Status of waterbirds, hunting practice and legislation in the Azov-Black Sea wetlands, Ukraine

Baseline Report: of the BBI-MATRA propject:

Towards sustainable waterbird hunting
in the Azov-Black Sea wetlands, Ukraine

Athors:
Siokhin V.,
Chernichko I.,
Katysh S. ,
Vinokurova S.

Non-governmental ecological organization "Laguna"

Lenin str., 20, Melitopol, Zaporizhzhya oblast, Ukraine
tel/fax: +38 0619 440446
e-mail: siokhin_station@inbox.ru

2008

Status of waterbirds, hunting practice and legislation in the Azov-Black Sea wetlands, Ukraine

Baseline Report: of the BBI-MATRA propject: Towards sustainable waterbird hunting in the Azov-Black Sea wetlands, Ukraine

Athors: Siokhin V., Chernichko I., Katysh S. , Vinokurova S.

Project executed in the framework of the BBI-MATRA programme, funded by the Dutch governenment and executed by Laguna with support of Bureau Waardenburg

Non-governmental ecological organization "Laguna"

Lenin str., 20, Melitopol,
Zaporizhzhya oblast, Ukraine
tel/fax: +38 0619 440446
e-mail: siokhin_station@inbox.ru

Bureau Waardenburg bv
Consultants for environment & ecology
P.O. Box 365, 4100 AJ Culemborg The Netherlands
Tel. +31 345 51 27 10, Fax +31 345 51 98 49
E-mail wbb@buwa.nl Website: www.buwa.nl

Other partners: Wetlands International, Black Sea Programme

March 2009

Status of waterbirds, hunting practice and legislation in the Azov-Black Sea wetlands, Ukraine: Baseline Report: of the BBI-MATRA propject: Towards sustainable waterbird hunting in the Azov-Black Sea wetlands, Ukraine / Siokhin V., Chernichko I., Katysh S., Vinokurova S. – 2008. – 121 c.

Translation Russian-English, Ukrainian-English
Oreshkova O.

Editing of English text
Jan van der Winden
Fleur van Vliet
Mark Collier

Technical and information support
Andryushchenko Yu.
Oreshkova O.
Aleynikova K.

The authors are thankful to the researchers which data of August counts-2004 were used in this report: Zhmud M., Pilyuga V., Gerzhik I., Stoylovsky V., Rusev I., Korzyukov A., Sokolovskiy D., Ovcharov O., Artamonov V., Redinov K., Voblenko O., Koshelev A., Formanyuk O., Petrovich Z., Poluda A., Schogolev I., Chernyakov D., Rudenko A., Yaremchenko O., Moskalenko Yu., Gavrilenko V., Ardamatskaya T., Mezinov O., Lopushansky E., Tarina T., Kostin S., Bagrikova N., Andryushchenko Yu., Vetrov V., Milobog Yu., Grinchenko O., Belashkov I., Popenko V., Kinda V., Beskaravayny M., Chernichko R., Diadicheva O., Molodan G., Taranenko L., Pilipenko D., Bronskov O., Marchenko G., Mosin G., Sirenko V., Buy G.

Preface

The Azov-Black Sea coast of the Ukraine is of international importance for waterbirds, while at the same time, an estimated 25,000-30,000 hunters are active in the region, shooting at least 40-60,000 birds each year. The current level of hunting pressure in the region is too high with too few regulations, a lack of awareness and misidentifications only adding to this situation. Ukraine recognizes the importance of international nature protection agreements and is currently developing a National Ecological Network of protected wetlands of international importance.

The Ukraine government is currently preparing a conservation strategy for the Azov-Black Sea region as well as revising hunting legislation. For this to be effective, there is a need for information on waterbirds and hunting within the area that can be used to identify important species and areas as well as the potential effects of hunting. Even more important is a start for a cooperation between hunting organisations, Nature conservationists, scientitst and the goverment to agree on a way to adress sustainable hunting in the national and regional agreements and legislation. The NGO Laguna (Ukraine) and Bureau Waardenburg (the Netherlands) have developed a project aimed to develop sustainable waterbird hunting in the Azov-Black Sea wetlands of the Ukraine. This project is funded in the framework of the BBI-MATRA programme funded by the Ducth government. Part of this project involves a baseline report on the current knowledge of waterbird populations, relevant national and international legislation and hunting practices and its possible impacts.

This report forms the baseline report and details the extent and sources of the known information about waterbird populations within the region and current hunting legislations. The report includes information from a range of sources including the organisations responsible for the management of important coastal wetlands as well as game husbandaries (private or governmental hunting associations). The information compiled in this report will be important for optimizing the structure of waterbird management in national and local hunting organizations and raising ecological awareness by hunters for the improvement of bird protection.

The report is written by Laguna with support of Bureau Waardenburg. Within Laguna the following persons were responsible for data colection and reporting: Siokhin V., Chernichko I., Katysh S., Vinokurova S. Within Bureau waardenburg the following persons assited with the editorial phase: Jan van der Winden, Fleur van Vliet and Mark Collier. The following persons in Ukraine are thanked for their technical and information support: Andryushchenko Yu., Oreshkova O., Aleynikova K.

Table of contents

Extensive summary

The Azov-Black Sea coast of the Ukraine is of international importance for waterbirds, while at the same time, an estimated 25,000-30,000 hunters are active in the region, shooting at least 40-60,000 birds each year. The current level of hunting pressure in the region is too high with too few regulations, a lack of awareness and misidentifications only adding to this situation. Ukraine recognizes the importance of international nature protection agreements and is currently developing a National Ecological Network of protected wetlands of international importance. Not all conservation effort, however, is effectively embedded in the national structures and laws. Although some species are strictly protected, hunting still has huge impact on rare species due to the absence of protected areas, misidentification of species by hunters and the absence or incorrect use of restrictions in annual hunting activities. Furthermore, a lack of awareness of hunters on bird population sizes and the location of waterbird hotspots leads to a high pressure on threatened species and critical resting sites of species included in international agreements or laws such as the Ramsar convention and Natura 2000.

The Ukraine government is currently preparing a conservation strategy for the Azov-Black Sea region as well as revising hunting legislation. For this to be effective, there is a need for information on waterbirds and hunting within the area that can be used to identify important species and areas as well as the potential effects of hunting. The NGO Laguna (Ukraine) and Bureau Waardenburg (the Netherlands) have developed a project aimed to develop sustainable waterbird hunting in the Azov-Black Sea wetlands of the Ukraine.

Waterbird populations

The Azov-Black Sea coast of the Ukraine is internationally important for many species of birds with an estimated 10 million waterbirds, including individuals from populations from Europe, Asia and Africa, using the area each year. Numbers of breeding birds are thought to exceed 350,000 pairs. The area is used by almost 60% of the species listed in the African-Eurasian Waterbird Agreement with almost the entire flyway populations of several species relying on this region during at least part of the year.

Availability of waterbird data

Information on waterbird numbers and distributions within the region is collected by a number of different institutions and usually at the local or regional level. Most data that exist are for the breeding period and although data are available for some areas for the past 30 years synchronized counts were only undertaken more widely in 1993 and 1998. Fewer data exist for the migration and wintering periods compared to the breeding period with counts only available for some sites for the past 15 years and between 1998-2004 respectively. Most counts during the migration period are for Sivash (the key site for waterbirds) during the autumn period, while regional level counts were conducted in August and September in 2004 and 2006. Spring counts only exists for a few individual wetlands. Synchronized winter counts have only been been undertaken on funded nature reserves, although no complete counts have been carried out since 2004.

Species distribution and abundance during the breeding period

During the breeding period a total of 320 species have been recorded in or around the wetland areas of the Azov-Black Sea coast of Ukraine, this is almost 84% of the species found in Ukraine. The main habitats for breeding birds include: accumulative islands and spits, continental islands, marsh reed complexes, saltmarsh depressions and coastal precipices. During the last survey (in 1998) a total of 337,312 pairs of breeding waterbirds were counted, this survey included 16 wetlands of international importance. The most abundant species were Mediterranean Gull, Sandwich Tern, Yellow-legged Gull and Coot. Key breeding areas include Tendrovsky Bay and Eastern Sivash, although numbers at individual wetlands are subject to annual fluctuations. Gulls constituted over 57% of all breeding bird species, followed by passerines (over 11%) with ducks, rails, waders and geese together forming around 15% of the total. Thirteen wetlands of international importance and two of national importance held a high proportion of the geographic population of at least one waterbird species and are, therefore, of value for these populations.

Species distribution and abundance during the migration period

Count data from within the migration period are presented for sixteen of the main wetland regions. Each region held at least 37 species of waterbird with half holding at least 65 species. All areas held at least one species included in the Red Data Book of Ukraine while in the key area, Eastern Sivash, 21 of its 81 species were Red Data species. This area was also the most important in terms of total numbers with over 640,000 waterbirds counted during the migration period.

Protected species

A number of protected species occur in the region including several that are in decline and some that are subject to hunting pressure. The most common reasons for protected species being shot include difficulties associated with identifying the species and difficulties in providing protection on the hunting grounds. These species include Lesser White-fronted Geese (*Anser erythropus*) and Red-breasted Geese (*Rufibranta ruficollis*), both of which occur as passage and winter species in the region. The numbers of these two species recorded in the region have fallen in the last 10-15 years possibly due to changes in migratory routes and land use. Up to 100 Lesser White-fronted Geese and between 300-500 Red-brested Geese are thought to be accidentally hunted each season. Possible protection measures include increased awareness and protection within feeding areas.

White-eyed Pochard (*Aythia nyroca*) and Red-crested Pochard (*Netta rufina*) are both common throughout the year with breeding numbers of around 500-600 and 600-800 pairs, respectively. Numbers, however, have declined in the last two years in areas with no spring or summer flooding. Up to 300 individuals of each species are thought to be shot each season and poaching, along with habitat degredation, has been identified as an important factor in the declines of these species. Recommended protection measures include increased awareness as well as banning the hunting of Red-crested Pochard.

Although White-headed Duck (*Oxyura leucocephala*) ceased breeding in the region in the early 1960s, up to 50-100 are noted during autumn migration. Possibly up to 5-10 White-headed Duck are shot accidentally each season. Increased awareness and captive-breeding programs are highlighted as possible conservation measures.

During the past five years the number of Great Bustard (*Otis tarda*) present in the region during the breeding season has decline by around 10%, while wintering numbers have decline by around 20%. Spring fires, disturbance and development have aided the deterioration of breeding conditions, whereas wintering numbers have been affected by severe winter weather, poaching and a lack of protected areas, however, wintering conditions in southern Ukraine have been improved by an increase in the feeding base and a decrease in disturbance.

Game species

According to the law hunting is not permitted on around 60 species. In addition, most waders (excluding Snipe and Ruff), Great Crested Grebe and Water Rail are not recognised as trophy species and as such the hunting of these species is mostly accidental. In August 2004, Coot were found to be the most numerous game species in five of the six regions (Odessa, Mykolaiv, Kherson, Crimea and Zaporizhzhya, in Donetsk Mallard dominated) and in total comprised over half of all counted quarry species. Ruff was the second most abundant game species of the region (although most were in Crimea and Kherson region) with Mallard the third.

Recommendations for the protection and rational use of waterfowl in the region are outlined and include: stricter controls on the timing of hunting, bag limits and species taken; training programs including game-keepers, regional and local forces and ornithologists; and the creation of a State Regional Game Service to focus study, management and monitoring on hunting resources and involving professional ornithologists and gamekeepers. Further to these points specific recommendations are outlined for each oblast. Site descriptions, numbers of each quarry species and, where applicable, hunting pressures and potential mitigation measures are presented for key sites within each of the regions.

Key areas of the region

The Azov-Black Sea region boasts 58 key sites designated for their importance for birds. This includes 23 Ramsar sites containing 33 wetlands of international importance as well as 18 wetlands of national importance, eight prospective Ramsar sites and 28 IBAs; hence, the region forms an important link in the Afro-Eurasian Migratory Flyway. Within the Azov-Black Sea region a total of eight protected areas are recognised as being of high conservation status. Conservation objectives are being realised at an additional five sites, with another five sites being recognised as regional landscape parks (RLP) for their importance for waterfowl. Furthermore, the region includes around 160 zakazniks of regional and state importance. Details of waterbird communities, species and site protection status are given for key sites.

Research, counts and monitoring

Currently, no national bird monitoring system exists in Ukraine. Any existing monitoring is currently undertaken at the regional or area level by departments of ministries or institutions. Monitoring is mandatory within nature reserves and as such several institutions hold long-term data sets. Within the Azov-Black Sea region, a Regional Ornithological Monitoring (ROM) program, with monitoring plots within seven wetlands, has been established and involves mostly scientific institutions. The ROM program has included estimates of the numbers of breeding birds and wintering waterbirds as well as numbers and distributions of waterbirds within the post-breeding migratory period. Additionally, some work has been focused on individual species or groups.

Seasonal waterbird counts have followed generally accepted and published methods. Additional measures were undertaken during the large-scale synchronised counts of the Azov-Black Sea coast including: planned timing of counts; criteria for wetland selection; divisions of wetlands into separate areas; recognition of count leaders and teams; and the use of standardised forms.

Almost no special research connected with hunting exists in Ukraine, however, in 2004-2006 work was carried out as part of the GEF project "Conservation of biodiversity in the Azov-Black Sea Corridor"; this research is thought to have been the first of this kind in the Black Sea basin. This research included: an assessment of the game waterfowl resources at Sivash during autumn and winter; organisation of hunting for the Crimean Republican Union of hunters and fishermen; and an assessment of migratory waterfowl in the region, identification of important areas and seasonal distribution. This work, involving around 90 people, was based on bird counts across 58 wetlands across southern Ukraine and formed the largest coordinated survey of this type in Eastern Europe.

Gaps in the existing monitoring system

Gaps in the current monitoring system have been identified and include a lack of coordination between organisations as well as coordination at the national level, a lack of funding, specialists and equipment (including technical literature) and a need to harmonize databases both nationally and internationally.

Proposals to improve the monitoring system include the creation of national coordination councils and improved coordination between institutions involved in monitoring, the establishment of long-term monitoring programs at the regional and national level and the creation of a uniform computerised database. Further recommendations also include the development of multi-level monitoring programs and lead agencies, development of a comprehensive electronic information system covering landscapes, biodiversity and taxonimic groups and the development of species monitoring programs and protection measures.

The development of a commonly approved monitoring system has been identified as an urgent task, necessary for sustainable hunting and the use of this resource.

Waterbird hunting in the Azov-Black Sea region

An historical account outlines the formation, development and current state of hunting organisations and husbandries in the Azov-Black Sea region. Hunting in Ukraine is currently controlled by the government through the sale of 'shooting cards' and is predominantly a recreational activity. Hunting is an important economic activity in Ukraine accounting for 47.2 million hectares and employing around 6,000 people, mainly game-keepers.

Level and types of hunting

Around 300,000 of the 520,000 registered hunters are thought to be active, with the hunting of waterfowl and fur-bearing animals dominating. Hunting is restricted to the use of guns, dogs and other hunting animals, hides and decoy models and calls. No data are available on the extent to which different hunting methods are used, however, most waterfowl hunting along the Azov-Black Sea wetlands is thought to involve the use of hides, decoys and dogs with hunting taking place during dawn and dusk flights as well as on feeding meadows. Currently, lead shot is used for all hunting in Ukraine and although steel shot is a possibility it is likely that a change over would require a long transition period.

Illegal hunting

Methods constituting illegal hunting are detailed and include: hunting without permission, hunting in prohibited areas, hunting during the banned period, the use of banned equipment or banned techniques, transport of animals/bags, release of unsupervised dogs, violation of local hunting rules, hunting banned animals and the collection, damage or destruction of nests, eggs, salinity, signs and other hunting or private property. Within the Azov-Black Sea coast of Ukraine only firearms are permitted for the hunting of birds which can be used in conjunction with hides, decoys and calls.

Hunting seasons

For most permitted species hunting periods are from August to December, for geese this period is August to January, for most grouse October to December and for Quail August to October; hunting is permitted all days of the week. The actual dates for the open and close of each season are determined by hunting economy authorities in agreement with environmental protection authorities and other central and local interested parties.

Reared animals

No government captive-breeding program of quarry species exists in Ukraine. Most game husbandaries, however, release captive-bred animals for hunting, typically Mallard and Pheasant. The three main farms at which Mallard and Pheasant are reared are in Kyiv, Donetsk and Crimea regions. No figures for the numbers of birds released are given for these farms, however, between 2006-2008 around 32,000 Pheasant and 37,000 Mallard were released from a farm in Kharkiv region.

Monitoring of hunting activity

Following the close of the hunting season all game husbandaries report on the season's hunting activities including the numbers of the main quarry species. The report does not include, however, a species or wetland breakdown or details of shooting or catching. Details of shot and captured animals are given, in part, on 'control cards'. Bagged species are known to include Red Listed species with difficulties associated with identification and insufficient protection within hunting grounds being cited as reasons for these species being shot.

Today there is no single approved system for the counting of quarry species in Ukraine, counts within each oblast are carried out using only locally approved schemes. The development of a commonly approved system has been identified as an urgent task and necessary for maintaining hunting as a sustainable activity.

Hunting legislation

In Ukraine hunting economy is regulated by law with permissions to hunt being issued in the form of 'shooting cards' or licences. The permission to hunt birds is given through the 'shooting card' that are issued by the manager of the hunting ground. Quarry species are specified in Ukrainian Law and bag limits are set by the State Committee of Forestry. Hunting practices are controlled by the State Committee of Forestry and Hunting and the Ministry of Environmental Protection. Violation of hunting legislation is subject to disciplinary, administrative, civil or criminal legal liability in accordance with the laws of Ukraine. Any illegitimately taken animals are confiscated, where this is not possible fines are imposed.

Gaps in the current legislation

Although existing hunting legislation is thought to be adequate a full framework for the implementation of the sustainable management of migratory birds is does not exist. Key shortcomings identified with current legislation include no differentiation between local and migratory birds and a lack of a universally approved method for waterbird counting.

The shortage of scientifically based data on waterbird populations and up-to-date information on hunting have also been identified as important areas not sufficiently covered by current legislation, as have a lack of intergration between different aspects of hunting legislation, inadequate penalties and funds for implementation of practical measures and a need for greater awareness amongst legislative powers.

Nationally, shortages of coordination between organisations, awareness of conservation issues, sufficient penalties, a program to develop the hunting economy and, in particular, solid research and monitoring programs on waterbirds have been identified as gaps in current legislation. Additionally, regional gaps include insufficient research and monitoring programs, missing or inadequate data on waterbirds and hunting, specifically, on the impact of hunting on rarer species and a urgent need for the standardisation of data collection and exchange within Ukraine and with European countries.

Recommendations

As a result of the current report number of recommendations concerning waterbird monitoring and hunting have been outlined. The knowledge on waterbirds in the regions can be improved through a nationally coordinated monitoring program. This has been highlighted as an urgent task, which will increase the availability of up-to-date information on waterbirds. Information on the status of waterbirds should be published through reports as wells as shared through online means.

Information on the potential effects of hunting needs to be monitoring, for this to be possible more information is required on the numbers and species being shot. Furthermore, information on all rare waterbirds shot should be collected. To reduce the effect of hunting on rare species information on the conservation issues and identification of these species needs to be disseminated to hunters and where necessary training given. Legislation connected with hunting needs to be more integrated, with penalties for illegal activity being suffient to deter such activity.

1 Introduction

1.1 Background

The Azov-Black Sea coast of the Ukraine is of international importance for waterbirds, with around 10 million individuals using the area each year. The area is also a popular hunting location and an estimated 25,000-30,000 hunters are active in the region, shooting at least 40-60,000 birds each year. The current level of hunting pressure in the region is too high with too few regulations, a lack of awareness and misidentifications only adding to this situation.

Although some species are strictly protected, hunting still has huge impact on rare species due to the absence of protected areas, misidentification of species by hunters and the absence or incorrect use of restrictions in annual hunting activities. Also trophy hunting on rare geese species is reported to increase (Rudenko *et al.* 2008). Furthermore, a lack of awareness of hunters on bird population sizes and the location of waterbird hotspots leads to a high pressure on threatened species and critical resting sites of species included in international agreements or laws such as the Ramsar convention and Natura 2000.

