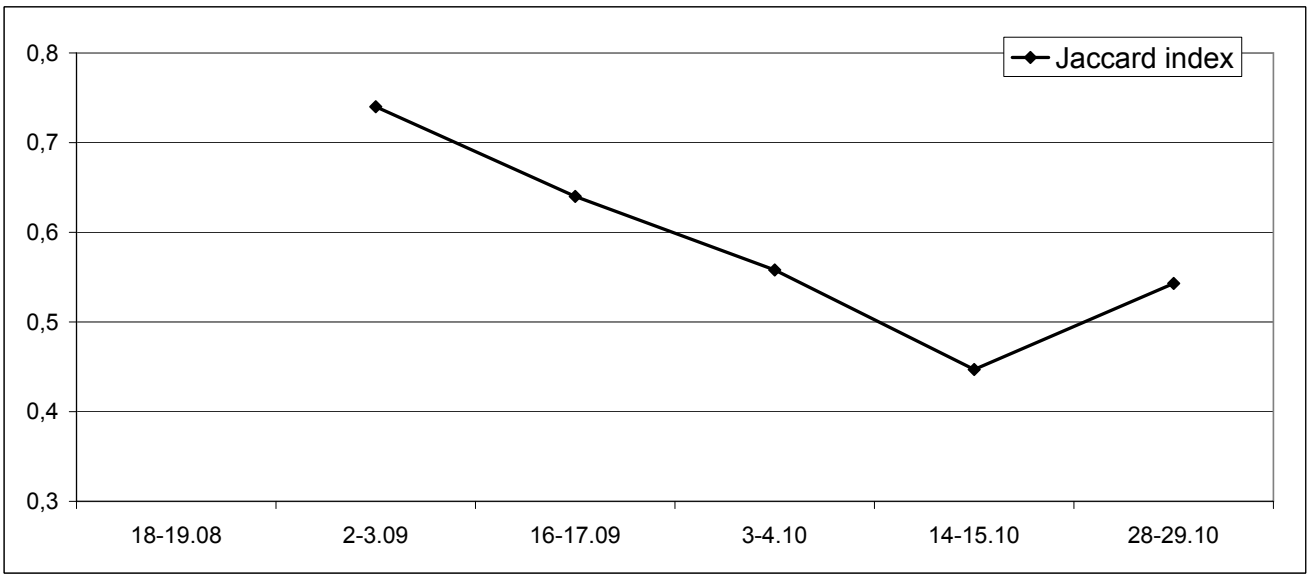


Pic. 19 Dynamic of general number of waterbirds and number of species





Pic.20 Dynamic of numbers of selected waterbird species



Pic.21 Dynamic of species composition resemblance between doubled counts

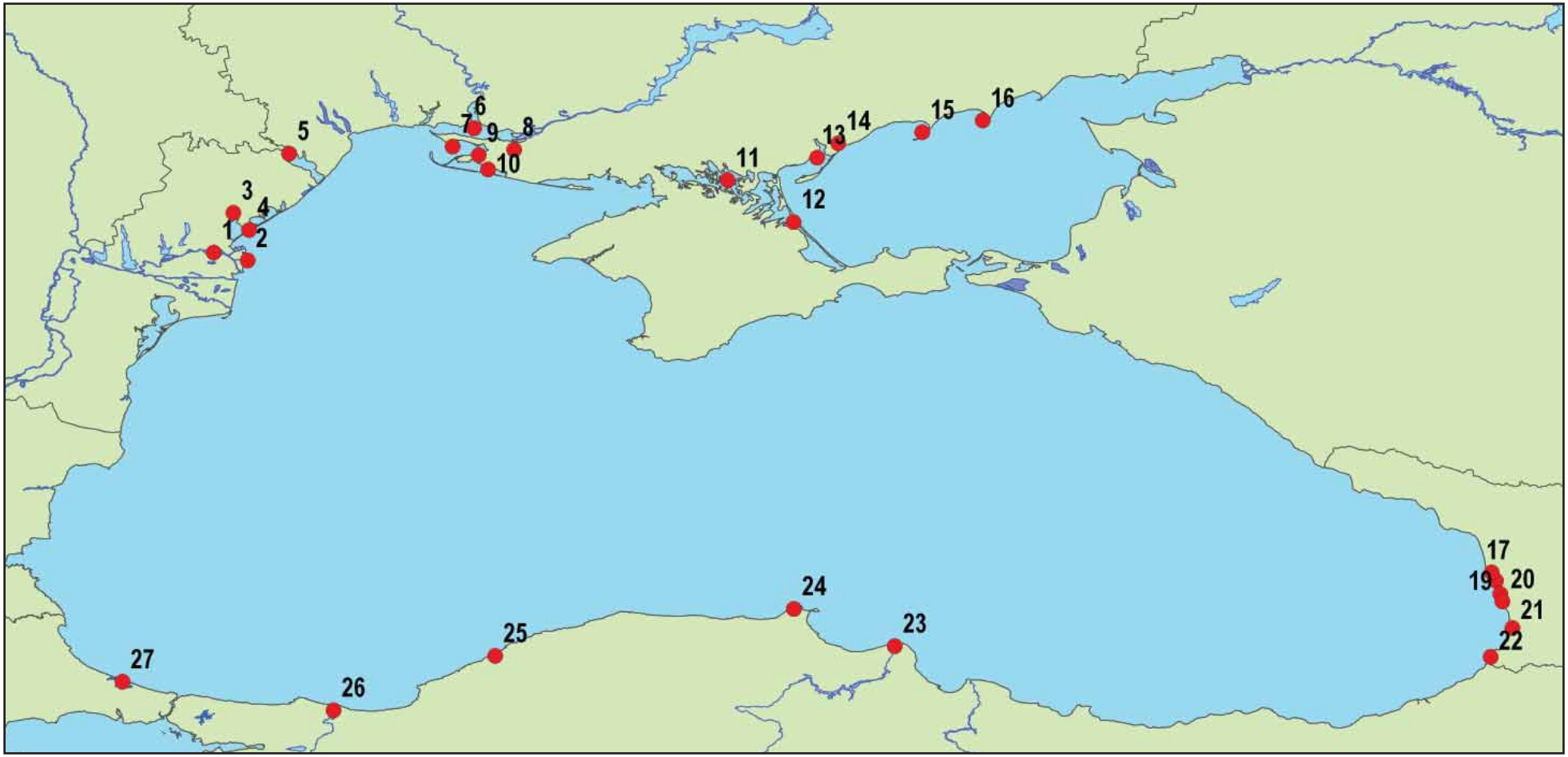
Appendix 1. List of observers participating in the October 2010 waterbird counts