The Ukraine government is currently preparing a conservation strategy for the Azov-Black Sea region as well as revising hunting legislation. For this to be effective, it is necessary that the level of knowledge on waterbird populations and hunting in the area is known so that the potential effects of hunting on waterbird populations can be properly assessed. Currently, there is a lack of this essential information on waterbird numbers, distributions, important areas and information about the possibilities for improving sustainable waterbird hunting.

1.2 Aims

1.2.1 Aims of the project

The objective of the project is to optimise the structure of waterbird management in national and local hunting organisations and to raise the awareness of hunters of ecological issues with the aim of improving bird protection.

1.2.2 Aims of this report

This report forms the baseline report and details the extent and sources of the known information about waterbird populations within the region and current hunting legislations. The report includes information from a range of sources including the organisations responsible for the management of important coastal wetlands as well as game husbandaries (private or governmental hunting associations). The information compiled in this report will be important for optimizing the structure of waterbird management in national and local hunting organizations and raising ecological awareness by hunters for the improvement of bird protection.

2 Materials and methods

2.1 Study area

The Azov-Black Sea coast of Ukraine includes 19 wetlands of international importance with a total area of 590,000 ha. The area also includes five large protected areas: the Azov-Sivash National Natural Park, the Danube Biosphere Reserve, the Black Sea Biosphere Reserve, the Regional Landscape Park “Meotida” and the Regional Landscape Park “Tyligulsky-2”. This region is targeted as a key area in the development of the National Ecological Network, represented by the Azov-Black Sea natural ecological corridor. This corridor has both national and international importance as it proceeds in other Black Sea countries neighbouring Ukraine. The array of wetlands in this region includes important Natura 2000 wetlands such as the Danube Delta.

2.2 Collection of information

2.2.1 Information on waterbirds

Main and large-scale works on study of waterbirds were conducted by Wetlands International (programme leader – V.A. Kostyushyn), and annual project of the Ministry of Education and Science of Ukraine (Head Siokhin VD, Chernichko Y.I.).
In several years, information were gathered on the following projects: - GEF (Conservation in the Azov-Black Sea Ecological Corridor) - MATRA Fund / Programme International Nature Management (PIN) Ministry of Agriculture, Nature Management and Fisheries and the Ministry of Foreign Affairs of the Netherlands, - WIWO (Foundation Working Group International Wader and Waterfowl Research).
Which key references were used?
The most important works in respect of the Azov-Black Sea coast of Ukraine are:

Waterbirds in the Sivash, Ukraine. WIWO-report – 36//1992. – 102p. (WIWO - Foundation Working Group International Wader and Waterfow Research, Netherlands).

Wintering bird counts at the Azov-Black Sea coast of Ukraine// Wetlands International – AEME, Kyiv/ MATRA Fund/Programme International Nature Management of the Ministry of Agriculture, Nature Management and Fisheries and the Ministry of Foreign Affairs of the Netherlands. Alushta-Kyiv, 1998, p. 48

Distribution of waterbirds at Sivash in summer-winter period. Edited by I.I. Chernichko. Sonat: Simferopol-Melitopol/ Foundation Working Group International Wader and Waterfow Research. – 1999.- P. 90.

Distribution and number of breeding waterbirds in wetlands of the Azov-Black Sea coast of Ukraine. Edited by V.D. Siokhin. Branta: Melitopol-Kyiv/ Wetlands International - AEME. - 2000. – 475 p.

Counts and ecology of waterbirds in the Sivash, Ukraine, august 1998// WIWO-report - 71/2001. - 118c. (WIWO -Foundation Working Group International Wader and Waterfow Research, Netherlands).

Winter count of birds at the Azov-Black Sea coast of Ukraine. Issue 3. In: Wetlands International – AEME, Киев/ MATRA Fund/Programme International Nature Management of of the Ministry of Agriculture, Nature Management and Fisheries and the Ministry of Foreign Affairs of the Netherlands. Odessa-Kyiv, 2001. P. 67.

Status of number and distribution of the Cormorant in Ukraine and neighboring countries. Edited by V.D.Siokin. Branta: Melitopol, 2008. 248 p.

Periodical ornithological transactions “Branta” Issues from 1 to 11. Years of publication 1999-2008. Melitopol.

ROM Bulletin. Results of Regional Ornitholiogical Monitoring. Issues 1, 2, 3. Azov-Black Sea coast of Ukraine. Branta: Melitopol. Years of publication 2002-2008.

Geese counts in the Black Sea Biosphere reserve 1989-2006 (Rudenko *et al.* 2008).

Red-breasted goose census 1990-2006 (Ardamatskaya 2008).

Among office materials on the ornithological projects which already fulfilled, the most important are the following:

-Estimation of number and distribution of August seasonal gatherings of birds in wetlands of the Azov-Black Sea ecological corridor, 2004. Principal executor is the Azov-Black Sea Ornithological Station, financed under GEF project (Biodiversity Conservation in the Azov-Black Sea Ornithological corridor).

-Estimation of number and distribution of August seasonal concentrations of birds in wetlands of the Azov-Black Sea Ecological Corridor of Ukraine and neighboring areas of Mediterranean, 2006. Principal organizer and executor – the Azov-Black Sea Ornithological Station. Financed at the cost of executors. Summarized information was published in ROM, Issue 3. Branta.- Melitopol. – 2008.

Special scientific researches connected with hunting are almost not carried out in Ukraine. Only in wetlands of the Azov-Black Sea coast over the last years (2004-2006) such works were conducted by the Azov-Black Sea Ornithological Station in the framework of GEF project (Biodiversity Conservation in the Azov-Black Sea Ornithological corridor) NoTF028267UA. These researches are property of the Ministry for Environmental Protection of Ukraine. Among these researches the following should be mentioned:

Project “Estimation of resources of game waterfowl at Sivash in autumn-winter period and development of recommendations for their sustainable use by game husbandries in the Crimea”. Main tasks were estimation of biodiversity and distribution of game waterfowl in Sivash wetlands and neighboring areas to identify IBAs of seasonal distribution and develop recommendations for their sustainable use by game husbandries in the Crimea.

Project “Development of the project of optimizing the internal structure of Crimean Union of Hunters and Fishermen”(Dzhankoy district, Dzhankoy Bay), which is included in the area of establishing National Natural Park “Sivashsky”. Project tasks included development of recommendations and works for rational use of natural resources, protection and renewal of game and fish resources, optimization of functions of the area of a game husbandry.

studies on habitat use and crop damage of geese (Rudenko et al. 2008).

Above-mentioned publications are available only to a restricted circle of ornithologists, because number of printed copies/circulation is limited, and as for reports, they are only in two copies and is property of executors or customers (for example, GEF). Among publications, which are available to the public, it should be mentioned only the ornithological journal/transactions “Branta” and maybe other 2 or 3 editions which were prepared by the Wetlands International Black Sea Programme (Kyiv).

Main organizations which participated in works on study of waterbirds and which data were used in this Report are the following:

- Danube Biosphere Reserve (Odessa Oblast)
- Black Sea Biosphere Reserve (Kherson Oblast)
- Biosphere Reserve “Askania Nova”
- Reserve “Lebyazhy Islands” (Crimea)
- Karadag Natural Reserve (Crimea)
- Regional Landscape Park “Tiligulsky” (Odessa Oblast)
- Regional Landscape Park “Kinburnska Spit” (Mykolayiv Oblast)
- Regional Landscape Park “Tiligulsky” (Mykolayiv Oblast)
- Regional Landscape Park “Meotida” (Donetsk Oblast)

Main executors which conducted works on numbers and distribution of breeding birds in the region in 1998 were distributed as follows:

Danube Biosphere Reserve (M.Zhnud)

lake Sasyk and system Shagany-Alibei-Burnas (A.Korzyukov, V.Pilyuga)

Regional Landscape Park “Tiligulsky”, Kuyalnitsky and Tiligusky Liman (V.Stolilovsky, A.Korzyukov)

Black Sea Biosphere Reserve (A.Rudenko, O.Yaremchenko)

Dzharylgachska Bay (T.Ardamatskaya, V.Siokhin, A.Poluda)

Reserve “Lebyazhy Islands” (T. Tarina, S. Kostin, N. Bagrikova)

Sivash (V. Siokhin, Yu. Andryushchenko, V. Kostyushin, I. Chernichko, R.Chernichko, V.Kinda, O. Matsyura, B.Garmash, O.Diadicheva, V.Popenko, I.Belashkov)

Molochny Liman (I.Chernichko, V.Siokhin, R.Chernichko, V.Kinda, A.Koshelev, T.Kirikova, O.Diadicheva)

Obytochna Bay and Spit (V.Siokin, I.Belashkov) Regional Landscape Park “Meotida”. Berdyanska Bay and Spit, Belosaraiska Spit, Kryva Spit (G.Molodan, V.Zalevsky)

Wetlands of Kerch Peninsula ВБУ (M.Beskaravainy, S.Kostin)

In works on distribution of waterbirds in the region in 2004 (August) the following persons took part

Danube and Odessa wetlands (V. Pilyuga, I.Gerzhik, V.Stoilovsky, I. Rusev, A.Korzyukov, D.Sokolovsky, O.Ovcharov, V. Artamonov, K.Redinov, O.Voblenko)

Danube Biosphere Reserve (M.Zhmud, A.Koshelev, O.Formanyuk)

Dniester wetlands (I.Rusev, A.Korzyukov, D.Sokolovsky, O.Ovcharov)

Dnipro-Bug wetlands (Z.Petrovich, A.Poluda, I.Shegolev, V.Artamonov, K.Redinov, O.Voblenko)

Black Sea Biosphere Reserve (A.Rudenko, O.Yaremchenko, Yu.Moskalenko)

Dzharylgach Bay and adjacent wetlands (V.Gavrilenko, T.Ardamatskaya, O.Mezinov, E. Lopushansky)
Reserve “Lebyazhy Islands” (T.Tarina, S.Kostin, N.Bagrikova, Yu.Andryushchenko, V.Vetrov, Yu.Milobog)
Sivash (V.Siokhin, I.Chernichko, O.Grinchenko, I.Belashkov, V.Popenko, V.Kinda, M.Beskaravainy, Yu.Andryushchenko, V.Vetrov, Yu.Milobog)
Wetlands of Kerch Peninsula (V.Popenko, V.Kinda, M.Beskaravainy)
Wetlands of Azov coast (I.Chernichko, R.Chernichko, O.Grinchenko, I.Belashkov, O.Diadicheva, Yu.Andryushchenko, V.Vetrov, Yu.Milobog, M.Beskaravainy)
Regional Landscape Park “Meotida” (G. Molodan, R.Chernichko, L.Taranenko, D.Pilipenko, O.Bronskov, G.Marchenko, G.Mosin, V.Sirenko, G.Bui)

There is enough quantity of publications in the region about waterbirds. They are in proceedings of the conferences and in periodical journals. Thorough analysis of existed specialized publication needs much time and isn’t a task of this project. However, during preparation of a final report this work will be done partly.

2.2.2 Information on hunting

Main literary sources, which were used during the report preparation, are 12 laws and governmental acts which regulate hunting economy in Ukraine.
The main is the Law of Ukraine “On Hunting Economy and Hunting”, “About Animal World”, “About environmental protection”.
Besides, there were used report materials (institutional information) about hunting economy in Oblasts, particularly in areas of nature reserved fund and wetlands. It is governmental statistic reports on conduction hunting economy “National reports about state of environmental protection in Zaporizhzhya Oblast”, Atlases of game husbandries of Crimea, Odessa, Mykolayiv, Kherson, Zaporizhzhya and Donetsk Oblast, etc.
Also it was used information from official websites of the State Committee of Forestry and Hunting Economy of Ukraine, Ukrainian Hunter’s Server, etc.

Almost all this information, namely the official websites of the State Committee of Forestry and Hunting Economy of Ukraine, website of Ukrainian Union of Hunters and Fishermen, Ukrainian Hunter’s Server and others, laws and governmental acts which regulate hunting economy in Ukraine are available to public.

Legislative acts are used only by representatives of state agencies of the State Committee of Forestry and Hunting Economy of Ukraine, and also by administration of Ukrainian Union of Hunters and Fishermen, Military Union of Hunters and Fishermen, as well as heads and workers of game husbandries.
Subordinate legislative acts and instructions, etc are mostly used by workers of the State Committee of Forestry and Hunting Economy of Ukraine and Ministry for Environmental Protection of Ukraine, and also by administration of Ukrainian Union of Hunters and Fishermen, Military Union of Hunters and Fishermen, as well as heads of game husbandries.

Only departmental instructions and orders are available to restricted persons. Their number is rather small, and seems to me is up to 20-25 documents. There are used only by experts on conducting/management hunting economy, heads of game husbandries, game managers and controlling agencies.

Atlases of game husbandries of Crimea, Odessa, Mykolayiv, Kherson, Zaporizhzhya and Donetsk Oblast are also of restricted assess because of their small printed number of copies.

Information about hunting was received in Zaporizhzhya Management Board of Forestry and Hunting Economy, Republican Forestry Committee of Crimea, State Management Board for Environmental Protection in Zaporizhzhya Oblast, Zaporizhzhya Oblast Department of Ukrainian Union of Hunters and Fishermen, Crimean Republican Committee of Hunters and Fishermen.

2.2.3 Additional information

There is additional information that is available but wasn't used. It wasn't used because special requests need to be prepared to receive it. Some information is not systemized or summarized yet. For example, it is number of bags of waterfowl in different wetlands, number of hunters in the region, etc.

3 Status of waterbirds in the Azov-Black Sea wetlands

3.1 Waterbird populations

The Azov-Black Sea coast of the Ukraine holds large numbers of breeding, migrating and wintering waterbirds. In the Western Palearctic it is unique, in importance only comparable with areas like the Wadden Sea. Breeding bird numbers may exceed 350,000 pairs and the areas holds 10-35% of the geographical populations of more than 30 bird species. Many species use the coastal region on migration or in winter with important areas in the deltas of the Danube and Dniester, and the limans along the Azov-Black Sea coast (Shegolev & Rusev 1993; Rusev & Barker 1995). Annually, an estimated 8-10 million waterbirds use the area with peak numbers up to 1 million in one of the most important areas: the Sivash (Van der Winden *et al.* 2001). Over 100 of the 170 bird species listed in the African-Eurasian Migratory Waterbird Agreement use the area: the Azov-Black sea coastal area is, therefore, very important area for many bird species from Europe, Asia and Africa (Korzuykov *et al.* 1998). For some species almost the entire flyway population depends at least in part of their annual cycle on this region such as Lesser White-fronted Goose, Broad-billed Sandpiper and Red-breasted Goose. For other species the proportion of the population can be as high as 50% of the total population such as many wader species and terns (e.g. Van der Winden *et al.* 2000, 2001, Chernichko *et al.* 2004, 2006; Rusev & Korzuykov 2006).

3.1.1 Species, abundance and seasonal distribution

Information on the number and distribution of birds in different seasons are prepared in different institutions of the region and cover three main seasons: breeding, migration and wintering. The area of investigation includes wetlands and coastal areas of the Azov-Black Sea coast of Ukraine (fig. 1).

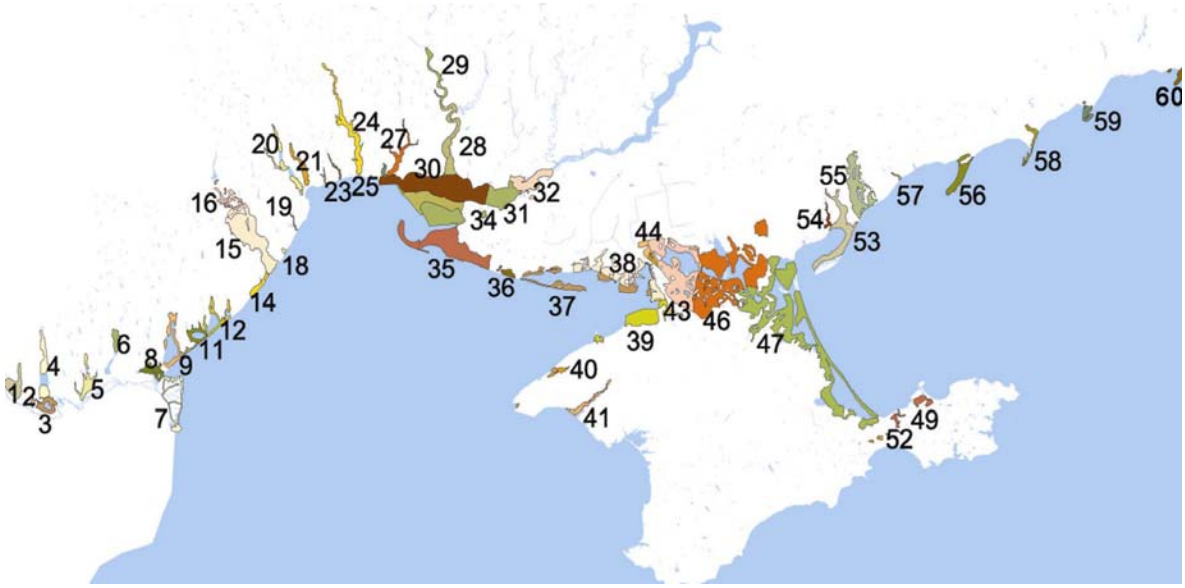


Fig. 1. The wetlands of South Ukraine

Wetland	Wetland
Lake Kagul	Dniprovsky Liman
Lake Kartal	Dnipro River Delta
Lake Kugurlui	Left-bank "sagi" of Dnipro
Lake Yalpug	Kinburnsky Peninsula
Dzharylgach and adjacent areas	Yagorlytska Bay
Katlabuh Lake	Tendrivska Bay
Kitay Lake	Lake Ustrichny with adjacent lands
Outer Danube Delta	Dzharylgachska Bay and Dzharylgach Island
Stensovsko- Zhebriyansky Plavni	North Karkinitsky Complex
Lake Sasyk	South Karkinitsky Complex
Dzhantsheisky Lakes and Maly Sasyk	Lake Donuzlav
Lake Shagany	Western Sivash Complex
Alibei Complex	Shpindiar site
Lake Burnas	Storage lakes of DAK “Titan”
Budaksky Liman	Central Sivash Complex
Dniestrovsky Liman	Eastern Sivash
Plavni of Lower Dniester	Lake Aktash with Astanino Plavni
Baraboy River Mouth	Pond near village Yachmennoye
Sukhy Liman	Feodosia lake complex
Khadzhibeiskly Liman	Alibei dry area
Kuyalnitsky Liman	Budaksky Liman with Fedotova Spit and Biryuchy Island
Velyky Adzhalyk	Lake Sivashik
Maly Adzhalyk	Molochny Liman
Tiligulsky Liman	Obitochna Bay and Obitochna Spit
Lake Solone	Tubalsky Liman
Lake Tuzlovske	Berdianska Spit and Berdianska Bay
Lower reaches of berezansky Liman	Bilosaraiska Bay and Bilosaraiska Spit
Bugsky Liman	Kryva Bay and Kryva Spit
Plavni of South Bug River	

Breeding period

The largest volume data are available for the breeding period. In some wetlands regular observations are available for the past 20-30 years (Sivash-the Azov-Black Sea Ornithological Station, Tendrovsky and Yagorlytska Bay-Black Sea Biosphere Reserve, Dniester Plavni, the Danube Plavni-Danube Biosphere Reserve, Molocnny Liamn,Obitochna Bay-the Azov-Black Sea Ornithological Station). As the other regional wetlands during the same period observations were carried out with varied frequency. Synchronized counts in breeding habitats of birds in the region were provided only in 1993 and 1998. For some species, regional counts were taken only in 2007; such as for the Great Cormorant.

Migration period

Less attention is paid to study migration in the region. The most intensive investigation are carried out at Sivash, Molochny Liman, Utlyuksky Liman, Tiligulsky Liman, the bays Kryva Spit and Bilosaraiska Spit. The most studied periods are the first stages of autumn migration period (August-September). Such investigation works were conducted at the regional level in 2004 and in 2006. At Sivash monitoring of bird

distribution in this period is carried out during the last 8 years. In other wetlands counts are held with much less frequency. Monitoring of the last stages of the autumn migration (October - November) was conducted only during the past 15 years at Sivash by the Azov - Black Sea Ornithological Station and at another 2-3 regional wetlands. There were no simultaneous autumn records in the region during this period. Counts of birds during spring migration are almost absent. The data for this period are available only for some individual regional wetlands.

Wintering period

Counts in this period are carried out only in territories of the funded nature reserves. During the last years (1998 - 2004) synchronized counts of wintering birds in main wetlands were carried out under the initiative of Wetlands International-AEME at Sivash, and wetlands of the Azov-Black Sea coast. However, in recent years, complete records of birds wintering in the region were not conducted.

In order to characterize the distribution of birds during breeding period and in period of autumn seasonal distribution we present brief information below.

Breeding period

The preliminary list of birds, directly or indirectly associated with wetlands, includes 320 species (Chernichko, Siokhin. The types, identification criteria and designation of wetlands at the Azov-Black Sea coast, 1996). This is nearly 84% of the total list of bird species in Ukraine. In previous years 183 species were counted breeding in wetlands and adjacent territories. This list includes not only colonial waterbirds, but also those that may use coastal complex of biotopes as breeding sites or breed in areas, functionally connected with wetlands.

In 1998, 73 waterbird species and 74 accompanying species of birds were counted in those parts of the wetlands that were investigated. However, a complete list of these two groups of birds breeding in different years includes 180-198 species.

Dominated habitats, where main colonial settlements of birds were located included:

- accumulative islands and spits;
- continental islands;
- marsh reed complexes (including floodplain forests);
- saltmarsh depressions;
- coastal precipices (clay and sandy)

During recent years, numbers of birds in the wetlands of the Azov-Black Sea coast of Ukraine fluctuated from 125 to 337 thousand of pairs. In 1991 the number of breeding birds was 297,446 pairs; in 1993 - 175,472 pairs, and in 1998 - 337,312 pairs. In 1998 counts of breeding birds were conducted in 16 wetlands of international importance. Numbers in these wetland complexes in 1998 amounted to 325,109 pairs. Accordingly bird numbers the wetlands are divided into following groups.

The first group includes wetlands with the highest numbers of breeding birds during recent 10 years. In 1998 in Tendrovsky Bay there were 96,796 pairs, and at Eastern Sivash there were 75,131 pairs. In 1993, numbers of birds at these water bodies were much lower in comparison with 1998, but if compared with other wetlands the bird numbers there were the highest (Tendrovsky Bay - 21,013 pairs, Eastern Sivash - 20,765 pairs).

The second group includes 3 wetlands, also with quite high bird numbers in 1998 (Central Sivash –28,790 pairs; Dzharylgach Bay - 28,247 pairs, the Dniester Delta – 20,000 pairs). In 1993 the Central Sivash and the Dniester Delta characterized by high numbers of birds(14,146 and 13,519 pairs respectively) and also were a second group according to the number of breeding birds.

The third group consists of wetlands with numbers of 10,802-13,943 pairs. According to the data of 1998 this group include Karkynytsky Bay (10,802 pairs), lakes Shagany-Alibei-Burnas (11,738 pairs), Molochny Liman (12,656 pairs), Bay and Spit Obytochna (13943 pairs). In this group of water bodies there are considerable fluctuations in numbers of birds between years.

The fourth group of waterbodies in 1998 included numbers of 7,710-9,357 pairs. These wetlands are characterized by even more fluctuations of numbers. Thus, numbers of breeding birds in 1998 and 1993 respectively were 9,357 and 15,417 pairs for the Danube delta, for Western Sivash – 7,892 pairs and 2,120 pairs, at parts of the Kryva Bay and Spit there are 7,710 and 25,353 pairs.

The fifth group includes 3 water bodies with low numbers of birds in 1998 (lake Sasyk – 2,389 pairs, Bay and Spit Berdyanska – 2,363 pairs, Kuyalnytsky Liman – 1,811 pairs).

The six group of water bodies has the lowest numbers in 1998 (Belosarayska Spit - 558 pairs; sites on Kerch Peninsula and in South-Eastern Crimea - 20-119 pairs).

Gulls absolutely dominate according numbers (Mediterranean Gull 100,863 pairs, sandwich Tern - 31,378 pairs, the Yellow-legged Gull - 28,226 pairs. Numbers of birds are distributed per game species as follows:

Coot (12,019 pairs). The main colonial settlements - Eastern Sivash (4,350 pairs), Dniester Delta (3,700 pairs), Western Sivash (1000 pairs);
Greylag Goose - 676 pairs;
Mallard - 2254 pairs;
Pochard - 1520 pairs;
Other species of ducks - 618 pairs.

In general, in wetlands of the Azov-Black Sea coast, main taxonomic groups were distributed as follows: gulls (57.4% of total number), passerines (11.5%), ducks and rails (5.4%), waders (5.2%), Ciconiiformes(3.6%), geese (2.5%), grebes (0.8%).
Thirteen wetlands of international and two wetlands of national importance in the Azov-Black Sea coast of Ukraine are valuable for the maintenance of geographic populations of waterbirds and ensure a rather high percentage of them within the populations.
When we compare breeding populations of waterbird species (according to the data of 1998) with numbers of their geographical populations we can divide them into several groups.

The first group includes species, which numbers correspond to 34-48.3% of their geographical populations (the Great Cormorant, Mediterranean Gull, Gull-billed Tern and Sandwich Tern).

The second group includes the Avocet, Slender-billed Gull and Caspian Tern, they are also characterized by rather high numbers in the region (20.4-29.3%).

The third group includes Red-necked Grebe, Glossy Ibis, Black-winged Stilt, Collared Pratincole, Yellow-legged Gull, which numbers comprise 10.1-13.0% of their geographic populations.

The fourth group consists of 7 species, which breeding numbers correspond to 4.3-8.8%.

The fifth group includes 11 types of birds with low numbers(1.0 - 4.2%).

Migration period

Annotations on total number of protected birds and species are presented below.

Lakes Kagul, Kartal, Kugurluy, Yalpug, Katlabuh and Kitay

50009 individuals of 49 waterbird species were counted. Of these, 10 species are included in the Red Data Book of Ukraine (White Pelican, Dalmatian Pelican, Pygmy Cormorant, Squacco Heron, Eurasian Spoonbill, Glossy Ibis, Black Stork, Ferruginous Duck, Stone-curlew, Marsh Sandpiper). The most numerous species were Common Coot, Black-headed Gull and Whiskered Tern.

Danube Delta and Stensovsko-Zhebriyanskiye Plavni 104002 individuals of 68 waterbird species were counted. Of these, 16 species are included in the Red Data Book of Ukraine (White Pelican, Dalmatian Pelican, Pygmy Cormorant, Squacco Heron, Eurasian Spoonbill, Glossy Ibis, Ruddy Shelduck, Ferruginous Duck, Common Goldeneye, Black-winged Stilt, Eurasian Oystercatcher, Slender-billed Curlew,

Eurasian Curlew, Whimbrel, Great Black-headed Gull, Caspian Tern). The most numerous species were Mallard, Great Cormorant and Common Coot.

Lake Sasyk, lakes Dzhantsheiskoye, Malyy Sasyk, Shagany, Alibey and Burnas, including estuaries of the river Khadzhider and the river Alkaliya

79035 individuals of 76 waterbird species were counted. Of these, 16 species are included in the Red Data Book of Ukraine (White Pelican, Dalmatian Pelican, Pygmy Cormorant, Squacco Heron, Eurasian Spoonbill, Glossy Ibis, Stone-curlew, Kentish Plover, Black-winged Stilt, Eurasian Oystercatcher, Slender-billed Curlew, Eurasian Curlew, Whimbrel, Collared Pratincole, Great Black-headed Gull, Caspian Tern). The most numerous species were Mallard, Black-headed Gull and Mediterranean Gull, Common Coot.

Budakskiy, Dnestrovskiy and Kuchurganskiy limans, in plavni of the lower Dniester and the estuary of the river Baraboy

33870 individuals of 37 waterbird species were counted. Of these, 9 species are included in the Red Data Book of Ukraine (White Pelican, Dalmatian Pelican, Pygmy Cormorant, Squacco Heron, Eurasian Spoonbill, Glossy Ibis, Ferruginous Duck, Black-winged Stilt, Eurasian Oystercatcher). The most numerous species were Common Coot, Great Cormorant and Whiskered Tern.

Odessa limans: Sukhoy, Khadzhibeyskiy, Kuyal'nitskiy, Bol'shoy and Malyy Adzhalyk, lakes Tiligul'skoye and Solenoye near the village of Morskoye

103991 individuals of 59 waterbird species were counted. Of these, 9 species are included in the Red Data Book of Ukraine (Pygmy Cormorant, Squacco Heron, Eurasian Spoonbill, Glossy Ibis, Ferruginous Duck, Black-winged Stilt, Marsh Sandpiper, Eurasian Curlew). The most numerous species were Common Coot, Little Gull, Black-headed Gull and Mallard.

Berezanskiy Liman, at Lake Tuzlovskoye (Solonets), at Bugskiy and Dneprovskiy Limans, in plavni of the Yuzhnyy Bug River, in the Dnieper Delta and Kinburnskaya Spit

67179 individuals of 77 waterbird species were counted. Of these, 17 species are included in the Red Data Book of Ukraine (White Pelican, Pygmy Cormorant, Squacco Heron, Glossy Ibis, Black Stork, Ferruginous Duck, Common Goldeneye, Common Eider, Red-breasted Merganser, Kentish Plover, Black-winged Stilt, Eurasian Oystercatcher, Marsh Sandpiper, Eurasian Curlew, Whimbrel, Great Black-headed Gull, Caspian Tern). The most numerous species were Common Coot, Great Cormorant, Black-headed Gull and Yellow-legged Gull.

Yagorlytskiy and Tendrovskiy Bays, Adzhigol' area and at Ustrichnyye Lakes

62047 individuals of 71 species of waterbird were counted. Of these, 16 species are included in the Red Data Book of Ukraine (White Pelican, Pygmy Cormorant, Eurasian Spoonbill, Glossy Ibis, Black Stork, Common Eider, Red-breasted Merganser, Common Crane, Kentish Plover, Black-winged Stilt, Eurasian Oystercatcher, Marsh

Sandpiper, Eurasian Curlew, Whimbrel, Great Black-headed Gull, Caspian Tern). The most numerous species were Great Cormorant, Common Coot and Black-headed Gull.

Dzharylgachskiy Bay and at Dzharylgach Island

12165 individuals of 54 waterbird species were counted. Of these, 9 species are included in the Red Data Book of Ukraine (White Pelican, Eurasian Spoonbill, Eider, Common Crane, Kentish Plover, Black-winged Stilt, Eurasian Oystercatcher, Eurasian Curlew, Whimbrel). The most numerous species were Mute Swan, Mallard and Common Coot.

Karkinitskiy Bay, on Lebyazhy Islands and adjacent northern and southern Karkinitskiy area

140112 individuals of 75 waterbird species were counted. Of these, 17 species are included in the Red Data Book of Ukraine (White Pelican, Squacco Heron, Spoonbill, Glossy Ibis, Black Stork, Ferruginous Duck, Common Eider, Red-breasted Merganser, Kentish Plover, Black-winged Stilt, Eurasian Oystercatcher, Marsh Sandpiper, Eurasian Curlew, Whimbrel, Collared Pratincole, Great Black-headed Gull, Caspian Tern). The most numerous species were Common Coot, Ruff, Common Pochard, Mute Swan and Black-headed Gull.

Western Sivash, including Shpindiyar

45036 individuals of 52 waterbird species were counted. Of these, 10 species are included in the Red Data Book of Ukraine (Eurasian Spoonbill, Glossy Ibis, Common Crane, Kentish Plover, Black-winged Stilt, Eurasian Oystercatcher, Eurasian Curlew, Whimbrel, Collared Pratincole, Great Black-headed Gull). The most numerous species were Slender-billed Gull, Ruff, Common Redshank and Mallard.

Wetlands of Central Sivash, including lakes Aigul and Karleut

164989 individuals of 68 waterbird species were counted. Of these, 13 species are included in the Red Data Book of Ukraine (Eurasian Spoonbill, Glossy Ibis, Common Crane, Demoiselle Crane, Stone-curlew, Kentish Plover, Black-winged Stilt, Eurasian Oystercatcher, Marsh Sandpiper, Eurasian Curlew, Collared Pratincole, Great Black-headed Gull, Caspian Tern). The most numerous species were Ruff, Common Shelduck, Garganey, Black-headed Gull, Common Coot and Curlew Sandpiper.

Wetlands of Eastern Sivash

641726 individuals of 81 waterbird species were counted. Of these, 21 species are included in the Red Data Book of Ukraine (White Pelican, Pygmy Cormorant, Squacco Heron, Eurasian Spoonbill, Glossy Ibis, Ruddy Shelduck, Ferruginous Duck, Common Goldeneye, Red-breasted Merganser, Common Crane, Demoiselle Crane, Stone-curlew, Kentish Plover, Black-winged Stilt, Eurasian Oystercatcher, Marsh Sandpiper, Eurasian Curlew, Whimbrel, Collared Pratincole, Great Black-headed Gull, Caspian Tern). The most numerous species are Common Coot, Ruff, Great Cormorant, Mallard and Black-headed Gull.

Tarkhankut Peninsula (Dzharylgach, Yarylgach, Panskoye, Donuzlav) and adjacent marine water area

11115 individuals of 40 waterbird species were counted. Of these, 8 species are included in the Red Data Book of Ukraine (Glossy Ibis, Common Eider, Kentish Plover, Black-winged Stilt, Eurasian Oystercatcher, Slender-billed Curlew, Eurasian Curlew, Collared Pratincole). The most numerous species were Black-headed Gull, Little Gull, Ruff and Common Coot.

Wetlands of Kerchenskiy Peninsula (Lake Aktashskoye, Astaninskiye Plavni, a pond near the village of Yachmennoye)

15974 individuals of 43 waterbird species were counted. Of these, 6 species are included in the Red Data Book of Ukraine (Glossy Ibis, Ruddy Shelduck, Kentish Plover, Black-winged Stilt, Marsh Sandpiper, Collared Pratincole). The most numerous species were Black-headed Gull, Garganey and Bar-tailed Godwit.

Utlyukskiy Liman, Fedotova Spit and Lake Sivashik

161301 individuals of 70 waterbird species were counted. Of these, 14 species are included in the Red Data Book of Ukraine (Eurasian Spoonbill, Glossy Ibis, Ruddy Shelduck, Red-breasted Merganser, Common Crane, Kentish Plover, Black-winged Stilt, Eurasian Oystercatcher, Marsh Sandpiper, Eurasian Curlew, Whimbrel, Collared Pratincole, Great Black-headed Gull, Caspian Tern). The most numerous species were Common Coot, Black-headed Gull, Black-necked Grebe, Great Cormorant and Mallard.

Molochnyy Liman and Tubal'skiy Liman with their estuaries

36234 individuals of 40 waterbird species were counted. Of these, 7 species are included in the Red Data Book of Ukraine (Black Stork, Common Goldeneye, Black-winged Stilt, Eurasian Oystercatcher, Eurasian Curlew, Great Black-headed Gull, Caspian Tern). The most numerous species were Black-headed Gull, Mediterranean Gull, Mallard and Great Cormorant.

Obitochnaya Spit and in the adjacent bay.

19528 individuals of 42 waterbird species were counted. Of these, only 1 species is included in the Red Data Book of Ukraine (Eurasian Oystercatcher). The most numerous species were Great Cormorant and Common Coot.

Northern Priazovie

34331 individuals of 65 waterbird species were counted. Of these, 10 species are included in the Red Data Book of Ukraine (Glossy Ibis, Stone-curlew, Kentish Plover, Black-winged Stilt, Eurasian Oystercatcher, Marsh Sandpiper, Eurasian Curlew, Collared Pratincole, Great Black-headed Gull, Caspian Tern). The most numerous species were Black-headed Gull, Yellow-legged Gull, Mallard and Common Coot.

Total numbers of species in wetlands of the Azov-Black Sea region is presented in Table 1, and numbers and bird biodiversity in fig.2.

Table 1. Total numbers of waterbirds in the region in August 2004. (ind.)

Latin name	Russian name	English name	Number
Gavia arctica	Гагара чернозобая	Black-throated Diver	61
Podiceps nigricollis	Поганка черношейная	Black-necked Grebe	21017
Podiceps auritus	Поганка красношейная	Slavonian Grebe	5
Podiceps grisegena	Поганка серощекая	Red-necked Grebe	390
Podiceps cristatus	Поганка большая	Great-crested Grebe	17152
Pelecanus onocrotalus	Пеликан розовый	White Pelican	14926
Pelecanus crispus	Пеликан кудрявый	Dalmatian Pelican	142
Phalacrocorax pygmaeus	Баклан малый	Pygmy Cormorant	2374
Phalacrocorax carbo	Баклан большой	Cormorant	157222
Botaurus stellaris	Выпь большая	Bittern	18
Ixobrychus minutus	Выпь малая	Little Bittern	126
Nycticorax nycticorax	Кваква	Night Heron	1120
Ardeola ralloides	Цапля желтая	Squacco Heron	932
Egretta alba	Цапля большая белая	Large Egret	7263
Egretta garzetta	Цапля малая белая	Little Egret	6508
Ardea cinerea	Цапля серая	Heron	6211
Ardea purpurea	Цапля рыжая	Purple Heron	840
Platalea leucorodia	Колпица	Spoonbill	838
Plegadis falcinellus	Каравайка	Glossy Ibis	2088
Ciconia ciconia	Аист белый	White Stork	405
Ciconia nigra	Аист черный	Black Stork	44
Anser anser	Гусь серый	Greylag Goose	9523
Cygnus olor	Лебедь-шипун	Mute Swan	21400
Cygnus cygnus	Лебедь-кликун	Whooper Swan	2
Tadorna ferruginea	Огарь	Ruddy Shelldduck	17
Tadorna tadorna	Пеганка	Shelduck	35967
Anas platyrhynchos	Кряква	Mallard	127745
Anas crecca	Чирок-свистунок	Teal	13980
Anas strepera	Утка серая	Gadwall	1045
Anas penelope	Свиязь	Wigeon	551
Anas acuta	Шилохвость	Pintail	56
Anas querquedula	Чирок-трескунок	Garganey	63473
Anas clypeata	Широконоска	Shoveler	3995
Anas spp.	Утки речные		23042
Netta rufina	Нырок красноносый	Red-crested Pochard	1910
Aythya ferina	Чернеть красноголовая	Pochard	27385
Aythya nyroca	Чернеть белоглазая	White-eyed Pochard	745
Aythya fuligula	Чернеть хохлатая	Tufted Duck	412
Aythya marila	Чернеть морская	Scaup	51
Aythya spp.	Утки нырковые		457
Bucephala clangula	Гоголь обыкновенный	Goldeneye	4
Somateria mollissima	Гага обыкновенная	Eider	3600
Mergus serrator	Крохаль длинноносый	Red-breasted Merganser	54
Grus grus	Журавль серый	Crane	526
Anthropoides virgo	Красавка	Demoiselle Crane	816
Rallus aquaticus	Пастушок	Water Rail	13
Porzana porzana	Погоныш	Spotted Crake	2
Porzana parva	Погоныш малый	Little Crake	5
Gallinula chloropus	Камышница	Moorhen	256
Fulica atra	Лысуха	Coot	466554
Burhinus oedicnemus	Авдотка	Stone-curlew	15
Pluvialis squatarola	Тулес	Grey Plover	3603
Pluvialis apricaria	Ржанка золотистая	Golden Plover	52
Charadrius hiaticula	Галстучник	Ringed Plover	377