Name	Title	E-Mail	Survey Area
Ukraine			
Josef Chernichko	Project regional coordinator, Head of the Azov-Black Sea Ornithological Station, Bird Researcher	j.chernichko@gmail.com	Eastern Sivash, Utlyukskii Liman, Molochnyi Liman
Yurii Andryushchenko	Azov-Black Sea Ornithological Station, Bird Researcher	anthropoides@mail.ru	Central Sivash
Raisa Chernichko	Azov-Black Sea Ornithological Station, Bird Researcher	chernichko-raisa@rambler.ru	Eastern Sivash, Utlyukskii Liman, Molochnyi Liman
Elena Diadicheva	Azov-Black Sea Ornithological Station, Bird Researcher	azov.black.station@gmail.com	Eastern Sivash, Utlyukskii Liman, Molochnyi Liman
Petr Gorlov	Research Institute of Biodiversity of Land and Water Ecosystems of Ukraine, Bird Researcher	petro-gorlov@mail.ru	Eastern Sivash, Obitochnaya Spit and Bay, Berdyanskaya Spit and Bay
Vasiliy Kostiushyn	Wetlands International Black Sea programme coordinator; Institute of Zoology NASU, Head of Animal Monitoring and Conservation Department	kost@izan.kiev.ua	Dnepro-Bugskii Liman, Pokrovskaya Spit, Adzhigol Lakes
Vladimir Kucherenko	Ukrainian Antiplague Station of the Ministry of Health of Ukraine	v.kuch@mail.ru	Central Sivash
Yurii Moskalenko	Black Sea Biosphere Reserve, Bird Researcher	strix@strix.ks.ua, strix13@yandex.ru	Adzhigol Lakes, Yagorlytskii Bay, Tendrovskii Bay&seaward side of Tendrovskaya Spit
Zinovii Petrovich	Regional Landscape Park “Kinburnskaya Kosa”, Director	borisfenida@och.mk.ua	Dnepro-Bugskii Liman, Pokrovskaya spit, Adzhigol Lakes
Vladimir Popenko	Azov-Black Sea Ornithological Station, Bird Researcher	azov.black.station@gmail.com	Eastern Sivash

Name	Title	E-Mail	Survey Area
Konstantin Redinov	Regional Landscape Park "Kinburnskaya Kosa", Bird Researcher	borisfenida@och.mk.ua	Dnepro-Bugskii Liman, Pokrovskaya Spit, Adzhigol Lakes
Ivan Rusev	Mechnikov Research Antiplague Institute, Bird Researcher	rusevivan@ukr.net	Dniester Liman (northern part)
Igor Shchegolev	Ukrainian Society for the Protection of Birds		Dniester Liman (northern part)
Valerii Siokhin	Research Institute of Biodiversity of Land and Water Ecosystems of Ukraine, Bird Researcher	siokhin_station@inbox.ru	Eastern Sivash, Obitochnaya Spit and Bay, Berdyanskaya Spit and Bay
Maxim Yakovlev	Danube Biosphere Reserve, Bird Researcher	yakovlev85@mail.ru	Danube Delta, Ermakov Island, SasykLlake, Dzhantsheiskoe Lake&Malyi Sasyk Lake
Mickhail Zhmud	Azov-Black Sea Ornithological Station, Bird Researcher	zhmud_m@mail.ru; pelikan@izmail.uptel.net	Danube Delta, Ermakov Island,
Grigorii Zatsarnyi	Black Sea Biosphere Reserve		Adzhigol Lakes, Yagorlytskii Bay, Tendrovskii Bay&seaward side of Tendrovskaya Spit
Georgia			
Giorgi Darchiashvili	Tbilisi Zoo, Deputy director	g_darch@hotmail.com	Black Sea coast between R.R. Khobi and Rioni, and Partotskali Lake, Ispani Marshes
Zurab Javakhishvili	Ilia state University, Associate Professor, Researcher	Zure17@gmail.com	Black Sea Coast between Anaklia-R.Churia Mouth, Chorokhi Delta
Giorgi Edisherashvili	Gori state University, Professor	edisherashvili@mail.ru	Lake Paliastomi, Black Sea coast between R.Supsa mouth and Paliastomi Lake Channel, and Khidmaghala fishponds