Latin name	Russian name	English name	Number
Charadrius dubius	Зуек малый	Little Ringed Plover	173
Charadrius alexandrinus	Зуек морской	Kentish Plover	1505
Charadrius spp.	Зуйки		52
Vanellus vanellus	Чибис	Lapwing	3861
Arenaria interpres	Камнешарка	Turnstone	2160
Himantopus himantopus	Ходулочник	Black-winged Stilt	1660
Recurvirostra avosetta	Шилоклювка	Avocet	7886
Haematopus ostralegus	Кулик-сорока	Oystercatcher	1475
Tringa ochropus	Черныш	Green Sandpiper	1478
Tringa glareola	Фифи	Wood Sandpiper	2837
Tringa nebularia	Улит большой	Greenshank	3431
Tringa totanus	Травник	Redshank	19904
Tringa erythropus	Щеголь	Spotted Redshank	684
Tringa stagnatilis	Поручейник	Marsh Sandpiper	2463
Tringa spp.	Улиты		2373
Actitis hypoleucos	Перевозчик	Common Sandpiper	207
Xenus cinereus	Мородунка	Terek Sandpiper	15
Phalaropus lobatus	Плавунчик круглоносый	Red-necked Phalarope	3458
Philomachus pugnax	Турухтан	Ruff or Reeve	172799
Calidris minuta	Кулик-воробей	Little Stint	2515
Calidris temminckii	Песочник белохвостий	Temminck's Stint	49
Calidris ferruginea	Краснозобик	Curlew Sandpiper	14984
Calidris alpina	Чернозобик	Dunlin	19027
Calidris alba	Песчанка	Sanderling	220
Calidris spp.	Песочники		28263
Limicola falcinellus	Грязовик	Broad-billed Sandpiper	888
Gallinago gallinago	Бекас	Common Snipe	475
Gallinago media	Дупель	Great Snipe	3
Limosa limosa	Веретенник большой	Black-tailed Godwit	6288
Limosa lapponica	Веретенник малый	Bar-tailed Godwit	2392
Numenius tenuirostris	Кроншнеп тонкоклювый	Slender-billed Curlew	12
Numenius arquata	Кроншнеп большой	Curlew	2237
Numenius phaeopus	Кроншнеп средний	Whimbrel	118
Numenius spp.	Кроншнепы		45
Waders spp.	Кулики (точнее не определены)		937
Glareola pratincola	Тиркушка луговая	Collared Pranticole	1048
Stercorarius pomarinus	Поморник средний	Pomarine Skua	1
Stercorarius parasiticus	Поморник короткохвостый	Arctic Skua	3
Larus ichthyaetus	Хохотун черноголовый	Great Black-headed Gull	1419
Larus melanocephalus	Чайка черноголовая	Mediterranean Gull	41861
Larus minutus	Чайка малая	Little Gull	48177
Larus ridibundus	Чайка озерная	Black-headed Gull	148670
Larus genei	Голубок морской	slender-billed Gull	48540
Larus cachinnans	Хохотунья	Yellow-legged Gull	44338
Larus canus	Чайка сизая	Common Gull	801
Larus spp.	Чайки		9851
Chlidonias niger	Крачка черная	Black Tern	2164
Chlidonias leucopterus	Крачка белокрылая	White-winged Black Tern	22413
Chlidonias hybrida	Крачка белощекая	Whiskered Tern	9152
Chlidonias spp.	Крачки болотные		10999
Gelochelidon nilotica	Крачка чайконосая	Gull-billed Tern	3243
Hydroprogne caspia	Чеграва	Caspian Tern	1725
Sterna hirundo	Крачка речная	Common Tern	15039
Sterna albifrons	Крачка малая	Little Tern	2803
Sterna spp.	Крачки		2115
Всего/Total			**1787208**

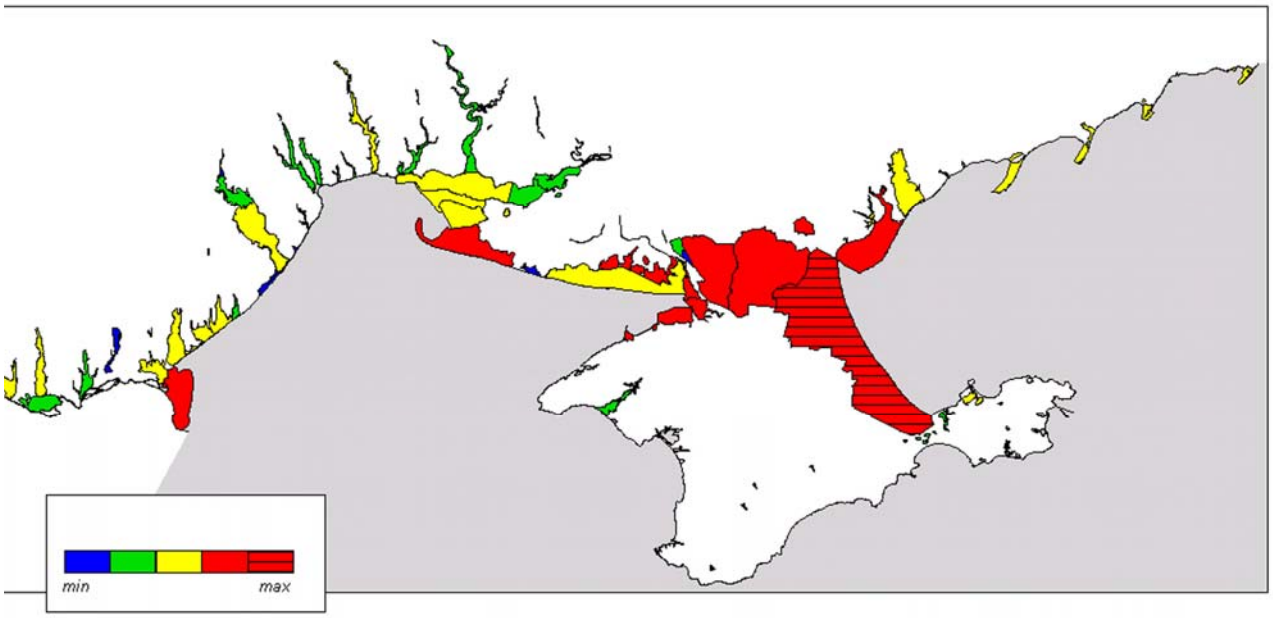
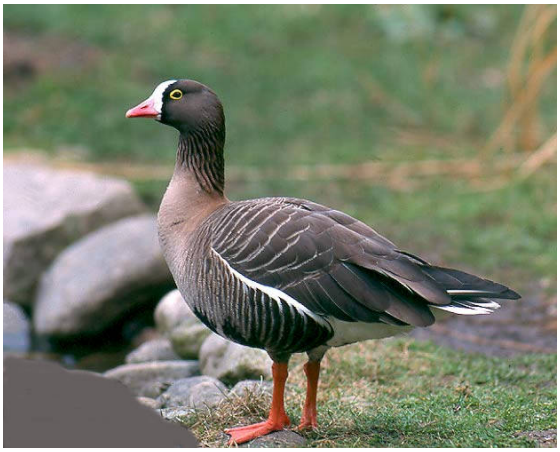


Fig 2. Numbers and bird biodiversity in regional wetlands (August 2004)

Population sizes and trends of some protected bird species

Lesser White-fronted Goose (Anser erythropus)



Numbers. Common species in the region during autumn and spring migrations and on wintering. Wintering numbers in 1980s- 300-1200 ind., in 1990s – 3000-4000 (Andryushchenko *et al.* 1998; Andryushchenko *et al.* 2001; Andryushchenko *et al.* 2006; Ardamatskaya 1996; Grinchenko 2001; Grinchenko *et al.* 2003; Diadicheva *et al.* 2006; Zhmud 1996; Koshelev *et al.* 2002; Koshelev 2004; Lysenko 2000; Rudenko *et al.* 2000; Rusev *et al.* 1996; Chernichko *et al.* 2000), during last years – 1-2 thousands ind.

Main concentration sites. Wintering concentrations are formed jointly with the White-fronted Goose (Anser albifrons) in the Crimea, at Sivash, in the Danube Delta, at limans of North Black Sea area (Grinchenko *et al.* 2003; Koshelev *et al.* 2002; Koshelev 2004; Lysenko 2000; Rudenko *et al.* 2000; Rusev *et al.* 1996).

Accompanying species. The white-fronted Goose (Anser albifrons), Red-breasted Goose (Rufibranta ruficollis), Greylag Goose (Anser anser).

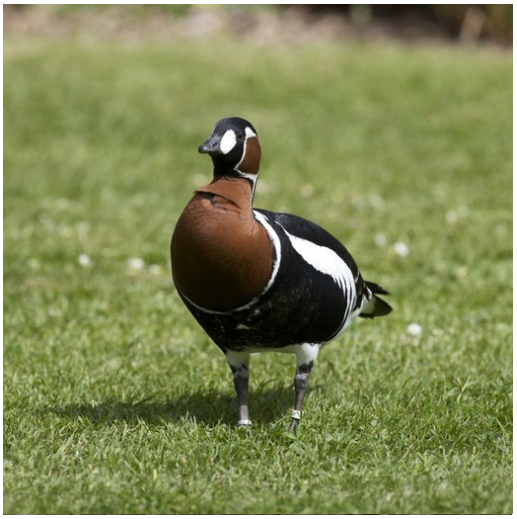
Number trends. Numbers markedly decreased during last 5-6 years.

Main factors of number changes. Changes of migratory routes of the White-fronted Goose and change of its wintering sites, and those of Lesser White-fronted Goose, changes in crop rotation and agrotechnics on fields because they were shared between people.

Role of hunting in number changes. Lesser White-fronted Goose is hunted accidentally during hunting on White-fronted Geese. According to rough estimation, up to 100 ind are shoot during a hunting season (Grinchenko *et al.* 1995; Grinchenko 2001; Grinchenko *et al.* 2003; Lysenko 2000).

Recommended measures of protection. Increase culture of hunting and requirements to hunters which cannot distinguish goose species. Strictly follow nature conservation legislation and hunting rules. To foresee creation of protected areas in feeding sites of Lesser White-fronted Geese and develop there additional forage fields. (Grinchenko 2001; Koshelev 2001; Lysenko 2000).

Red-breasted Goose (Rufibranta ruficollis)



Numbers. Common species in the region during autumn and spring migrations and on wintering. Numbers during autumn passage is up to 35,000-45,000 (Rusev & Lysenko 2000), on wintering 9,000-23,000 depending on winter weather (Andryushchenko *et al.* 1998; Andryushchenko *et al.* 2001; Andryushchenko *et al.* 2006; Ardamatskaya 1996; Grinchenko *et al.* 1995; Grinchenko *et al.* 2003; Zhmud 1996; Rusev & Korzyukov 2000; Rusev & Lysenko 2000).

Main concentration sites. Wintering concentrations are formed jointly with the White-fronted Goose (Anser albifrons) at Sivash and in the Danube Delta (Grinchenko *et al.* 2003; Zhmud 1996; Rusev & Lysenko 2000).

Accompanying species. The White-fronted Goose (Anser albifrons), Lesser White-fronted Goose (Anser erythropus), Greylag Goose (Anser anser). (Rusev & Korzyukov 2000; Rusev & Lysenko 2000).

Number trends. Numbers markedly decreased during last 10-15 years.

Main factors of number changes Changes of migratory routes of the White-fronted Goose and change of its wintering sites, as well as White-fronted Goose, changes in crop rotation and agrotechnics on fields because they were shared between people (Rusev & Korzyukov 2000; Rusev & Lysenko 2000).

Role of hunting in number changes. Red-breasted Goose is shot accidentally during hunting on White-fronted Geese. According to rough estimation, up to 300-500 ind are shoot during a hunting season (Koshelev 2004; Rusev & Korzyukov 2000; Rusev & Lysenko 2000).

Recommended measures of protection. Increase culture of hunting and requirements to hunters, which cannot distinguish goose species. Strictly follow nature conservation legislation and hunting rules. To foresee creation of protected areas in feeding sites of Red-breasted Goose and develop there additional forage fields. (Grinchenko 2001; Koshelev 2001; Rusev & Korzyukov 2000; Rusev & Lysenko 2000).

White-eyed Pochard (Aythia nyroca)

Numbers. Common species in the region on breeding, during autumn and spring migrations and on wintering. Breeding numbers is up to 500-600 pairs. (Gorban & Zhmud 2000; Diadicheva & Koshelev 2006; Koshelev *et al.* 2001; Koshelev & Zhmud 2003; Korzyukov 2001; Siokhin 2000; Koshelev *et al.* 2002).
Main concentration sites. Breeding concentrations are formed in the Danube Delta, Dniester and Eastern Sivash. Concentrations in August are at the Danube lakes, in Karkinitsky Bay. Observed single and small groups in wintering concentrations together with the Pochard, Tufted Duck at Sivash and in the Danube Delta (Gorban & Zhmud 2000; Zhmud *et al.* 2004; Koshelev *et al.* 2001; Koshelev & Zhmud 2003; Korzyukov 2001; Siokhin 2000; Koshelev *et al.* 2002).
Accompanying species. Pochard, Red-crested Pochard. Usual species on wintering sites near large cities are also Mute Swan, Mallard and Coot.
Number trends. During last 10-15 years numbers slightly increased, but in last two years (2007-2008), where there were no spring and summer floods in the Danube and Dniester Delta, numbers markedly decreased (Gorban & Zhmud 2000; Zhmud *et al.* 2004; Koshelev *et al.* 2001; Korzyukov 2001).
Main factors of number changes. Deterioration of habitats and their reduction, excessive poaching (Koshelev 2001; Koshelev *et al.* 2001; Koshelev *et al.* 2003).
Role of hunting in number changes. White-eyed Pochard is shot everywhere during duck hunting season especially during twilight. According to rough estimation 100-300 ind. are short during the season (Gorban & Zhmud 2000; Koshelev *et al.* 2001; Koshelev & Zhmud 2003; Koshelev *et al.* 2003).
Recommended measures of protection. Increase culture of hunting and requirements to hunters which, cannot distinguish duck species. Strictly follow nature conservation legislation and hunting rules (Koshelev 2001; Koshelev *et al.* 2001).

White-headed Duck (Oxyura leucocephala)

Numbers. Occasional species in the region during autumn migration from 9 to 50-100 in a season. Breeding stopped in early 1960s. (Koshelev 2000; Koshelev 2001; Kreitzberg-Mukhina 2002; Chernichko *et al.* 2000; Falco 2003).

Main concentration sites. Does not form concentrations, are observed single and in small groups (2-5 ind.) on passage along the Crimean coast, Sivash, liman of North Azov, lower Dnipro (Koshelev 2000; Falco 2003).
Accompanying species. Pochard, Tufted Duck, Red-crested Pochard, Mallard, Black-necked Grebe.
Number trends. During last 10-15 years numbers of the White-headed Duck in its main range (Kazakhstan, Uzbekistan, Kalmykia) slightly increased, that caused its records in South Ukraine.
Main factors of number changes. Deterioration and reduction of areas of breeding sites, many years depression of water bodies, deterioration of wintering sites (Koshelev 2000).
Role of hunting in number changes. The White-headed Duck is possibly shot accidentally during hunting on pochards. According to rough estimation up to 5-10 ind are hunted during a season (Koshelev 2000; Falco 2003).
Recommended measures of protection. Increase culture of hunting and requirements to hunters, which cannot distinguish duck species. Strictly follow nature conservation legislation and hunting rules (Koshelev 2001). To raise/breed artificial group in a specialized nursery and further release to nature.

Red-crested Pochard (Netta rufina)

Numbers. Common species in the region on breeding, during autumn and spring migrations and on wintering. Breeding numbers reaches 600-800 pairs (Andryushchenko *et al.* 1998; Andryushchenko *et al.* 2001; Andryushchenko *et al.* 2006; Diadicheva & Koshelev 2006; Zhmud *et al.* 2004; Koshelev & Zhmud 2003; Koshelev *et al.* 2002; Koshelev *et al.* 2001).
Main concentration sites. Breeding concentrations are formed in the Danube Delta, at Eastern Sivash. Wintering concentrations are formed jointly with the Pochard and Tufted Duck at Sivash and in the Danube Delta (Siokhin 2000; Koshelev *et al.* 2002; Koshelev *et al.* 2001).
Accompanying species. Pochard, Tufted Duck, Pochard, Tufted Duck. Also, usual species near cites on additional forage sites are Mute Swan, Mallard, Coot, Red-breasted Merganser, Great Crested Grebe.
Number trends. During last 10-15 years numbers slightly increased, but in last two years (2007-2008), where there were no spring and summer floods in the Danube and

Dniester Delta, numbers markedly decreased (Siokhin 2000; Koshelev *et al.* 2002; Koshelev *et al.* 2001).

Main factors of number changes. Deterioration and reduction of areas of breeding sites, excessive hunting (Koshelev 2001; Koshelev & Zhmud 2003; Koshelev *et al.* 2002; Koshelev *et al.* 2001).

Role of hunting in number changes. The Red-creasted Pochard is possibly shot accidentally during hunting on ducks. According to rough estimation up to 100-200 ind are hunted during a season.

Recommended measures of protection. To include the Red-crested Pochard in the list of protected species, banned for hunting. Increase culture of hunting and requirements to hunters, which cannot distinguish duck species. (Koshelev & Zhmud 2003).

Great Bustard (Otis tarda)

For the last 10 years (1999-2008) general status of the Bustard in South Ukraine considerably changed.

Breeding conditions deteriorated, especially on Kerchensky Peninsula, because of spring fires (burning out of steppe), increase of disturbance (first of all at the expense of spontaneous tourism and hay making), development of virgin lands, building of power lines, telephone towers, pipelines.

This caused reduction of Bustard numbers in a breeding period for the last 5 years approximately by 10% (according to estimation from 570-750 to 520-680 ind.).

In general, wintering conditions for the Bustard in South Ukraine became better:

- feeding base extended (more area covered by rape and soya);
- from local people (numbers of village inhabitance reduced as a result of reducing transport vehicles and movements outside settlements, besides new landowners prohibit free movement through their private territories).

In spite of this, general state of the Bustard on wintering considerably worsened, this resulted in reduction of species number approximately by 20% for 5 years (according estimation from 10,800-12,400 ind. to 8,650-10,800 ind.)

Causes of reduction of Bustard numbers:

- severe winters (for example in 1943 and 2006 years);
- poaching;
- absence of nature reserved objects with such protected status as reserve/natural national park, on area where the bustard could breed and which could support mass wintering of the species;
- improper control for keeping nature conservation legislation from local authorities and hunting organizations.

Number and distribution of game waterfowl in the Azov-Black Sea region

In accordance with the law on hunting, the category of birds, hunting of which is not prohibited, includes about 60 species. At the same time, a significant portion of these birds have no value and no practical use as hunting resources in the region. First of all it concerns most waders, hunting of them is usually accidental. Of all permitted waders only Snipe and Ruff have value as hunting trophies. In addition to waders, for various reasons, Great Creasted Grebe and Water Rail are almost not used as trophies. So, we analyzed the number and distribution only for traditionally hunted waterfowl species, and information about the rest can be found in descriptions of individual wetlands.

Counts of August 2004 in the Azov-Black Sea Ecological Corridor showed that, despite the start of migration processes, most species of game waterfowl were local, i.e those nesting in the southern regions adjacent to the corridor. Thus, the number of Greylag Goose, Mallard, Gadwall, Pintail, Shoveler, Pochard, Red-creasted Pochard and Coot by the beginning of hunting season were according to the foreseen quantity identified during the registration in the breeding period. The number of species that do not nest, but are always present in the summer (Scaup, Tufted Duck, Common Snipe) were also within the typical annual limits. Only Ruff and Teal, which do not breed in the region, were of course only migratory.

The exception is Garganey, which were present during the counts in a much higher number than expected. In addition, there were sharp changes in the number of species within a few days at the same wetland. Likely in this case on the waterbody both local and migratory groups of Garganey were present.

These records of waterfowl and their distribution in the administrative units (oblasts) are listed in Table 2. This number does not fully reflect the ratio of the gamebird in different oblasts. For example, in the Crimea there were examined almost all more or less large waterbodies. In Zaporozhzhia and Kherson Oblasts there were not conducted counts at Kakhovskoye Reservoir. In the Mykolayiv and Donetsk oblasts investigated area were consisted mainly of small coastal areas of seas and limans. However, even these data obtained for a large area at the same/syncronized time, for the first time provide an opportunity to make at least a rough assessment of hunting resources both for separate areas and for the region in whole.

This estimation of resource, of course, cannot be considered as final estimation. For the final assessment of the importance of a wetland and zoning of the territory it is necessary to conduct such researches in all seasons, especially during wintering and migrations, when there are several migratory waves.

Table 2. The number of waterfowl game in the areas of the region (in individuals).

	Види			Odessa region	Mykolaiv region	Kherson region	Zaporizhzhya region	Donetsk region	Crimea	Total
1.	Гуска сіра	*Anser anser*	Greylag Goose	3939	14	1965	1979	95	1233	**9225**
2.	Крижень	*Anas platyrhynchos*	Mallard	47590	2090	20534	18300	4645	29998	**123157**
3.	Чирянка мала	*Anas crecca*	Teal	130	41	662	3065	-	10234	**14132**
4.	Нерозень	*Anas strepera*	Gadwall	605		192	-	6	242	**1045**
5.	Свищ	*Anas penelope*	Wigeon	-	8	523	20	-	-	**551**
6.	Шилохвіст	*Anas acuta*	Pintail	9		6	15	-	26	**56**
7.	Чирянка велика	*Anas querquedula*	Garganey	9984	569	1565	6491	1516	31081	**51206**
8.	Широконіска	*Anas clypeata*	Shoveler	12	221	94	1528	-	2077	**3932**
9.	Червонодзьоба чернь	*Netta rufina*	Red-creas-ted Pochard	71	-	63	16	8	1751	**1909**
10.	Попелюх	*Aythya ferina*	Pochard	1214	273	10671	4789	41	9979	**26967**
11.	Чубата чернь	*Aythya fuligula*	Tufted Duck	50	66	14	157	-	125	**412**
12.	Морська чернь	*Aythya marila*	Scaup	2		-	9	1	39	**51**
13.	Качки, ближче не визначені	*Anatidae*	Ducks spp.	-	-	250	2119	-	24932	**27301**
14.	Водяна курочка	*Gallinula chloropus*	Moorhen	81	34	44	5	-	79	**243**
15.	Лиска	*Fulica atra*	Coot	91167	7128	137813	63122	2791	157030	**459051**
16.	Брижач	*Philomachus pugnax*	Ruff	2068	2640	66608	5280	96	99766	**176458**
17.	Баранець звичайний	*Gallinago gallinago*	Common Snipe	53	108	32	31	50	188	**462**
	Total			**156975**	**13192**	**241036**	**106926**	**9249**	**368780**	**896156**

The data given in Table 2 show that the most numerous game species is the Coot, comprising more than a half of the whole game species. It dominates in all areas and only in Donetsk Oblast the Mallard dominates.

Ruff numbers are less than that of other species in Odessa, Zaporizhzhia and Donetsk Oblasts but according to its total numbers it occupies the second place in the region after the Coot. Mallard was the third most numerous species and (and most numerous of the ducks). In Odessa, Zaporozhzhia oblasts and generally in the region, it took second place after the Coot, and in the Crimea, Mykolayiv and Kherson Oblasts – it takes the third, after the Ruff and the Coot. In the Donetsk region, it is dominant. After the Mallard the most numerous species of ducks are the Garganey, its portion in all oblasts is very high and in the early days of hunting it is one of the most numerous trophies.

The oblast and rayon hunting unions are interested in a more detailed review of the distribution of the gamebirds in oblasts.

Main recommendations for the protection and rational use of game waterfowl in the region are the following.

Move the period of the opening of hunting period for game waterfowl in hunting grounds in accordance with the existing situation, perhaps - on the first Saturday of September.

Prohibit hunting in twilights both in the morning, and in the evening.
Prohibit night hunting during moonlight
Conduct strict control of:
- the timing of hunting;
- the presence of relevant documents in hunters;
- species composition and the number of obtained gamebirds.

To charge Oblast Management Board of Ecological Security with conducting annual training seminars for game-keepers engaging local (regional) forces of the professional ornithologists.

Not formally, but really involve all local and primary hunting organizations in passing the hunting exam on the knowledge and skills to determine the species of game birds in nature.

To improve the feeding base of waterfowl 'grain-eating complex' (mallard, geese) hunting organizations some individual farms should consider the possibility of creation of special feeding fields.

To create the State Regional Game Service with involvement of professional ornithologists and game-keepers for focused study, management and monitoring of hunting resources

Number and distribution of birds per oblasts of the Azov-Black Sea region

Odessa Oblast

Data on numbers are given per main groups of biotopic complexes, and give base for assessing game resources in Odessa Oblast.

Among the Danube lands, undoubtedly, the main role played by the Outer delta, which contained during the counts almost half of all gamebirds, registered in the Danube area. According to numbers coot dominated almost everywhere, except Lake Kitay. This dominance is understandable, taking into account that all Danube reservoirs are excellent breeding habitat for the Coot. In addition to the Coot, the Mallard is also high in numbers, especially in the delta, where it was the most numerous species. Among the most numerous species in the delta was also the Greylag Goose. The fourth place according to numer was occupied by Garganey, the most numerous species in Delta and in Stensovsko-Zhebriayansky Plavni. Amost all game resource was consisted of these four species. It should also be noted relatively high number of the Gadwall, it mostly also stay in the Delta too. So you can see that at the beginning of hunting the main importance for the location of waterfowl had the Danube delta.

As it is shown in tables 3, the main game species in the Dniester areas is also the Coot. All other species of game birds are much less in number. Only in the north of the Dniester Liman there was a small number of the mallard. Tuzlov group of limans is a single complex of habitats, some different parts of this complex can be used by birds in turn depending on the situation. During counts the bird groups, where coot and mallard dominated, preferred lakes Sasyk, Dzhantsheiski and Hadjider that due to their properties almost do not differentiate from others (Shahany, Alibey, Karachaus,

Burnas and others), so in a short time of surveys it is hard to assess the special value of each wetland.

Table 3. Odessa region

Danube areas

Species		DU01	DU02	DU04	DU07	DU08	DU09	DU10	DU11	DU12	Total
Гуска сіра	*Anser anser*	2647	275	104						6	3032
Крижень	*Anas platyrhynchos*	19090	13034	2506	450	9	61	45	2	280	35477
Чирянка мала	*Anas crecca*	39	4	31							74
Нерозень	*Anas strepera*	542	37	7				1			587
Шилохвіст	*Anas acuta*		1								1
Чирянка велика	*Anas querquedula*	936	1860	2362	8	45	60	24		27	5322
Широконіска	*Anas clypeata*			3							3
Чернь червонодзьоба	*Netta rufina*			15			3	24	7	15	64
Попелюх	*Aythya ferina*	60	2	414				13	370	80	939
Курочка водяна	*Gallinula chloropus*	1	5	45		3		9	0	0	63
Лиска	*Fulica atra*	3500	1753	6798		870	14800	1360	10450	7155	46686
Брижач	*Ph. pugnax*		40	70							110
Баранець звичайний	*Gallinago gallinago*	3		2			10	1		7	23
Total		**26818**	**17011**	**12357**	**458**	**927**	**14934**	**1477**	**10829**	**7570**	**92381**

Notes: DU01 – Outer Danube Delta to the south of Ochakov branch; DU02 - Outer Danube Delta to the north of Ochakov branch; DU04 – Stensovsko Zhebriyansky Plavni; DU07 – Lake Kitay; DU08 – Lake Katlabuh; DU09 - Lake Yalpug; DU10 – Lake Kugurluy; DU11 – Orlovka area; DU12 – Lake Kagul.

Dniester areas

Species		DS01	DS03	DS05	DS06	DS07	DS08	DS10	Total
Крижень	*Anas platyrhynchos*	834	31	15		48			928
Чирянка велика	*Anas querquedula*	85	5			7			97
Чернь червонодзьоба	*Netta rufina*				2				2
Попелюх	*Aythya ferina*	86		4	5				95
Курочка водяна	*Gallinula chloropus*		3	5	2				10
Лиска	*Fulica atra*	11970	700	32	40	1504	2505	80	16831
Брижач	*Philomachus pugnax*	176		80					256
Total		**13151**	**739**	**136**	**49**	**1559**	**2505**	**80**	**18219**

Notes: DS 01 – north part of Dniester Liman, DS03 – Karagolska Bay, DS05 – Floodplain along the highway Palanka-Mayaki, DS06 – Left-bank Dniester floodplain with lakes, DS07 – lake Putryne, DS08 – Kuchurgan Estuary, DS10 – river Baraboy floodplain

Tuzlovsky areas

Species		TZ04	TZ08	TZ09	TZ10	TZ11	TZ12	TZ13	TZ14	TZ15	TZ20	Total
Гуска сіра	*Anser anser*	772	23	11	72			13				891
Крижень	*A. platyrhynchos*	4988	1993	80	158	1	8	718	6	9	65	8026
Чирянка мала	*Anas crecca*		6	30				20				56
Нерозень	*Anas strepera*	16			2							18
Шилохвіст	*Anas acuta*							8				8
Чирянка велика	*Anas querquedula*	2087	340		30	7		431		1		2896
Широконіска	*Anas clypeata*	2						6				8
Чернь червонодзьоба	*Netta rufina*		5									5
Чернь морська	*Aythya marila*	2										2
Курочка водяна	*Gallinula chloropus*					1						1
Лиска	*Fulica atra*	1960	3380	55	200			103			100	5798
Брижач	*Ph. pugnax*	15	26		226	53	2	15		10		347
Баранець звичайний	*Gallinago gallinago*	4						25				29
Total		**9846**	**5773**	**176**	**688**	**62**	**10**	**1339**	**6**	**20**	**165**	**18085**

Notes: TZ04 – Lake Sasyk, TZ08 - Lake Dzhantshiske, TZ09 – Lake Maly Sasyk, TZ10 – Lake Shagany, TZ11 – Lake Karachaus, TZ12 – Lake Alibei, TZ13 – Lake Khadzhider, TZ14 – Lake Burnas, TZ15 – Lake Solone, TZ20 – Budaksky Liman

Odessa Limans

Species		DS12	OS02	OS03	OS04	OS05	OS07	Total
Гуска сіра	*Anser anser*		16					**16**
Крижень	*Anas platyrhynchos*	22		9	1140	1250	738	**3159**
Чирянка велика	*Anas querquedula*					1500	69	**1569**
Широконіска	*Anas clypeata*						1	**1**
Попелюх	*Aythya ferina*				170	1	9	**180**
Чернь чубата	*Aythya fuligula*				50			**50**
Курочка водяна	*Gallinula chloropus*				8		9	**17**
Лиска	*Fulica atra*	460	25		10000	4300	7067	**21852**
Брижач	*Ph. pugnax*		30	675		550	100	**1355**
Баранець звичайний	*Gallinago gallinago*						1	**1**
Total		**482**	**71**	**684**	**11368**	**7601**	**7994**	**28200**

Notes: DS12 – Sukhyi Liman, OS02 – Khadzhibeysky Liman, OS03 – Kuyalnitsky Liman, OS04 – Dofinivsky Liman, OS05 – Grygorivsky and Adzhalyksky Liman, OS07 – Tyligulsky Liman.

For the protection and rational use of gamebird resources at the water bodies of Odessa Oblast the following measures are offered:

To give the protected status to the following areas: Budaksky Liman (RLP-Regional Landscape Park), Kuyalnytsky Liman (RLP-Regional Landscape Park), Dniester Liman (National Natural park 'Moldova').

Prohibit hunting on salt marshes and sand spits (take them out from the hunting zone), where rare birds stop during migration.

To prohibit hunting for three years at Dnistrovsky Liman and Dniester Plavni to restore populations of waterfowl.

To reconstruct the highway Mayaki - Palanka to improve the water exchange between the Dniester and Plavni.

To establish reproduction areas at Kuchurhansk Liman in the flooplain near the villages Hradanytsi and Kuchurhany.

To assess the state of resources before the start of hunting season to carry out gamebirds counts, with the involvement of professional ornithologists.

Mykolayiv Oblast

Counts of waterfowl on 11-20 August 2004 showed the current state of game resources (table 4, Mykolayiv region) As it is shown in the tables, the number of game waterfowl in the region was low. It was because the large water bodies, where most of counts were executed, (such as Bugsky, Berezansky, Tyligulsky and Dniprovsky Limans) belong to the zone of intensive economic activity (industry, shipping, ports, etc.). Another reason is development of the shores with settlements and 'dacha' (countryside cottages). All this is the reason why there are almost no large areas remained which are suitable for the life cycle of birds. In addition, industrual and communal wastes pollute the water bodies. There is also very high recreational activity on the habitats suitable for nesting, feeding and rest of birds. Intensive fishery, in addition to the permanent disturbance of birds, also leads to some reduction in fishery resources and as a result, the value of the these areas for the bird feeding became low. Elsewhere in the region among waterfowl the Coot dominates, as it is more adapted to live near the people than ducks.

Table 4. Mykolayiv Oblast

Tyligulsky-Berezansky areas

Species		**BD20**	**BD21**	**OS07**	**OS08**	**Total**
Крижень	*Anas platyrhynchos*	653	574	264	38	1526
Чирянка велика	*Anas querquedula*	136	36	180	8	360
Попелюх	*Aythya ferina*	11	123	36		170
Чернь чубата	*Aythya fuligula*		5	60		65
Курочка водяна	*Gallinula chloropus*	2				2
Лиска	*Fulica atra*	483	666	3551		4700
Брижач	*Ph. pugnax*	747	437	776		1960
Баранець звичайний	*Gallinago gallinago*			70		70
Total		**2121**	**2007**	**1002**	**46**	**10522**

Notes: BD20 – Berezansky Liman, BD21 – Pond Solonets – Tuzly, OS07 – Tyligulsky Liman, OS08 – Solone Lake near vil. Morske

Bug-Kinburn Lands

Bugsko-Kinburnsky areas

Species		BD01	BD02	BD03	BD04	BD05	Total
Гуска сіра	*Anser anser*					14	14
Крижень	*Anas platyrhynchos*	82	19	45	312	106	564
Чирянка мала	*Anas crecca*					41	41
Свищ	*Anas penelope*	8					8
Чирянка велика	*Anas querquedula*		3	18	166	22	209
Широконіска	*Anas clypeata*				221		221
Попелюх	*Aythya ferina*				43	60	103
Чернь чубата	*Aythya fuligula*					1	1
Курочка водяна	*Gallinula chloropus*			30	2		32
Лиска	*Fulica atra*		757	290	1024	357	2428
Брижач	*Philomachus pugnax*	7		35	448	190	680
Баранець звичайний	*Gallinago gallinago*			38			38
Total		**97**	**779**	**456**	**2216**	**790**	**4339**

Notes: BD01 – Bugsky Liman to the south of Mykolaiv, BD02 - Bugsky Liman to the north of Mykolaiv, BD03 – Plavni of the Southern Bug River, BD04 – Kinburnska Spit, BD05 – water area from cape Adzhiyask, island Berezan, liman side of Kinburn Spit

For the protection and rational use of gamebird resources at the water bodies of Mykolayiv Oblast the following measures are offered:

As there is uncontrolled hunting on the majority of surveyed water bodies, oblast and rayon departments of ecological security should provide a tighter control of execution of nature conservation legislation.

Strengthen the responsibility of users of hunting grounds for the weak control of hunting.

In the Plavni of Southern Bug River there is the sense of creating a number of local 'zakazniks' (small reserves), and in the future - Regional Landscape Park.

To assess the state of resources before the start of hunting season to carry out gamebirds counts, with the involvement of professional ornithologists.

Kherson Oblast

The number of game waterfowl in Kherson region ranks second in the ecological corridor, yielding only to the Crimea in this respect. It is easy to understand, taking into account, that the middle part of Kherson Oblast has such an important waterway as the Dnieper, with its huge delta, and a lot of gullies. The entire southern border of the oblast is bordered by the Black and Azov Sea and Sivash. In the southern districts of the Oblast there are well-developed irrigation agriculture, rice growing and fish-breeding, which enriched the oblast with numerous small freshwater ponds, These ponds are provide birds with both excellent breeding habitats a rich feeding base base. Of course, you cannot uniquely assess the impact of these factors on the hunting of birds. Among the influences there are positive and negative. But in general, increase in numbers of water bodies is a positive phenomenon.

All water bodies of Kherson coast, included in the ecological corridor can be divided into several groups: the Dnieper-Bug, Yagorlytski, Tendrivski, Dzharylgachsky and Sivashsky.

In Kherson part of the Kinburnska Spit the dominant species of gamebirds was the mallard that stayed mainly on limans and lakes, that did not lose water exchange with the Dnieper Liman and the Yagorlytska Bay. A large part of the Mallard concentrated on water bodies of Solenoye Lake area of the Black Sea Biosphere Reserve.

The number of the mallard in the Dnieper River Delta was poor, the coot dominated there. It is explained by high level of anthropogenic load on this delta: fishing, recreation buildings, intensive movements of small boats. Some delta lakes did not suffered from anthropogenic press before the opening of hunting season as a result of their environmental status, for example Kardashinsky Swamps (reserve of local importance), and thus, they were a place of the gamebird concentration. So, in August, the priority areas for game waterfowl in the Dnieper-Bugsky wetlands were small watered interior water bodies, hard-to-get for people. To improve conditions for the gamebirds there is a need to restrict access of small boats to the interior lakes of the delta in spring-summer period, and shift the period of hunting to a later date.

As it is shown in the tables 5 most gamebirds stayed in Yagorlytska Bay along the shores of Kinburn and Yahorlytsky Peninsulas. Likely the birds had no priorities in selecting areas, and rather high numbers of them is explained by of large area covered by counts. Similar to the most wetlands the coot was a dominant species, and the Pochard was subdominant. The number of the mallard was rather low as for the water body of so large size, but this situation is typical for this time of year. Thus, the wetland Kinsky Kut, small in its area, was more preferable for birds in August than all Yagorlytska Bay.

Table 5. Kherson region

Dnipro-Bugsky areas

Species		**BD04**	**BD07**	**BD08**	**Total**
Крижень	*Anas platyrhynchos*	1503	172	138	**1813**
Чирянка мала	*Anas crecca*		72		**72**
Нерозень	*Anas strepera*	1			**1**
Чирянка велика	*Anas querquedula*	336	21	88	**445**
Широконіска	*Anas clypeata*	2			**2**
Чернь червонодзьоба	*Netta rufina*	14		16	**30**
Попелюх	*Aythya ferina*	70	101	141	**312**
Чернь чубата	*Aythya fuligula*		8		**8**
Курочка водяна	*Gallinula chloropus*		13	23	**36**
Лиска	*Fulica atra*	154	5130	3120	**8404**
Брижач	*Philomachus pugnax*	383			**383**
Баранець звичайний	*Gallinago gallinago*			3	**3**
Total		**2463**	**5517**	**3526**	**11506**

Notes: BD04 – Kinburn Spit, BD07 –Dnieper Avandelta along the section Zburyivka-Kizomys, BD08 - Delta on the section from lake Vchorashne to islands Karantinny and Potyomkin

Yagorlytsky areas

Species		EG01	EG02	EG04	Total
Гуска сіра	*Anser anser*		400		**400**
Крижень	*Anas platyrhynchos*	469	60	74	**603**
Чирянка мала	*Anas crecca*	4	9	6	**19**
Свищ	*Anas penelope*	103			**103**
Чирянка велика	*Anas querquedula*		19	28	**47**
Чернь червонодзьоба	*Netta rufina*	11			**11**
Попелюх	*Aythya ferina*	1500			**1500**
Лиска	*Fulica atra*	2256	92		**2348**
Брижач	*Philomachus pugnax*		56	180	**236**
Баранець звичайний	*Gallinago gallinago*		5		**5**
Total		**4343**	**641**	**288**	**5272**

Notes: EG01 – water area of Yagorlytska Bay, EG02 – Kinsky Kut area, EG04 – Adzhigol site and Adzhigolsky lakes

Tendrovsky areas

Species		TD01	TD02	TD03	TD04	TD05	TD09	Total
Гуска сіра	*Anser anser*			135	200	21		**356**
Крижень	*Anas platyrhynchos*	1084	146	642	222	203	1	**2298**
Чирянка мала	*Anas crecca*		43	8				**51**
Нерозень	*Anas strepera*		4					**4**
Свищ	*Anas penelope*	120			300			**420**
Чирянка велика	*Anas querquedula*	66	116	206	10	18		**416**
Широконіска	*Anas clypeata*				4			**4**
Чернь червонодзьоба	*Netta rufina*				1			**1**
Попелюх	*Aythya ferina*	1800	794					**2594**
Лиска	*Fulica atra*	6214			600			**6814**
Брижач	*Philomachus pugnax*	14		207	10	28	200	**459**
Баранець звичайний	*Gallinago gallinago*			4				**4**
Total		**9298**	**1103**	**1202**	**1347**	**270**	**201**	**13421**

Notes TD01 – eastern part of Tendrivska Bay, TD02 – western part of Tendrivska Bay, TD03 – steppe lakes, Kefalne, Nyzhne, TD04 – Potiyivka area, TD05 – bank from Krasnoznamenka to Берег від Краснознаменки до Potiyivka area, TD09 – Ustrychni Lakes.