Name	Title	E-Mail	Survey Area
Levan Rusishvili	Tbilisi state University, Researcher	Levani99@yahoo.com	Black Sea coast between R.R. Khobi and Rioni, and Partotskali Lake, Ispani Marshes
Giorgi Rajebashvili	Tourism agency, Manager	g.rajebashvili@gmail.com	Black Sea Coast between Anaklia-R.Churia Mouth, Chorokhi Delta
Jimsher Mamuchadze	Environmental Association "PSOVI", Director	jimshermamuchadze@yahoo.com	Paliastomi Lake, Black Sea coast between R.Supsa Mouth and Paliastomi Lake Channel, and Khidmaghala fishponds
Turkey			
Kiraz Erciyas	Project regional coordinator - Ondokuz Mayıs University, Biology Department, PhD Student	erciyaskiraz@yahoo.com	Sinop Coast
Burcu Genç	Ondokuz Mayıs University, Biology Faculty student	burcugenc89@hotmail.com	Sinop Coast
Zekeriya Öcal	Ondokuz Mayıs University, Veterinary Faculty student	pre_boys@hotmail.com	Sinop Coast
Ayşegül Çatak	Ondokuz Mayıs University, Biology Faculty student	zerya_89@hotmail.com	Sinop Coass
Cemal Özsemir	Ondokuz Mayıs University, Biology Department, PhD student	balabancemal@yahoo.com	Kızılırmak Delta
Kadirhan Sancı	Ondokuz Mayıs University, Agriculture Faculty student	eagle_the_black@hotmail.com	Kızılırmak Delta
Harun Kocaman	Ondokuz Mayıs University, Biology Faculty student	harun_kocaman55@hotmail.com	Kızılırmak Delta
Ayşegül Günaydın	Ondokuz Mayıs University, Biology Faculty student	ayse_smile_03@hotmail.com	Kızılırmak Delta

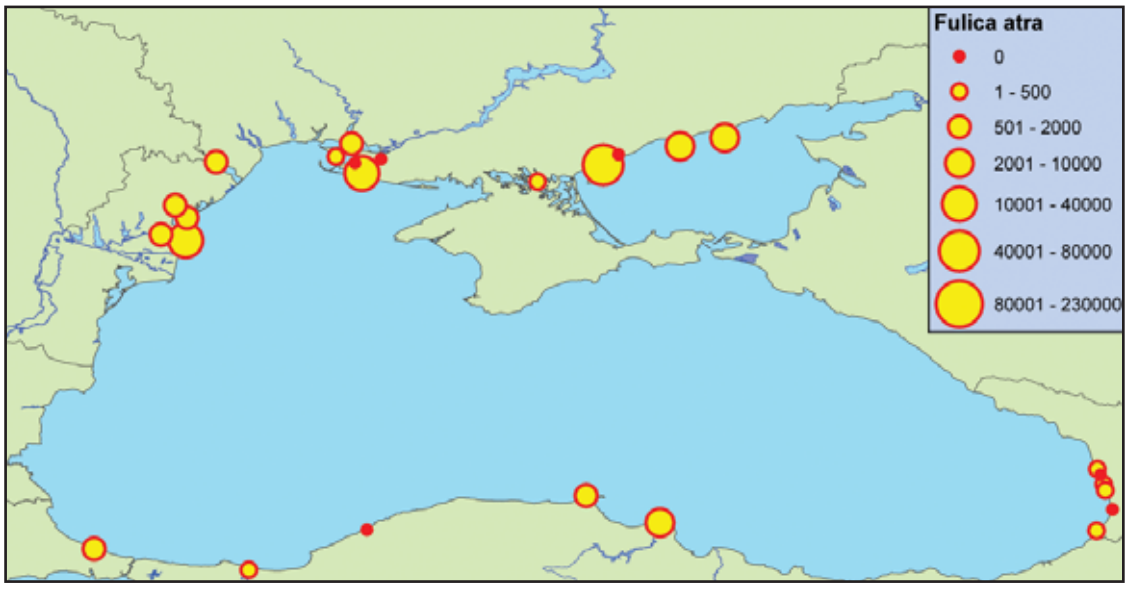
Name	Title	E-Mail	Survey Area
Arzu Gürsoy	Ondokuz Mayıs University, Biology Department, Bird researcher	agursoy@omu.edu.tr	Kızılırmak Delta
Şebnem Samsa	University Master's student, Birdwatcher	sebnemsamsa@hotmail.com	Kızılırmak Delta
Mithat Bayer	Birdwatcher	mithat02@hotmail.com	Kızılırmak Delta
Mustafa Erturhan	Project regional coordinator,Bird Researcher	mustafaerturhan@yahoo.com	Amasra Coast, Sakarya Delta
Özlem Erturhan	Birdwatcher	maji4008@hotmail.com	Amasra Coast
Mustafa Sözen	Karaelmas University, Biology Department, Professor	spalaxtr@yahoo.com	Amasra Coast
Tuncer Tozsin	Birdwatcher	tuncerto@gmail.com	Amasra Coast
İhsan Eroğlu	Birdwatcher	ihsaneroglu@arternatif.com	Sakarya Delta
Cemil Gezgin	Birdwatcher	cemil.gezgin@gmail.com	Sakarya Delta
Hürmüz Yeniceli	Birdwatcher	hyeniceli@yahoo.com	Terkos Lake
Canan Atay	Birdwatcher	ataycanan@gmail.com	Terkos Lake
Ergün Bacak	Project regional coordinator, Bird Researcher	ergunbacak@gmail.com	Terkos Lake



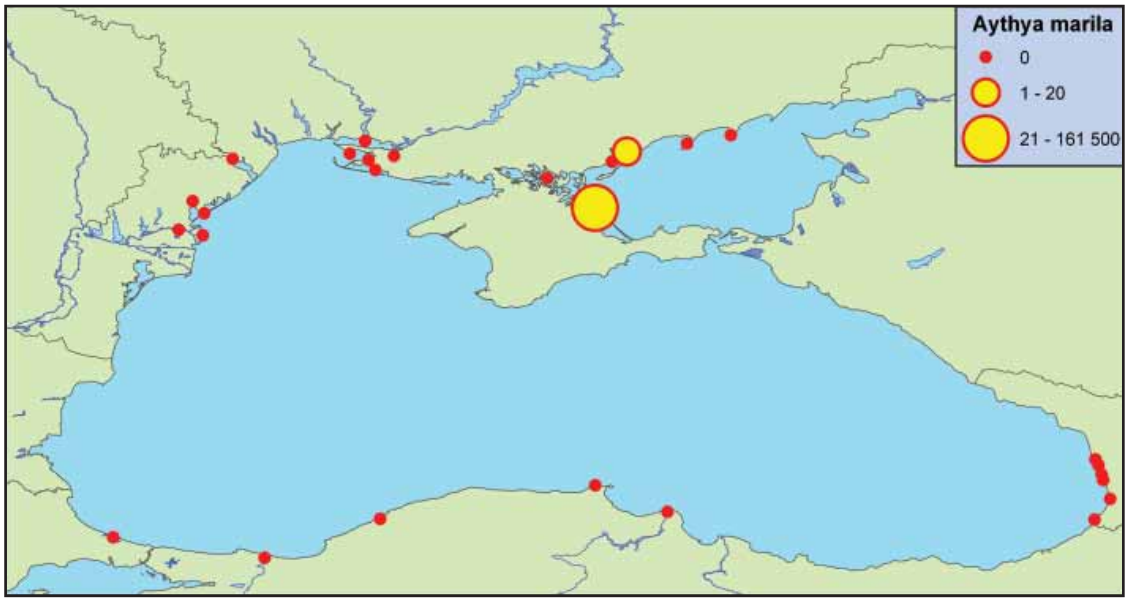
Pic. 1 Location and names of count sites

Ukraine: 1 - Ermakov Island, 2 - Danube Delta, 3 - Sasyk Lake, 4 - Dzhantsheiskoe Lake&Malyi Sasyk Lake, 5 - Dniester Liman (northern part), 6 - Dnepro-Bugskii Liman, 7 - Pokrovskaya Spit, 8 - Adzhigol Lakes, 9 - Yagorlytskii Bay, 10 - Tendrovskii Bay&seaward side of Tendrovskaya Spit, 11 - Central Sivash, 12 - Eastern Sivash, 13 - Utlyukskii Liman, 14 - Molochnyi Liman, 15 - Obitochnaya Spit and Bay, 16 - Berdyanskaya Spit and Bay; **Georgia:** 17 - Black Sea coast between Anaklia - R.Churia Mouth, 18 - Black Sea coast between R. Khobi and R.Rioni, and Partotskali Lake, 19 - Paliastomi Lake, 20 - Black Sea coast between R.Supsa Mouth and Paliastomi Lake, 21 - Ispani Marshes, 22 - Chorokhi Delta; **Turkey:** 23 - Kizilmark Delta, 24 - Sinop Coast, 25 - Amasra Coast, 26 - Sakarya Delta, 27 - Terkos Lake

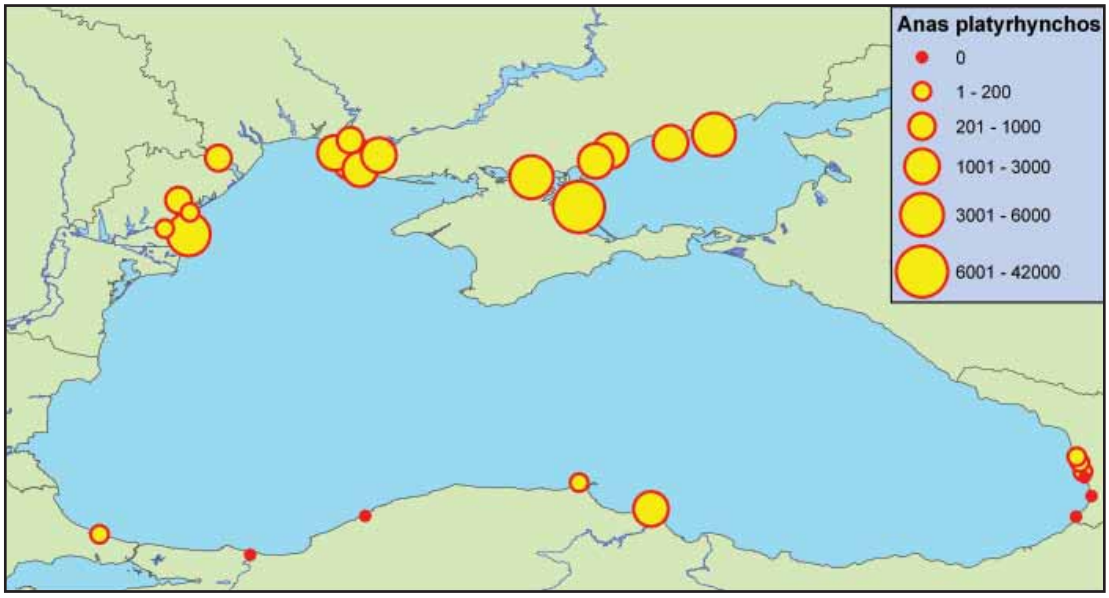
Pic.5 Distribution of all species of waterbirds among count sites