Dzharylgach areas

Species		DJ01	DJ02	DJ03	DJ04	DJ06	DJ07	DJ08	DJ09	DJ10	Total
Гуска сіра	*Anser anser*								40		**40**
Крижень	*Anas platyrhynchos*	183	599	808	52	1143	172	99		111	**3167**
Чирянка мала	*Anas crecca*			77	60	126	95			152	**510**
Нерозень	*Anas strepera*		30								**30**
Чирянка велика	*Anas querquedula*		10	1							**11**

Species		DJ01	DJ02	DJ03	DJ04	DJ06	DJ07	DJ08	DJ09	DJ10	Total
Річкові качки (до виду не визначені)	*Anas spp.*						60				**60**
Попелюх	*Aythya ferina*					210		337		50	**597**
Чернь чубата	*Aythya fuligula*							6			**6**
Курочка водяна	*Gallinula chloropus*				1		3				**4**
Лиска	*Fulica atra*	919	141	1	2	4500	4920	2180	290	417	**13370**
Брижач	*Philomachus pugnax*			117		350	305		20	1159	**1951**
Баранець звичайний	*Gallinago gallinago*		1	1							**2**
Total		**1102**	**781**	**1005**	**115**	**6329**	**5555**	**2622**	**350**	**1889**	**19748**

Примітки: DJ01 – Dzharylgachska Bay, DJ02 – Dzarylgachska Spit, DJ03 – Dzharylgach Island, DJ04 - Skadovsky coast of Dzharylgach Bay, DJ06 – Karzhinska Bay, DJ07 – Kalanchaksky Liman, DJ08 – Karadayska Bay, DJ09 – Shyroka Bay, DJ10 – coast from Prymorske to Stavky

Western Sivash

Species		SW03	SW04	SW05	SW06	SW07	Total
Крижень	*Anas platyrhynchos*	411	456	90	17		**974**
Нерозень	*Anas strepera*	71	8		38	36	**153**
Чирянка велика	*Anas querquedula*	75	5		14		**94**
Річкові качки	*Anas spp.*	190					**190**
Курочка водяна	*Gallinula chloropus*		1		1	1	**3**
Лиска	*Fulica atra*		8		4	264	**276**
Брижач	*Philomachus pugnax*		5970			1700	**7670**
Баранець звичайний	*Gallinago gallinago*	9	3		7		**19**
Total		**756**	**6451**	**90**	**81**	**2001**	**9379**

Notes: SW03 – Shpindiar site, SW04 – bay near the vil. Pershokonstantynivka, SW05 – Bay from Ad Peninsula to Cape Novovolodymyrivsky, SW06 - Cape Novovolodymyrivsky – Stroganivska Bay, SW07 – Bay near villages Ivanivka-Stroganivka

Central Sivash

Species		SC01	SC02	SC03	SC05	SC06	SC07	SC08	SC09	SC10	SC11	SC12	Total
Гуска сіра	*Anser anser*	160			22		545	150	42			6	**925**
Крижень	*A. platyrhynchos*		10	86	280	15	75	60	430				**956**
Нерозень	*Anas strepera*			4									**4**
Чирянка велика	*Anas querquedula*			235	22				40			17	**314**
Широконіска	*Anas clypeata*								45		25		**70**
Попелюх	*Aythya ferina*											8	**8**
Лиска	*Fulica atra*				8		940	3					**951**
Брижач	*Ph. pugnax*	265		3739	6350	296	11780	530	680	1650	40	610	**25940**
Баранець звичайний	*Gallinago gallinago*			1				3					**4**
Total		**425**	**10**	**4065**	**6682**	**311**	**13340**	**746**	**1237**	**1650**	**65**	**641**	**29172**

Notes: SC01 – open water area of Central Sivash, SC02 – site Mytrofanivka, SC03 – ponds of Druzhelyubivka, SC05 – Gromivska Bay, SC06 – ponds of Ozerne, SC07 – Kayirka, SC08 – Sivash Bay from Ozerna to Kayirka, SC09 – Sivashivka, SC10 – bay from vil. Vesnyannka to Novy Trud, SC11 – Kuyuk-Tuk, SC12 – Malomelitopol site.

Eastern Sivash

Species		SE01	SE02	SE03	SE04	SE19	SE20	SE21	SE22	SE23	SE24	Total
Гуска сіра	*Anser anser*		210				28	6				**244**
Крижень	*A. platyrhynchos*	1	4402		4000	65	1885	20	319	23	8	**10723**
Чирянка мала	*Anas crecca*		10									**10**
Шилохвіст	*Anas acuta*	3	3									**6**
Чирянка велика	*A. querquedula*	2	53			182	1					**238**
Широконіска	*Anas clypeata*	14	4									**18**
Чернь червонодзьоба	*Netta rufina*	15			6							**21**
Попелюх	*Aythya ferina*	3583	290				1785		2			**5660**
Курочка водяна	*Gallinula chloropus*		1									**1**
Лиска	*Fulica atra*	58000	25500		15		22135					**105650**
Брижач	*Ph. pugnax*	5324	15222	70	8950			10	252	90	51	**29969**
Разом / Total		**66942**	**45695**	**70**	**12971**	**247**	**25834**	**36**	**573**	**113**	**59**	**152540**

Notes: SE01 – Genicheska Bay of Sivash, SE02 – bay ans spits near vil.Mykolaivka, SE03 - western water area of Eastern Sivash (Verblyudka, Ataman), SE04 – Chongarska Bay, SE19 – Genichesk Islands, SE20 – Semenivksy Kut, SE21 – Maslyny Site, SE22 - Papanin Koyanly, SE23 – Strilkovy Kut, SE24 – Arabatska Spit from Strilkovy Kut to the border with Crimea

Tendrivsky lands

The similar situation with the game waterfowl was observed in Tendrivska Bay: the majority of birds consisted of the Coot, Mallard and Pochard. This is a classic set of species for the marine area. If you compare the number of birds in open water stretches and in smaller water bodies, you will see that the concentration of the coot and ducks on the small water bodies is more typical for August, which confirmed by count data of the entire region.

It should be noted that most of Tendrivsky and Yagorlytsky lands, covered by our counts, are located in the Black Sea Biosphere Reserve and are the continuation of its natural complexes. Such areas as Kefalny lakes and parts of the Tendrivska Bay which are not protected should be included into the Black Sea Biosphere Reserve, at least as a buffer zone. Since 1990s populations of the game waterfowl were under the impact of negative factors, among which the following dominated: degradation and pollution of breeding areas, deterioration of the feeding base and direct human impacts.

To improve the conditions for the game waterfowl in Yagorlytsky and Tenrivskyh lands the following measures should be taken:

- Stop discharges of domestic and drainage waters in the eastern part of Tendrivska Bay.
- To provide regulated water flow from the irrigation system to Lake Kefalne in the Potiyivsky area and restore the channel between the lake and the Black Sea.

Species composition of the game birds of Dzharylgachsky Bay and surrounding areas was very poor. The majority consisted of the Coot, the Mallard occupied second place, the third was the Ruff.

In the vast territory that included the island Dzharylgach with a spit, and the Dzharylgach Bay and the coast from Lazurnoye to Skadovsk, the majority of the Mallard located in the middle part of the spit and in the eastern part of the island, a small groups of coot were met in the Bay. Such a small number of gamebirds in Dzharylgachsky lands can be explained, first of all, by strong anthropogenic pressure. Despite the having status of international importance, the Dzharylgach island is almost not protected and actually became the base of poaching.

Much larger concentrations of the Coot and Mallard were observed in bays from Skadovsk to Oleksandrivka. It is possible that rice fields located along mainland coast also played their roles in supporting these concentrations.

To improve the situation for the game waterfowl the following measures should be taken:

- Local moving down or burning reedbeds during winter in some areas identified by experts.
- Enter a regulated fishing regime, visits of tourists to the spit, to prohibite visits to islands.
- Create an ornithological ‘zakaznik’ at Karzhynsky islands, and maintain regulated cattle grazing along coasts of water bodies.

Western Sivash

Reserves of game waterfowl in the Western Sivash concentrated mainly in bays of the northern shore. There were developed freshwater ponds instead of embanked gullies, ans also in Shpindiyar area, which is not connected with Sivash but is a depression filled by drainage waters.

Of all areas of Western Sivash this depression is the most valuable for all waterfowl, including game species. Unfortunately, because of decrease in volumes of irrigation, the amount of water inflow reduced, and a large area of the depression is not covered water, which adversely affected the number of the Mallard and Garganey. It should be noted that this wetland is one of few places with the relatively large number of breeding Gadwall.

Relatively favorable place for game birds is a bay near the village Pershokostyantynivka (so-called Pershokostyantynivsky Plavni). The availability of protective conditions on the water body and the close location of agricultural lands have created good conditions for breeding ducks and waders.

Among the negative phenomena it should be noted uncontrollable cattle grazing along the shores and the complete absence of any biotechnical activities provided by land users (Chaplinsky rayon department of UUHF). The same concerns to other parts of the area.

Recommendations and propositions.

For all freshwater areas and, above all for Shpindiyar area the most important thing is to maintain stable, high enough level of the water. It is necessary to develop a system of activities with the involvement of hydrologists experts.

There is a need to regulate and control grazing of cattle in all areas.

Central Sivash

The open water area of Central Sivash is very salty (hypersaline), so it is willingly used by only waders and the Shelduck, while other game waterfowl prefers less salty bays with the inflow of fresh water and separated from the main lake. Such wetlands are freshwater ponds near the village Druzhelyubivka, villages Novopokrovka-Gromivka, village Ozerne, village Sivashivka, village Popivka, brackish Gromivska Bay and lakes of Kayirka Peninsula. The rest of watebodies are much poorer in gamebirds, they are dominated by waders, mainly Ruff.

Among the above-mentioned waterbodies the best protection conditions have fish-breeding ponds near the village Ozerne and ponds near the village Druzhelyubovka and villages. Novopokrovka-Gromivka. In recent years they have been intensively overgrown with reeds, and now some of them are covered with vegetation by 40-50%. Despite for a permanent human presence in the ponds, ducks and coots have enough opportunities to find hard-to-reach places. Kayirka Peninsula attracted birds by its relative isolation, availability of sufficient quantities of undisturbed comfortable sites and wavy terrain, which allows birds to control their security while feeding in the fields. It should be noted that Kayirka is attractive to birds, especially geese, in all seasons.

Gromivska Bay, despite its large area, is characterized by rather good safety conditions mainly along the eastern coast. In late summer - early autumn, ducks and coots usually hold in the small waterbodies overgrown with surface vegetation. And such water bodies, as Gromivska Bay started being used much later.

Rather attractive to ducks, geese, waders and coots is a lake near vil.Syvashivka. Its northern part is fresh and replenished by drainage discharges. The water area is overgrown by reed and cattail and has several islands, which creates excellent conditions for birds for breeding and shelters. Southern part of the lake is separated by dams, and fresh water coming there mainly due to precipitation and artesian wells, so the water inside the island is brackish. This part is almost open, macrophytes are located in single clumps along the coast.

Unfortunately, we had to admit lack of control of the process of hunting by the relevant organizations. Birds counts in Central Sivash were carried out in a few days before the official opening of hunting season for gamebirds, but we already met armed men in hunting lands, heard shots, so poachers felt that they could exercise quite freely. Such cases are not single. Counting Sivash birds in all seasons in Kherson areas of Sivash we never met representatives of relevant control organizations. Hunting for ducks and, especially geese, were recorded by us in February and even March.

Peninsulas Kayirka and Chongar hold the major regional concentrations of the Red-Breasted Goose from November to March (species included in the International Red Book). In spite of its protected status the Red-brested Goose is openly hunted.

Eastern Sivash

More than half of all waterfowl game counted in Kherson region were concentrated in Eastern Sivash. Most birds both according to their number and species composition, stayed at the upper reaches of the river (SE01, SE02). The coot was an absolute dominant: of total number of birds equaled to 112,637 individuals in these two plots, 83,550 individuals were coots. Taking into account almost complete lack of breeding habitats in this part of Sivash, it can be assumed that some of these birds, in spite of belonging to the southern region, arrived there from more northern areas of Azov area and near Sivash areas. The number of the mallard and pochard in these areas was within the limits for annual August norm. In shallows of Lake Sokolovsky and on the spit near the village Chernigovka there stayed more than 20 thousand of Ruffs.
Along the coast of Semenovsky Kut there were observed large concentrations of Coot and a rather large number of Mallard and Pochard, although the numbers of the latter is usually much higher in August in these areas. Some obstacles to the concentration of birds in these areas were created by hunters, preparing hunting hides before the very start of the hunting season. All other sites of Kherson area of Eastern Sivash were almost empty and held only small flocks of Mallard and Ruff.
It should be noted that despite the large concentrations of game waterfowl in the northern part of Eastern Sivash, most of them are not a real resource. Only the Mallard, flying to feed to agricultural fields can be hunted by hunters. As for the Pochard and Coot, they are practically inaccessible for them because they do not approach near to the shores.

A survey wetlands in Kherson region in August showed that the most severe negative factors affecting hunting resources are:

- poaching which is common in the Central Sivash and along the coast of Dzharylgachsky Bay.
- shallowing of some freshwater areas due to stopped inflow of drainage and artesian water.
- uncontrolled cattle grazing near to the most valuable sites for birds.
- disturbance of birds by fishermen, especially on large open water areas, due to their movements on small motor boats.

To remove the above-mentioned negative impacts it is necessary:

- Kherson Oblast Environmental Department is proposed to establish the more efficient system for the protection of lands.
- hydrologists experts should be involved in studying the issue of watering/filling with water of some Sivash areas (especially Shpindiyar site).
- to strengthen control of cattle grazing in the coastal areas of the wetland.
- to consider the establishment of an ornithological ‘zakaznik’ in Shpindiyar site.

Crimean AR

Kerch lands

During the counts the most promising both in terms of diversity and the number of waterfowl were Astaninsky Plavni and the pond near the village Yachmennoye, slightly less gamebirds were located on Frontovoye Reservoirs and on Alibey ponds. The counts showed that ducks in Astaninsky Plavni were a significant portion of the total number of gamebirds. The Coot occupied the second place after the duck. It should be noted that this water body is a very favourable breeding habitat both for ducks and coots. Unfortunately, only due to wet summer the Plavni was enough watered, because in dry season the water table is significantly reduced. In Astaninsky Plavni typically the amateur hunting is usual and this is rather thoroughly controlled by gamekeepers.

Eutrophication of the lake and its overgrowing with water plants is an ambiguous thing (both positive and negative). For marsh terns, and in some cases, for pochards and crested grebes, it creates good conditions for breeding, as the presence of vegetation prevents from penetration of hunters and fishermen by boat. At the same time a large number of organic substances reduces the content of oxygen in water and can cause suffocation.

The pond near vil. Yachmennoye is a freshwater pond created by runoff of half-dried unnamed river. About half of the pond area is overgrown by reed and cattail. Taking into account the small area of the pond, the number of species used the liman in August and their quantity was quite significant, so the ecological capacity of the wetland is very high.

Frontovoye Reservoir yields to Yachmennoye in its value. There are only more or less significant number of the Mallard and Coot.

Karkinitsky lands

Northern part of Karkinitska Bay (the coast from vil.Voloshyno to Cape Kartkazak) is not characterized by special richness of gamebirds. Small groups of the Mallard and Coot were registered along the coast, small groups of the Teal and Ruff were found on shallows of the coast. Along the Kartazak coast numbers increased, significant concentrations of the Coot, Pochard and Ruff appeared. Rice fields and fish-breeding ponds also added to this fact. Ishunska floodplain was traditionally rich in gamebirds.

Limans of rivers Chatyrlyk and Vorontsovka with thickets of reeds and open reaches together with large areas of rice fields create excellent conditions for breeding and feeding of birds. The Coot dominated there, the Pochard was subdominant.

The section from Andriivsky liman to the mouth of Samarchyk River was the richest in species composition and numbers. These is a traditional area for concentrations of many different species of ducks, coots and ruffs. This area is added by fish-breeding ponds and rice fields of Kumivsky Plavni.These plots (DJ12, DJ13) are a part of the 'Lebyazhi Islands' Reserve and its protection zone. The hunting is officially prohibited, so game resources are not used.

Bakalska Spit, with its inland waters is less attractive. There were mostly Garganey and Ruff.

Western Sivash

Western Sivash is a hypersaline waterbody, so it is almost not valuable for waterfowl. As it is shown in the table, the game reserves concentrated mainly on lakes Krasne and Kyyatske.

Main concentrations of gamebirds on Lake Krasne stayed at the eastern part, desalinated by water from the North Crimean canal, and in some northern areas, where fishing is conducted. Everywhere the Mallard dominated. In the bay near vil. Proletarka the Gadwall was observed (Table 6). Lake Kyyatske was partly desalinated because of drainage discharges, and the number of gamebirds was very high on the most fresh areas. These are mainly small bays near villages Krepke and Vyshnivka. Significant number of Mallard, Ruff and Pochard was registered, and in a central part of the Lake it was a large group of pochards.

The recommendations and propositions

Lake Kyyatske is the richest waterbody in the Crimean part of Western Sivash. Apart from in August when there is a relatively small aggregation of gamebirds, in other seasons there can be seen higher numbers and more varieties of birds. Western part of the lake is of great significance as a moulting place of Mallard, Pochard and Mute Swan, so, firstly, we should provide regulation of still uncontrolled cattle grazing on its shores, and secondly to raise the question of the establishment an ornithological reserve on the lake.

Central Sivash

Western part of the Central Sivash is traditionally poor in bird species because of its hypersalinity. The same can be said about shallow bay near the village Tomashivka. Somewhere in flooded freshwater depressions there are small flocks of mallard, Garganey and Ruff. A salt part of lake Karleut held only small flocks of Mallard and Garganey. Along the desalinated embanked part there were 6,000 of Ruffs. It is rather typical for August, concentrations of the Mallard, Pochard and Tufted Duck began to form later in this area.

Aigulske Lake is more diverse in habitats.There are many small salt and freshwater ponds and bays, often overgrown with reed and high grassy vegetation, that creates rather good conditions for breeding, feeding and roosting of birds. Thus, although the total number of birds there was less than at Karleut Lake, the number of ducks and coot there was much higher.

In August the Ruff dominated in overflows near the Busurman sheep-fold and in the bay near the village Riumshine dominated. The number of Garganey, which has already started migration, depends on the time for migratory waves and is not representative.

Unfortunately, Aigulske freshwater Lake and surrounding parts of Karleut is grazed by cattle without control. Both these lakes and the adjacent territories suffer from illegal commercial capturing of "Red Data Book" species of birds (Demoiselle Crane, Oystercatcher, etc.).

Eastern Sivash

More than half of all game waterfowl counted in Kherson oblast concentrated on East Sivash. (152 540 individuals).

At the Crimean side of Eastern Sivash number of gamebirds was 271,615 individuals. Total in Eastern Sivash (Crimean side and Kherson side) during the August records there have been seen 424,155 individuals. According to the number of birds, the wetland of Eastern Sivash, is the most important water body not only at the Azov and Black Sea coast of Ukraine, but also in the Black Sea basin region. Most of the birds according to their species composition and numbers hold in such plot of Sivash as SE06, SE08, SE08, SE10, SE11, SE13, SE14, SE15). But the largest number of birds were at Dzhankoysky Bay (SE08) - 58,276 individuals and Idolsky Bay (SE14). The coot absolutely dominated - 127,664 individuals, among them the highest number was in Dzhankoysky Bay (SE08) - 15,534 ind., and Idolsky Bay (SE14) - 68,700 ind., and in the bay near the village. Urozhayne (SE15) - 19000 ind. Most numbers of this species on these plots are a part of the breeding population that nests at Eastern Sivash. The number of the Mallard, Gadwall and other species of river ducks in these areas for August was within normal average annual limits.It should be noted high densities of Ruff (up to 56,840 ind.), which dominated in shallow waters in the Dzhankoysky Bay.

Analysis of distribution and the number of waterfowl at Eastern Sivash (Crimea and Kherson sides) needs further study because this area first of all is not an administrative unit, but a natural water body - Eastern Sivash.