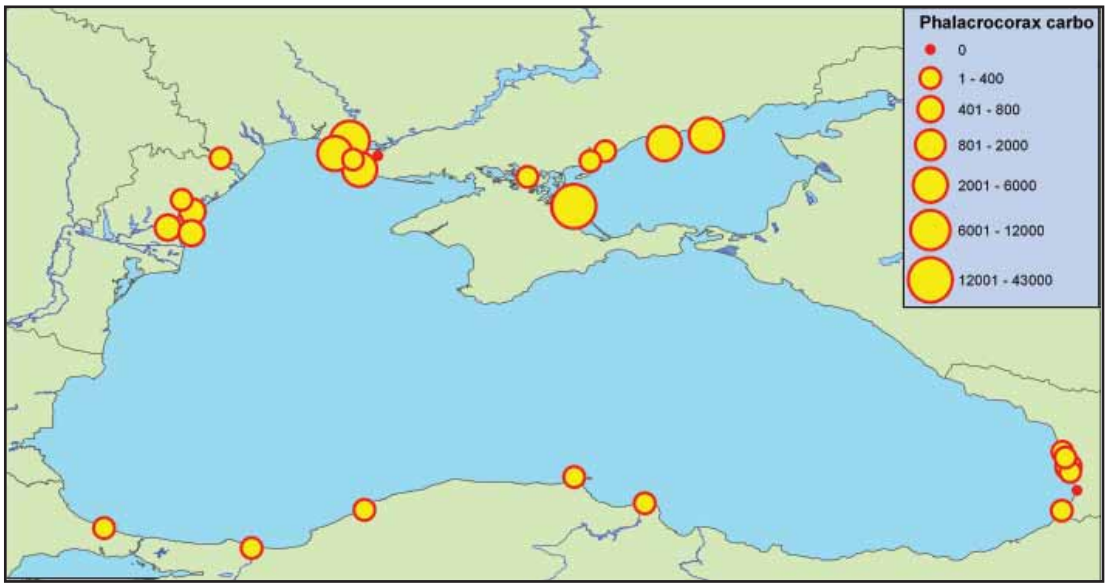
Pic.7 Distribution of Fulica atra among count sites



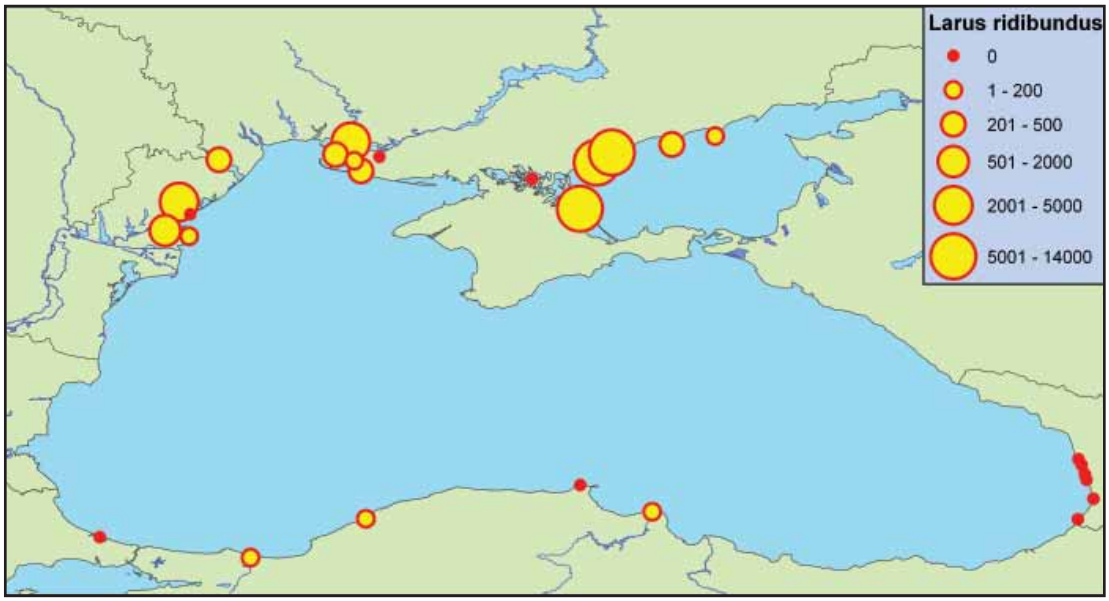
Pic.8 Distribution of Aythya marila among count sites