A survey of wetlands of the Crimea in August showed that the most severe negative factors affecting hunting resources are:

- Poaching which is common in areas of Eastern Sivash.
- Shallowing of some freshwater areas of Sivash due to stopped inflow of drainage and artesian waters.
- Uncontrolled grazing of cattle, which grazes near the most valuable sites for birds.
- Disturbance of birds because of fishermen moving by small boats, especially on large water stretches

Table 6. Crimean AR

Kerch areas

Species		**KC04**	**KC05**	**KC10**	**KC13**	**KC14**	**Total**
Гуска сіра	*Anser anser*			53			**53**
Крижень	*Anas platyrhynchos*	17	478	222	170	10	**897**
Чирянка велика	*Anas querquedula*		2330	5	284	567	**3186**
Широконіска	*Anas clypeata*		18				**18**
Попелюх	*Aythya ferina*		140				**140**
Лиска	*Fulica atra*		1405	460	410	3	**2278**
Брижач	*Ph. pugnax*	5	3		60	10	**78**
Баранець звичайний	*Gallinago gallinago*		6		3		**9**
Total		**22**	**4380**	**740**	**927**	**590**	**6659**

Notes: KC04 – Lake Aktash, KC05 – Astanino Plavni, KC10 – Frontove Reservoir, KC13 – Yachminne Pond, KC14 – Alibei wetland.

Karkinitsky areas

Species		DJ10	DJ11	DJ12	DJ13	DJ14	DJ15	DJ20	Total
Крижень	*Anas platyrhynchos*	111	96		6007	622	195	1500	**8531**
Чирянка мала	*Anas crecca*	152	390						**542**
Нерозень	*Anas strepera*				45	50			**95**
Шилохвіст	*Anas acuta*					6			**6**
Чирянка велика	*Anas querquedula*			255	553	110	650		**1568**
Широконіска	*Anas clypeata*				179	280	30		**489**
Річкові качки	*Anas spp.*				3352				**3352**
Чернь червонодзьоба	*Netta rufina*				556	106			**662**
Попелюх	*Aythya ferina*	50	3665	1200	1883	162			**6960**
Чернь чубата	*Aythya fuligula*		17				2		**19**
Курочка водяна	*Gallinula chloropus*				22	6			**28**
Лиска	*Fulica atra*	417	4825	4013	15221	92			**24568**
Брижач	*Philomachus pugnax*	1159	2000	300	17616	2540	2145		**25760**
Баранець звичайний	*Gallinago gallinago*				21	6			**27**
Total		**1889**	**10993**	**5768**	**45455**	**3974**	**3022**	**1500**	**72607**

Notes: DJ10 – Perekop Bay, DJ11 – Kartazatska coast, DJ12 – Ishunska Plavni, DJ13 – water starch from Andriyivsky Liman to r. Samarchik Mouth, DJ14 – Ponds and rice fields of Kropotkine-Chernichove, DJ15 – Bakalska Spit and Lakes, DJ20 – Kartazatska Bay.

Western Sivash

Species		SW10	SW12	SW14	SW15	SW16	SW19	SW20	Total
Крижень	Anas platyrhynchos			35		400		1508	**1943**
Нерозень	Anas strepera	2	30			112		3	**147**
Широконіска	Anas clypeata							5	**5**
Попелюх	Aythya ferina							8	**8**
Чернь морська	Aythya marila					39			**39**
Ниркові качки	Aythya spp.							457	**457**
Курочка водяна	Gallinula chloropus					1			**1**
Лиска	Fulica atra					6		498	**504**
Брижач	Ph. pugnax				300	18	1030	1543	**2891**
Баранець звичайний	Gallinago gallinago					4			**4**
	Total	**2**	**30**	**35**	**300**	**580**	**1030**	**4022**	**5999**

Notes: SW10 – Coast from Perekop to Litovsky Peninsula, SW12 – Filitivska Zasukha Bay, SW14 – Freshwater ponds to the west of vil. Smushkine, SW15 – Bay to the north of vil.Nadezhdine, SW16 – Krasne Lake, SW19 – Bay to the west of vil.Nadezhdine, SW20 – Kyiatske Lake.

Central Sivash

Species		SC01	SC14	SC15	SC16	SC17	SC18	SC19	Total
Гуска сіра	*Anser anser*	160					42	8	**210**
Крижень	*A. platyrhynchos*			14	65	50	137	38	**304**
Чирянка велика	*Anas querquedula*			14	363		344	354	**1075**
Попелюх	*Aythya ferina*				25				**25**
Лиска	*Fulica atra*			17	367				**384**
Брижач	*Ph. pugnax*	265	170	6000	660		2003	2920	**12018**
	Total	**425**	**170**	**6045**	**1480**	**50**	**2526**	**3320**	**14016**

Notes: SC01 – open water area of Central Sivash, SC14 – Coast between Dzhangara and Bay near island Rusky, SC15 – Lake Karleut, SC16 – Lake Aigul, SC17 – South part of the bay near vil. Tomashovka, SC18 – Bay Basurman, SC19 – Bay near vil.Ryumshine.

Eastern Sivash

Species		SE04	SE05	SE06	SE07	SE08	SE09	SE10	SE11	SE13	SE14	SE15	SE16	SE24	SE26	Total
Гуска сіра	*A. anser*					0		265		700	2	3				**970**
Крижень	*A. platy-rhynchos*	4000	13	435	1165	6082	1936	3100	1830	3752	1604	51	270	8	14	**24260**
Чирянка мала	*Anas crecca*					12		90	700	740	6600	1500	50			**9692**
Шилохвіст	*Anas acuta*					5		4	1	10						**20**
Чирянка велика	*A.quer-quedula*			7503	59	1094	2	326	6350	2755	6513	400	250			**25252**
Широконіска	Anas clypeata			20		912		47		394	190	2				**1565**
Чирянки	*A. acuta, querquedula*					2790		33								**2823**
Річкові качки	Anatidae spp.			12000		6000					300					**18300**
Чернь червоно-дзьоба	*Netta rufina*	6				20	1	754	4	40	264					**1089**
Попелюх	*Aythya ferina*			90	9	826		255	11		145	1500	10			**2846**
Чернь чубата	*Aythya fuligula*			75	2	29										**106**
Курочка водяна	Gallinula chloropus							40								**40**
Лиска	*Fulica atra*	15		1	59	15534	465	9310	14580		68700	19000				**127664**
Брижач	*Ph. pugnax*	8950	62	1570	3955	24970	1336	370	416	7950	6630	500	80	51		**56840**
Баранець звичайний	Gallinago gallinago			4		2		60		73	9					**148**
Total		**12971**	**75**	**21698**	**5249**	**58276**	**3740**	**14654**	**23892**	**16414**	**90957**	**22956**	**660**	**51**	**14**	**271615**

Notes: SE04 – Chongar Bay, SE05 – Lake near sheepyard Nayman, SE06 – Yasnopolyansky Lakes, SE07 – Ermakovska Bay, SE08 – Dzhankoyska Bay, SE09 – Bay to the south of Tyup-Tarkhan, SE10 – Kalynivska Bay, SE11 – Stefanivska and Slyvyanska Bay, SE13 – Dmytrivska area, SE14 – Indolska Bay, SE15- Bay near vil. Urozhayne, SE16 – Bay near vil. Shubine, SE24 – Arabatska Spit from border with Kherson Oblast to Izobilnoye, SE26 – Soleprom area.

Tarkhankut areas

Species		TR02	TR06	TR07	TR10	Total
Крижень	*Anas platyrhynchos*		14		49	**63**
Лиска	*Fulica atra*			1100	532	**1632**
Брижач	*Philomachus pugnax*	12	2167			**2179**
Total		**12**	**2181**	**1100**	**581**	**3874**

Notes: TR02 – Yarylgach Bay, TR06 – lakes Dzharylgach and Yarylgach, TR07 – Lake Panske, TR10 – Lake Donuzlav

Tarkhankut areas

Tarhankutsky water bodies aren't very valuable as breeding grounds. A small number of the Mallard and Coot breed, Ruff and other small waders roost near the village Mizhvodne on lakes and Panske and Dzharylgach. Since September, the lakes become more and more important for coots and ducks, mainly for various species of pochards.
Salty part of the lake Donuzlav (from sand spit to the highway 'Yevpatoriya-Chornomorske) is poor in breeding habitats. Only along the sand spit there is an area with small reedbeds and wetland vegetation (rush, sedge, etc.).

Starting from the highway and to the north-east the lake shores are covered with more and more thicker reed beds, with a small number of nests of coot, pochard and mallard.These reed beds stretch to the north until vil.Krasnoyarske. Taking into account a low importance of the lake as a breeding habitat and a small area of shallow water it is easy to explain the low number of ducks and coots in August. However when the winter is coming a huge amount of the Coot, Pochard, Mallard and Tufted Duck accumulated on the lake.

Zaporizhzhya Oblast

Species composition and the number of main species of game waterfowl are listed in the table 7. It should be noted the large number of waterfowl on the lake Syvashyk and Utlyuksky Liman, which in fact are an integral complex. Even Molochny Liman, which is a wetland of international importance, yields to them according to these parameters.
In recent years Molochny Liman began losing its importance for breeding, migratory and wintering waterfowl. Today, only the mouth of Molochnaya river and partly the sand spit separating the liman from the sea, to a certain extent provide breeding biotopes for ducks, Coot, Moorhen. In the rest of the coast breeding of waterfowl is occasional.
Due to the constant washing of the strait connecting the liman with the sea, the water level in the liman is constantly decreasing: evaporation of water is higher than water inflow. In recent years this has led to the fact that almost all the islands have become connected with the coast, though in the past, these islands were important breeding biotopes for many water birds, as well as places of rest, moult, etc. Frequent changes in the hydrological regime, fluctuations in salinity of water in the liman adversely affected the biota as a whole: some higher plants and some species of fish began disappearing. Generally the restoration of the strait is possible, but unfortunately all

activities associated with it mostly depend on political issues. In addition to many other positive factors, stable functioning of the strait would contribute to raising the level of water in the liman, which would lead to flooding depressions and to the formation of a number of islands with reed beds. In the past, these islands were and important breeding habitat for grebes, Mallard, Gadwall and other birds. The revival of the past situation is a very real thing.

The data of records of gamebirds at many waterbodies of the Oblast in 2004 showed that that year was very favorable for breeding. Undoubtedly, there was the effect of several factors, but one of the most important was rainy, humid summer. On the one hand, small islets and ridges covered with grass and not available for terrestrial predators have formed along shores of many water bodies. This contributed to increase of the capacity of breeding sites and their protection for birds. On the other hand, the presence of green grass throughout the summer supplied the cattle with foraging. As a result there were no grazing and hay making along shores of the water bodies. Thus, visits to the shores of water bodies were limited only by natural reasons and it brought about positive results.

Due to its geographical location and optimal environmental conditions the territory of the landscape reserve of national importance Berda River Mouth is one of few reproduction sites for waterfowl in the northern Azov area.

Reedbeds covered with water along with open reaches serve as a breeding site for many waterfowl, not easily accessible for terrestrial predators and as a result, the reproductive capacity of birds is high there.

However, in recent years, due to complex of natural and anthropogenic reasons, watering of territory is gradually falling. As a result, on the one hand reedbeds become dry and available to terrestrial predators, on the other there is going a process of overgrowing of open reaches, reducing mosaic of lands which leads to poor conditions for bird breeding.

To prevent drying of reedbeds it is proposed to build a temporary dam with a sluice and block the Berda River downstream, below the place of the confluence of two oxbows which supplied the area with water in wet years.

As a result of such blocking the level of water in the river the water will increase and the water will flow into oxbows, and its level in the reedbeds will increase too. That will create favorable conditions for breeding and feeding of waterfowl.

Regarding Utlyukskoho estuary, then to resume its previous range of skills necessary to conduct an updated work, aimed at raising the water level in central viddambovaniy of the estuary.Discharges of mine water treatment plant in Zaporizhia iron viddambovanu of the estuary will not allow the possibility of maintaining a stable level of water in it. Evaporation exceeds income, so today in the center of the estuary water sometimes viddalylasya from indigenous to the shores of 1-1.5 km. Ocheretyani thickets that grew along the shores of the estuary are in bad condition, and sometimes disappeared. Solving the problem would be to establish multiple gateways, siphons unilateral action on the south (Atmanayskiy) dam.

As biotechnical measures to increase biological diversity, including the hunting of birds, it would be appropriate to launch the water to build a series of artificial islands in

the eastern part of the coast estuary. After flooding the estuary lying islands would be well isolated hnizdovymy biotopes for ducks, kryachkiv, dyakyh sandpipers.

At the moment, actually faced the possibility of creating a national natural park Priazovsky, which is planned to include lists WETLAND.

Table 7. Zaporizhzhya region

Species		БК	ОК	ML	UT04	NA02	UT	Total
Гуска сіра	*Anser anser*	200		223	751		805	**1979**
Крижень	*Anas platyrhynchos*	160	477	2885	6138	470	8170	**18300**
Чирянка мала	*Anas crecca*	500			1474		1091	**3065**
Свищ	*Anas penelope*	4	7		9			**20**
Шилохвіст	*Anas acuta*				11		4	**15**
Чирянка велика	*Anas querquedula*	1500	757	1067	762	275	2130	**6491**
Широконіска	*Anas clypeata*	4	6	317	668		533	**1528**
Качки	*Anas spp.*	40		800	297	300	682	**2119**
Чернь червонодзьоба	*Netta rufina*						16	**16**
Попелюх	*Aythya ferina*	0	276		2553		1960	**4789**
Чернь чубата	*Aythya fuligula*				6		151	**157**
Чернь морська	*Aythya marila*						9	**9**
Пастушок	*Rallus aquaticus*							
Курочка водяна	*Gallinula chloropus*		3				2	**5**
Лиска	*Fulica atra*	1600	3227	144	485	115	57551	**63122**
Брижач	*Philomachus pugnax*	1000	9	1570	1635	45	1021	**5280**
Баранець звичайний	*Gallinago gallinago*	10	6		3		12	**31**
Total		**5018**	**4768**	**7006**	**14792**	**1205**	**74137**	**106926**

Notes: BS – Berdianska Spit and Berda River Mouth, OS – Obitochna Spit and Obitochna Bay, ML – Molochny Liman and Molochnaya River Mouth, UT04 – Lake Sivashik, NA02 – Tubalsky Liman with river mouths; UT – Utlyuksky Liman with Fedotova Spit and Island Biryuchy

Donetsk oblast

All lands, which held the account, members of the regional landscape park "Meotyda.In addition to Belosaraiskaia spit located landscape park Belosaraiskaia spit and ornithological "Priazovsky chapelnyk" and spit on a curve - ornithological reserves "Kryvokoskyy estuary," "Buck hooked Spit" and "Yelanchanski tank."

Such a concentration of protected areas and a great diversity of habitat led to the relatively small area of land very high number of waterfowl hunting birds. Dominated species are mallard, coot and garganey, Ruff, greylag goose, snipe and pochard. All Anseriformes with the exception of maritime species nest.

Officer RLP "Meotyda" developed management plan, within which provide for measures for the protection of lands and their inhabitants, management of recreation and volume of use of natural resources (grazing livestock, fisheries).

Table 7a. Donetsk region

Species		NA20	NA21	NA31	Total
Гуска сіра	*Anser anser*		19	76	**95**
Крижень	*Anas platyrhynchos*		656	3989	**4645**
Нерозень	*Anas strepera*			6	**6**
Чирянка велика	*Anas querquedula*		673	843	**1516**
Чернь червонодзьоба	*Netta rufina*		5	3	**8**
Попелюх	*Aythya ferina*		8	33	**41**
Чернь морська	*Aythya marila*			1	**1**
Пастушок	*Rallus aquaticus*			2	**2**
Лиска	*Fulica atra*	68	502	2221	**2791**
Брижач	*Philomachus pugnax*			96	**96**
Баранець звичайний	*Gallinago gallinago*		23	27	**50**
Total		**68**	**1886**	**7297**	**9251**

Notes: NA20 – Bilosaraiska Bay, NA21 – Bilosaraiska Spit and Lebyazhy Liman, NA31 – Kryva Kosa.

3.1.2 Key areas of the region

The most important key areas of the region are Ramsar sites and wetlands of national importance, because most of other important areas are within these wetlands.

In the Azov-Black Sea region there are 58 key areas that have been designated as important for birds in different seasons. In this region there are 23 Ramsar sites containing 33 wetlands of international importance. Besides 18 wetlands of the region is of national importance and 8 are prospective to be included in Ramsar list. According to data of 1999 there are designated 28 IBAs in the Azov-Black Sea region.

The wetlands are divided into four groups according to their funtions.

First group – wetlands important for formation of breeding bird complexes

Second group – important for migration complexes

Third group – important for wintering complexes

Fourth group – wetlands important for formation of ornithological complexes in all seasons or in two periods of a year.

Importance of wetlands for formation of breeding, migratory and wintering complexes are presented in the table 8.

Table 8. Importance of wetlands in formation of breeding, migratory and wintering complexes.

Wetland	Breeding complexes (pairs)	Migration complexes (ind.)	Wintering complexes (ind.)
Lake Kagul		11093	
Lake Kartal		12973	
Lake Kugurlui		3452	
Lake Yalpug		16808	
Lake Katlabuh		5028	
Lake Kitay		655	
Outer Danube Delta	10869	85388	47131
Stensovsko-Zhebriyanski Plavni		18614	515
Lake Sasyk	3364	22132	5645
Lakes Dzhantsheyskoe and Maly Sasyk		11518	
Lake Shagany	12311	30518	51151
Lake Dzhantsheisky and Maly Sasyk		11888	
Lake Burnas		2983	

Wetland	Breeding complexes (pairs)	Migration complexes (ind.)	Wintering complexes (ind.)
Budaksky Liman		642	18057
Dniester Liman Complex	21700	26532	13479
Plavni of Lower Dniester		3854	
Cuchurgan Estuary		2570	
Baraboy River Mouth		265	
Sukhy Liman		977	2150
Khadzhibeisky Liman		3924	4984
Kuyalnitisky Liman	2196	45361	1419
Velyky Adhzalyk		18004	5841
Maly Adzhalyk		10850	
Tyligulsky Liman	4389	24564	2123
Lake Solone near vil. Morske		311	
Lake Tuzlovske		5358	
Lower reaches of Berezansky Liman		3735	
Bugsky Liman		4988	
Plavni of the Southern Bug river		1483	
Dniprovsky Liman		11640	281
Dnipro River Delta		7340	2177
Left-bank "sagi" of Dnipro		5315	
Kinburnsky Peninsula		27311	
Yagorlytska Bay	7140	20476	20552
Tendrivska Bay	97315	40907	33387
Lake Ustrichny with adjacent lands		664	
Dzharylgachska Bay and Dzharylgach Island	28949	12165	12129
North Karkinitsky Complex	11692	39125	
South Karkinitsky Complex		100987	
Tarkhankut Peninsula		8030	
Lake Donuzlav		3085	
Western Sivash Complex	8357	43173	6251
Shpindiar site		1624	
Storage lakes of DAK “Titan”		246	
Central Sivash Complex	30146	164989	77050
Eastern Sivash	90951	641726	124931
Lake Aktash with Astanino Plavni		14049	
Pond near village Yachmennoye		1925	
Feodosia lake complex		3019	
Ali-Bai dry area		1516	
Utlyuksky Liman		135247	24629
Lake Sivashik		26054	
Molochny Liman	16504	28834	47352
Obitochna Bay and Obitochna Spit	14611	19528	
Tubalsky Liman		7400	
Berdianska Spit and Berdianska Bay	2683	7558	
Bilosaraiska Bay and Bilosaraiska Spit	938	8635	
Kryva Bay and Kryva Spit	800	18138	
	372151	**1787208**	

Notes:

Breeding compexes are given according to: Andryushchenko Yu.A., Siokhin V.D., Chernichko I.I. *et al.* 2000. Numbers and distribution of breeding waterbirds in wetlands of the Azov-Black Sea coast of Ukraine. (eds. Siokhin V.D.), Branta, Melitopol. P. 217-250.

Migration complexes are given according to: Rom Bulletin. 2005. Results of regional ornithological monitoring. August 2004. Azov-Black Sea coast of Ukraine. (eds. Chernichko I.I.). Branta, Melitopol, Issue 2, 67 pp.

Wintering complexes are given according to: Wintering bird counts at the Azov-Black Sea coast of Ukraine. Transactions. Issue 3. Odessa-Kiev: Wetlands International, 2001, 67 pp.