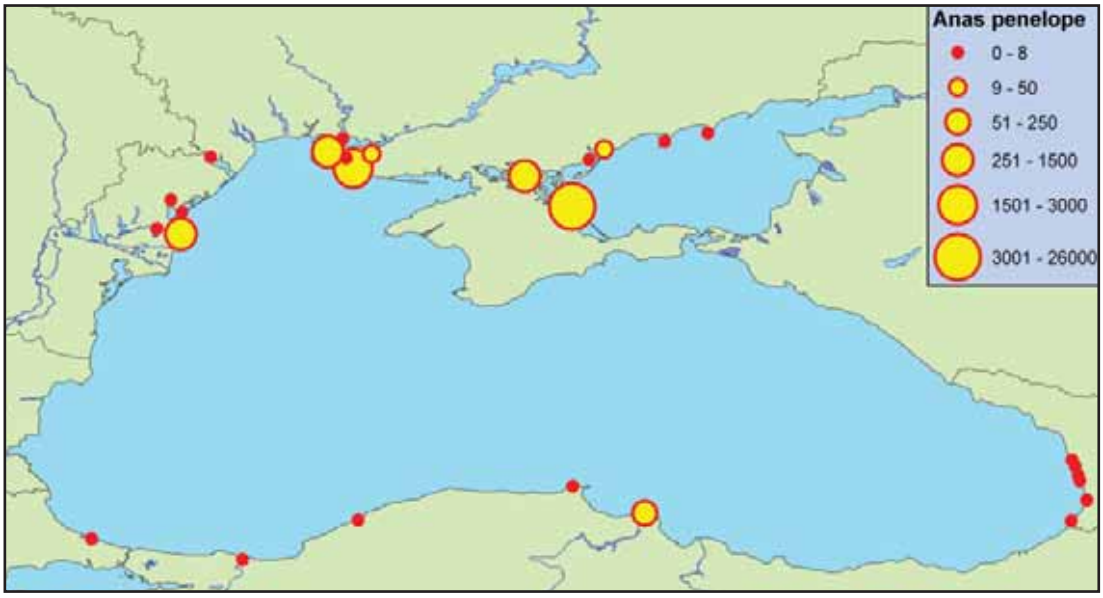
Pic.9 Distribution of Anas platyrhynchos among count sites



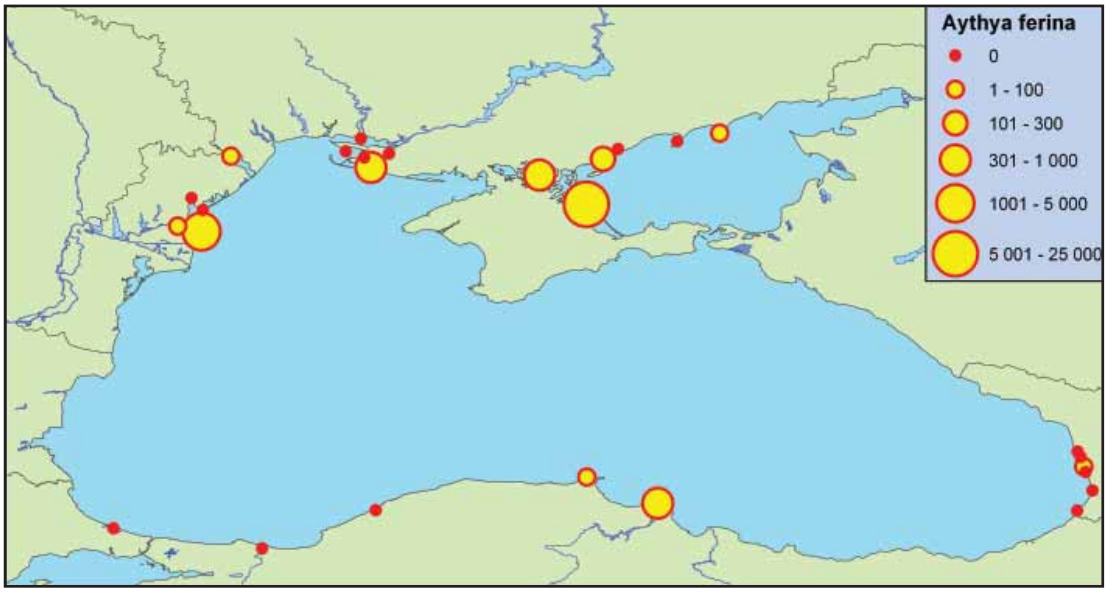
Pic.10 Distribution of Phalacrocorax carbo among count sites



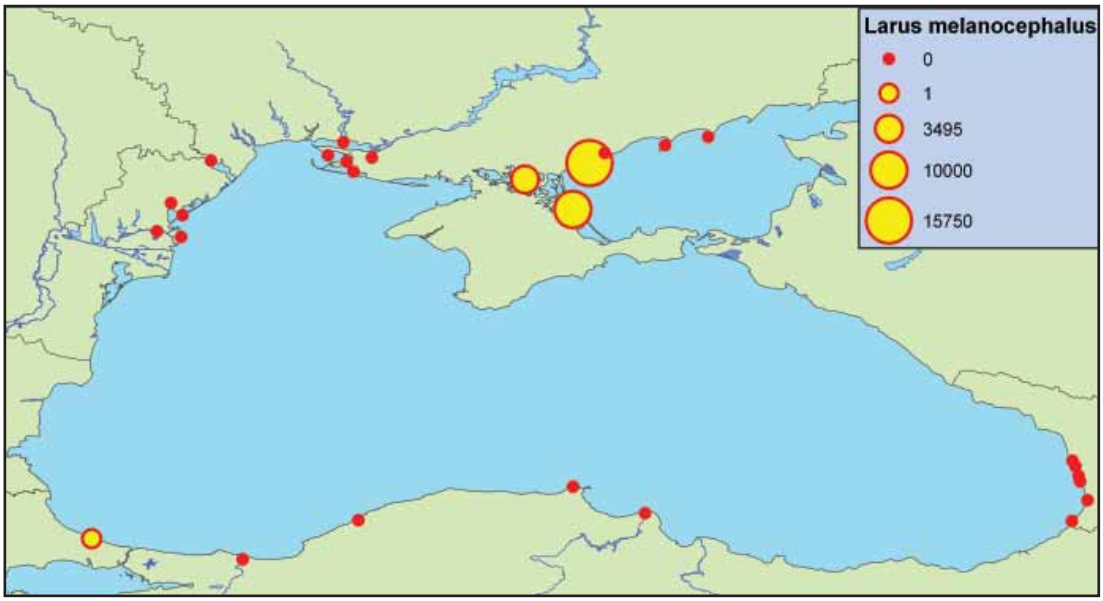
Pic.11 Distribution of Larus ridibundus among count sites



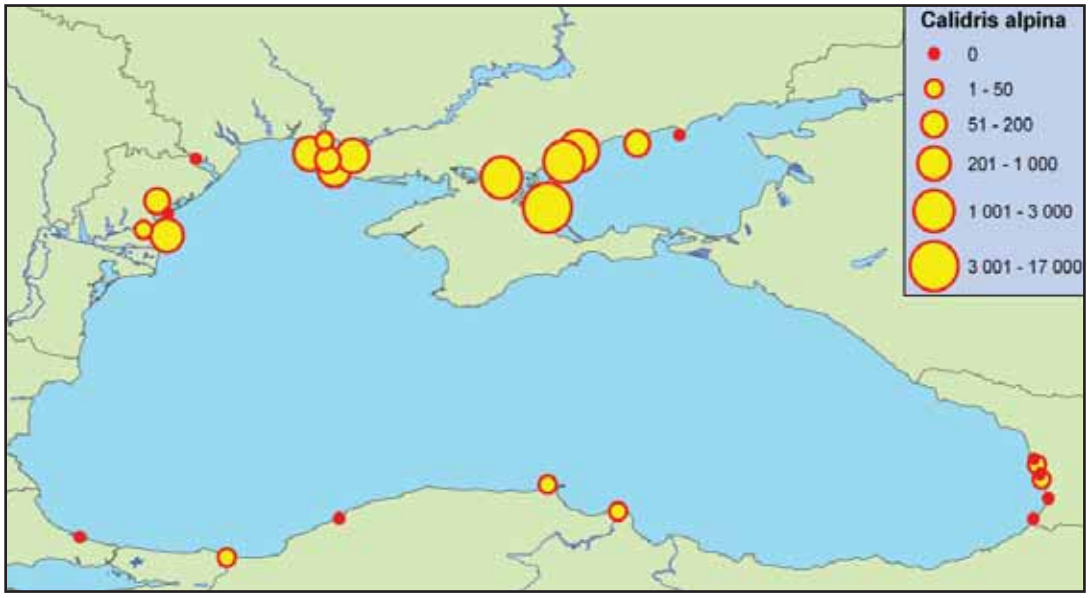
Pic.12 Distribution of Anas penelope among count sites



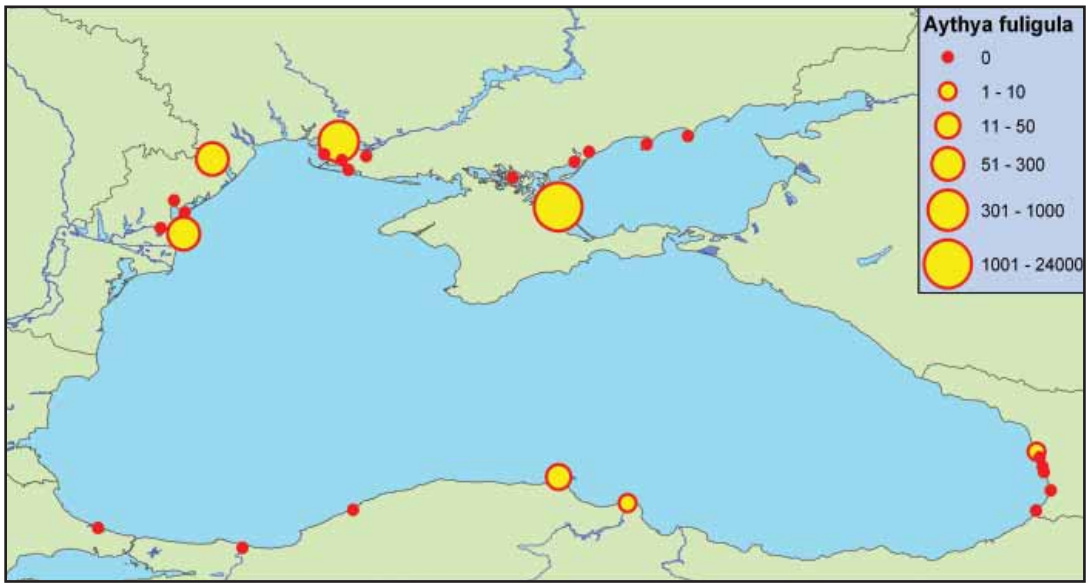
Pic.13 Distribution of Aythya ferina among count sites



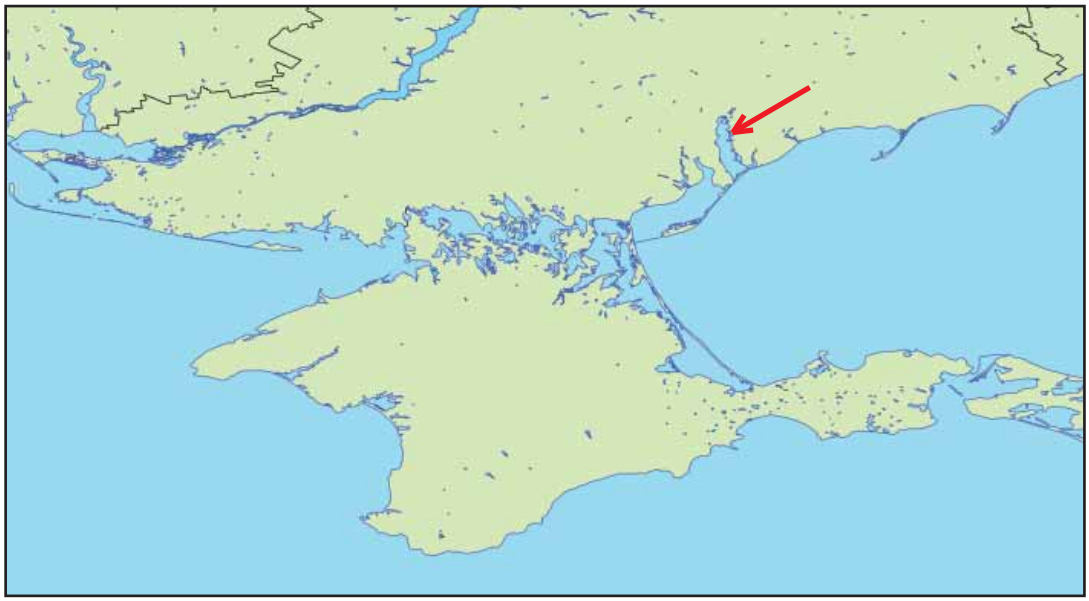
Pic.14 Distribution of Larus melanocephalus among count sites



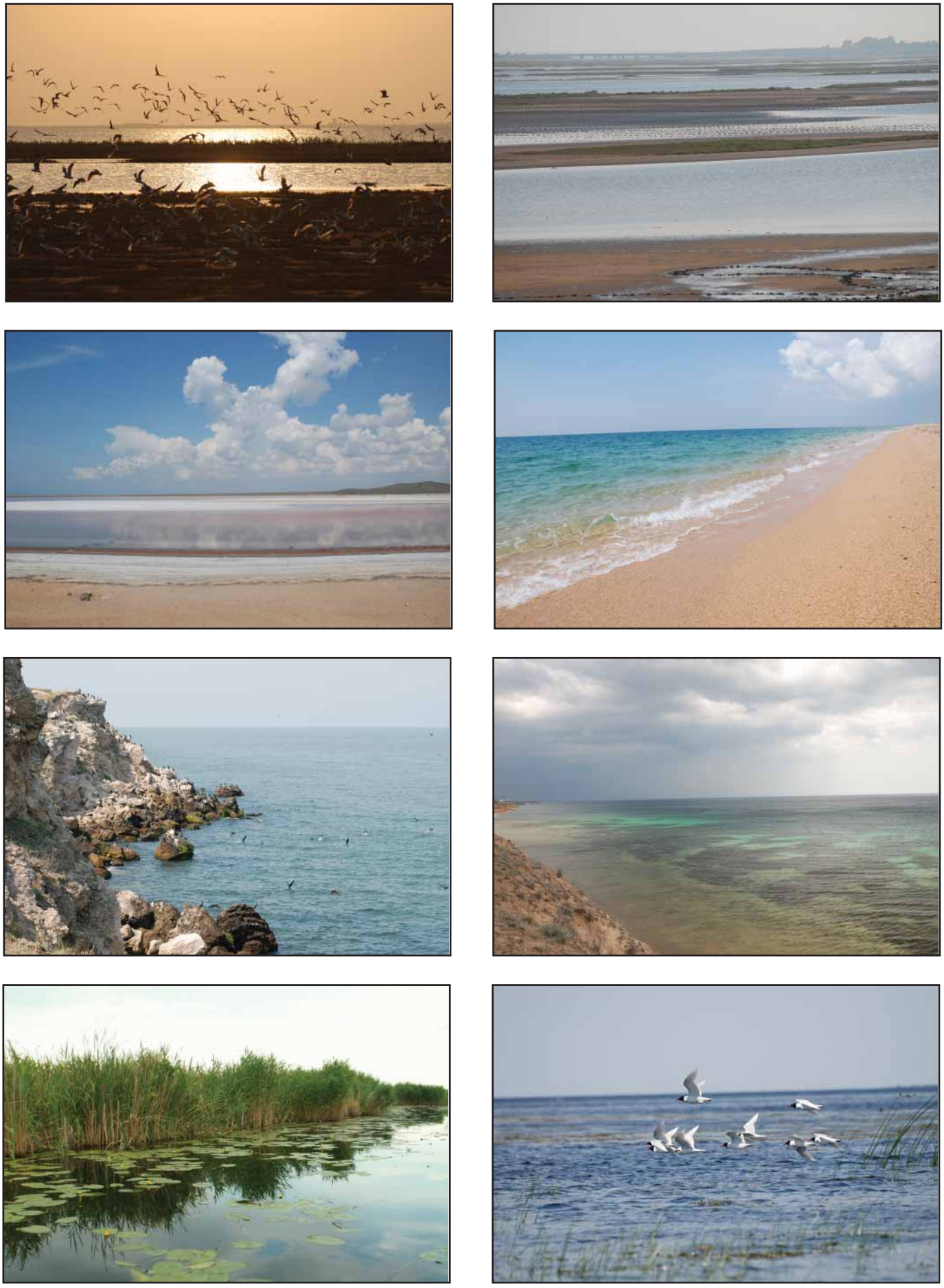
Pic.15 Distribution of Calidris alpina among count sites



Pic.16 Distribution of Aythya fuligula among count sites



Pic.17 Location of Molochnyi Liman



Pic. 18 Black Sea coastal wetlands