3.1.3 Protected areas of the region

The Azov-Black Sea coast of Ukraine has the following protected areas with high conservation status:

Danube Biosphere Reserve (Odessa Oblast)
Black Sea Biosphere Reserve (Kherson Oblast)
Azov-Sivash National Natural Park (Kherson Oblast)
Biosphere Reserve “Askania Nova”
“Lebyazy Islands ” Reserve “ (Crimea)
Karadag Natural Reserve (Crimea)
Opuk Natural Reserve (Crimea)
Kazantip Natural Reserve (Crimea)

Except steppe biosphere reserve “Askania Nova”, all others are coastal areas, which borders on or located within Ramsar Sites.

According to the state program of establishing natural areas in the region some areas now are in the process of creation. Works have been started for establishment of the following nature conservation objects:

Lower Dniester National Park (Odessa Oblast)
Lower Dnipro National Park (Kherson Oblast)
Sivash National National Park (Crimea)
Priazovsky National Park (Zaporizhzhya Oblast)
“Meotida” National Natural Park (Donetsk Oblast)

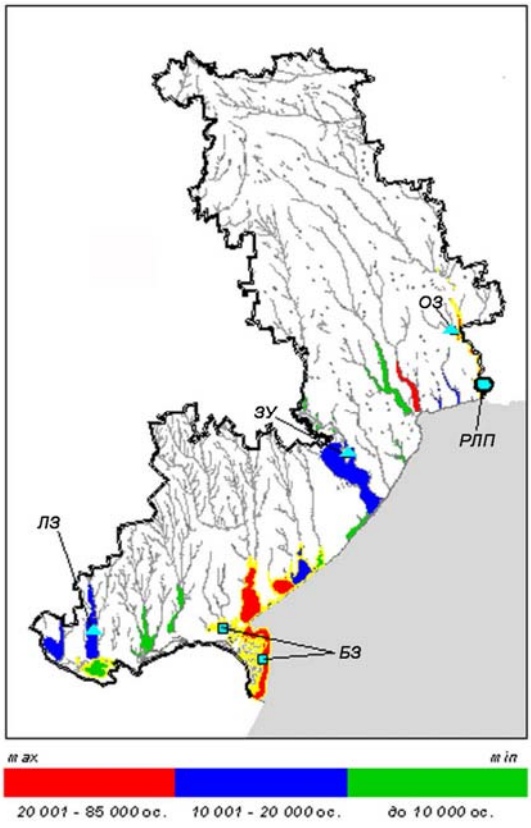
Also, regional landscape parks (RLP), located in Ramsar sites, are very important for supporting numbers and distribution of waterfowl. They are the following:

RLP Tyligulsky (Odessa Oblast)
RLP Tuzlov Limans (Odessa Oblast)
RLP Kinburn Spit (Mykolaiv Oblast)
RLP Tyligulsky (Mykolaiv Oblast)
RLP Meotida (Donetsk Oblast)

It is necessary to note that six Oblasts within the Azov-Black Sea Ecological Corridor include a great number of zakazniks of regional and state importance. There are about 160 areas of such kind. Among very important there should be mentioned such as

Hydrological zakaznik Molochny Liman (Zaporizhzhya Oblast)
Landscape zakaznik Obitochna Bay (Zaporizhzhya Oblast)
Other regional zakazniks

Important protected areas in regional wetlands per Oblasts are presented in pictures 3-8.

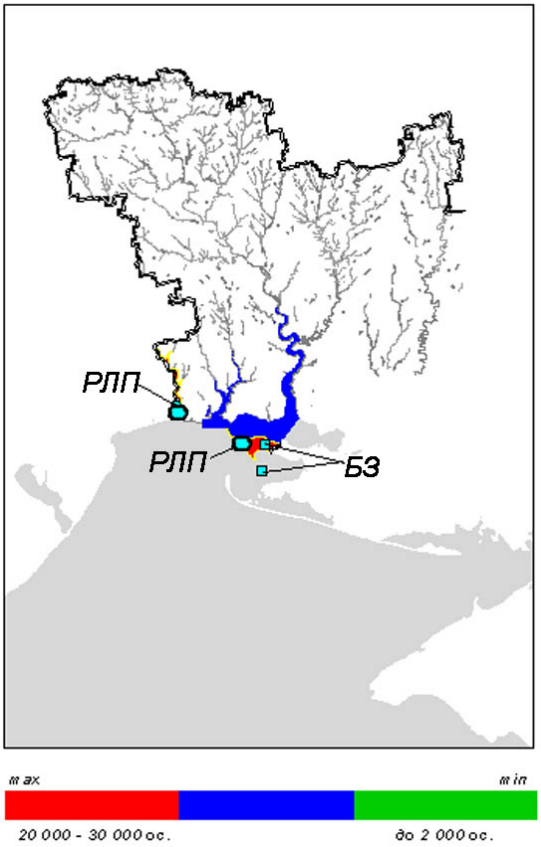


Legend:

Objects of the nature reserve fund:
‘Zakazniks’:
of state importance (ЗЗ)
botanical (БЗ)
hydrological (ГЗ)
ornithological (ОЗ)
landscape (ЛЗ)
reserved site (ЗУ)

regional landscape park (РЛП)
national natural park (НПП)
biosphere reserve (БЗ)
nature reserve
Ramsar sites

Fig. 3. Wetlands important for support of bird species diversity in Odessa region

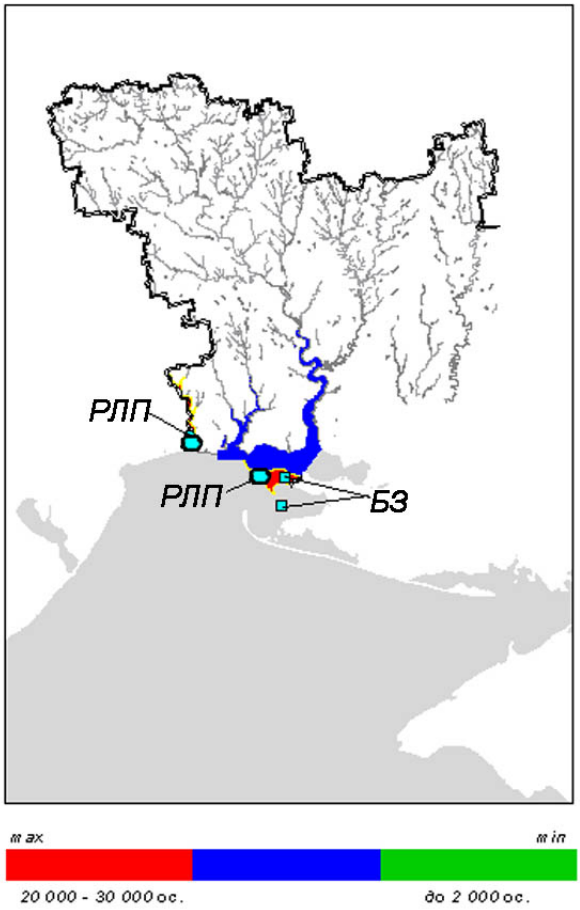


Legend:

Objects of the nature reserve fund:
‘Zakazniks’:
of state importance (ЗЗ)
botanical (БЗ)
hydrological (ГЗ)
ornithological (ОЗ)
landscape (ЛЗ)
reserved site (ЗУ)

regional landscape park (РЛП)
national natural park (НПП)
biosphere reserve (БЗ)
nature reserve
Ramsar sites

Fig. 4. Wetlands important for support of bird species diversity in Mykolaiv region

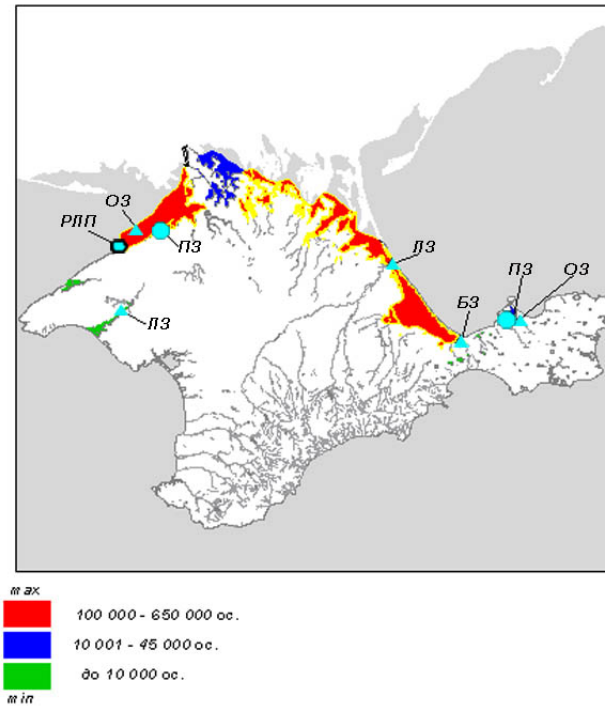


Legend:

Objects of the nature reserve fund:
‘Zakazniks’:
of state importance (ЗЗ)
botanical (БЗ)
hydrological (ГЗ)
ornithological (ОЗ)
landscape (ЛЗ)
reserved site (ЗУ)

regional landscape park (РЛП)
national natural park (НПП)
biosphere reserve (БЗ)
nature reserve
Ramsar sites

Fig. 5. Wetlands important for support of bird species diversity in Kherson region

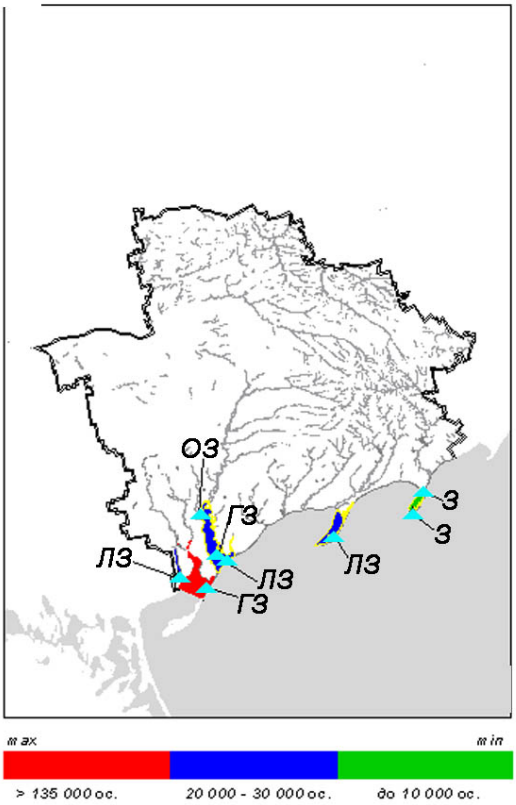


Legend:

Objects of the nature reserve fund:
‘Zakazniks’:
of state importance (ЗЗ)
botanical (БЗ)
hydrological (ГЗ)
ornithological (ОЗ)
landscape (ЛЗ)
reserved site (ЗУ)

regional landscape park (РЛП)
national natural park (НПП)
biosphere reserve (БЗ)
nature reserve
Ramsar sites

Fig. 6. Wetlands important for support of bird species diversity in Crimea region

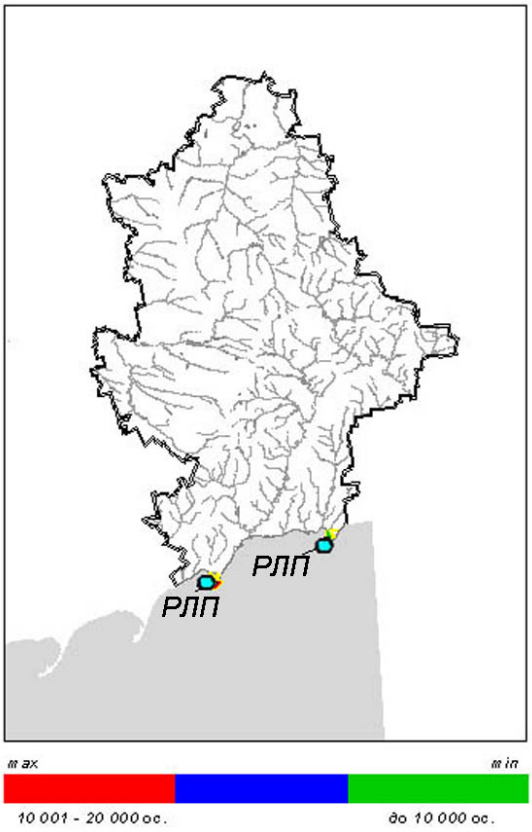


Legend:

Objects of the nature reserve fund:
‘Zakazniks’:
of state importance (ЗЗ)
botanical (БЗ)
hydrological (ГЗ)
ornithological (ОЗ)
landscape (ЛЗ)
reserved site (ЗУ)

regional landscape park (РЛП)
national natural park (НПП)
biosphere reserve (БЗ)
nature reserve
Ramsar sites

Fig. 7. Wetlands important for support of bird species diversity in Zaporizhzhya region



Legend:

Objects of the nature reserve fund:
‘Zakazniks’:
of state importance (ЗЗ)
botanical (БЗ)
hydrological (ГЗ)
ornithological (ОЗ)
landscape (ЛЗ)
reserved site (ЗУ)

regional landscape park (РЛП)
national natural park (НПП)
biosphere reserve (БЗ)
nature reserve
Ramsar sites

Fig. 8. Wetlands important for support of bird species diversity in Donetsk region

Reserve areas and protected bird species in the region

Species diversity and number of birds is an indicator of the quality of the natural object (in this case, wetlands) and at the same time allows to judge on the status of components of a biocenosis. The presence within the wetlands of high numbers of rare species listed in the Red Data Book of Ukraine, in the red list of the IUCN, or species that are protected under international conventions (Bonn Convention, Bern Convention, AEWA) (Table 9.) allows to determine the value of a wetland at different levels (I - international, N - national, R - regional). On the basis of these criteria in each of the southern regions of Ukraine, included in the Azov-Black Sea region, the most important areas are defined. These natural objects are centers of local breeding populations of waterfowl, and sometimes of massive concentrations of migrating species. An extensive network of wetlands in southern Ukraine is an integral ecological corridor and at the same time - one of the most important links in the Afro-Eurasian Migratory Flyway, and therefore is of great international importance.

Table 9. List of waterbirds protected in the region

Latin name	English name	Ukrainian name	Red Data Book of Ukraine	Bern Convention	CITES	CMS	AEWA	European Red List	Status in Azov-Black Sea region	Size of population in region
Anas acuta	Pintail	Шилохвіст		3	3	2	+	V	M, W	M - 56
Anas clypeata	Shoveler	Широконіска		3	3	2	+	S	M, B,W	B – 66 M - 3995
Anas crecca	Teal	Чирянка мала		3	3	2	+	S	M	M - 13980
Anas penelope	Wigeon	Свищ		3	3	2	+	S	M,W	M - 551
Anas platyrhynchos	Mallard	Крижень		3		2	+	S	M, B,W	B – 2254 M - 127745
Anas querquedula	Garganey	Чирянка велика		3	3	2	+	V	M, B,W	B – 272 M - 63473
Anas strepera	Gadwall	Нерозень		3		2	+	V	M, B,W	B – 279 M - 1045
Anser albifrons	White-fronted Goose	Гуска білолоба		3		2	+	S	M	
Anser anser	Greylag Goose	Гуска сіра		3		2	+	S	M, B,W	B – 676 M - 9523
Anthropoides virgo	Demoiselle Crane	Журавель степовий	3	2	3		+	R	M, B	M - 816
Ardea cinerea	Grey Heron	Чапля сіра		3		-	-	S	M, B,W	B – 1628 M - 6211
Ardea purpurea	Purple Heron	Чапля руда		2		2	+	V	M, B,W	B – 570 M - 840
Ardeola ralloides	Squacco Heron	Чапля жовта	2	2		2		S	M, B,W	B – 572 M - 932
Arenaria interpres	Turnstone	Крем’яшник		2		-	+	S	M	M - 2160
Asio flammeus	Short-eared Owl	Сова болотяна		2	2	-	-	V	M, B	
Aythya ferina	Pochard	Попелюх		3		2	+	S	M, B,W	B – 1520 M - 27385
Aythya fuligula	Tufted Duck	Чернь чубата		3		2	+	S	M,W	M - 412
Aythya marila	Scaup	Чернь морська		3		2	+	L	M,W	M - 51
Aythya nyroca	White-eyed Pochard	Чернь білоока	2	3		2	+	V	M, B,W	B – 168 M - 745
Botaurus stellaris	Bittern	Бугай		2		2	+	V	M, B	B – 250 M - 18

Latin name	English name	Ukrainian name	Red Data Book of Ukraine	Bern Convention	CITES	CMS	AEWA	European Red List	Status in Azov-Black Sea region	Size of population in region
Bucephala clangula	Goldeneye	Гоголь	3	3		2	+	S	M, B,W	B – 6 M - 4
Burhinus oedicnemus	Stone Curlew	Лежень	3	2		2	-	V	M, B	B – 117 M - 15
Calidris alba	Sanderling	Побережник білий		2		-	+	S	M	M - 220
Calidris alpina	Dunlin	Побережник чорногрудий		2		-	+	V	M	M - 19027
Calidris ferruginea	Curlew Sandpiper	Побережник червоногрудий		2		-	+	-	M	M - 14984
Calidris minuta	Little Stint	Побережник малий		2		-	+	S	M	M - 2515
Charadrius alexandrinus	Kentish plover	Пісочник морський	3	2		2	+	D	M, B,W	B- 1462 M - 1505
Charadrius dubius	Little Ringed Plover	Пісочник малий		2		2	+	S	M, B,W	B – 231 M - 173
Charadrius hiaticula	Ringed Plover	Пісочник великий		2		2	+	S	M	M - 377
Chlidonias leucoptera	White-winged Black Tern	Крячок білокрилий		2		-	+	S	M, B	B – 340 M - 22413
Chlidonias nigra	Black Tern	Крячок чорний		2		2	+	D	M, B	B– 60 (250) M - 2164
Chlidonias hybrida	Whiskered Tern	Крячок білощокий	2						M, B,W	B – 2715 (3200) M - 9152
Ciconia ciconia	White Stork	Лелека білий		2		2	+	V	M, B	M - 405
Circaetus gallicus	Short-toed Eagle	Змієїд	3	2	2	2	-	R	M, B	
Circus aeruginosus	Marsh Harrier	Лунь очеретяний		2	2	2	-	S	M, B,W	B - 233
Circus cyaneus	Hen Harrier	Лунь польовий	1	2	2	2	-	V	M, B	
Circus macrourus	Pallid Harrier	Лунь степовий	1	2	2	2	-	E	M	
Circus pygargus	Montagu's Harrier	Лунь лучний		2	2	2	-	S	M	
Coturnix coturnix	Quail	Перепілка		3		2	-	V	M, B	
Crex crex	Corncrake	Деркач		2		-	-	V	M	
Cuculus canorus	Cuckoo	Зозуля звичайна		3		-	-	S	M, B	
Cygnus cygnus	Whooper Swan	Лебідь-кликун		2		2	+	S	M	M - 2
Cygnus olor	Mute Swan	Лебідь-шипун		3		2	+	S	M, B,W	B – 434 M - 21400

Latin name	English name	Ukrainian name	Red Data Book of Ukraine	Bern Convention	CITES	CMS	AEWA	European Red List	Status in Azov-Black Sea region	Size of population in region
Egretta alba	Great White Egret	Чепура велика		2		-	+	S	M, B,W	B – 2153 M - 72363
Egretta garzetta	Little Egret	Чепура мала		2	3	-	-	S	M, B,W	B – 1549 M - 6508
Emberiza calandra	Corn Bunting	Просянка		3		-	-	S	M, B	
Emberiza schoeniclus	Reed Bunting	Вівсянка очеретяна		2		-	-	S	M, B	
Falco cherrug	Saker	Балабан	3	2	2	2	-	E	M, B	
Falco columbarius	Merlin	Підсоколик малий		2	2	2	-	S	M, B	
Falco peregrinus	Peregrine	Сапсан	2	2	1	2	-	R	M, B	
Falco subbuteo	Hobby	Підсоколик великий		2	2	2	-	S	M, B	
Falco tinnunculus	Kestrel	Боривітер звичайний		2	2	2	-	D	M, B	
Falco vespertinus	Red-footed Falcon	Кібчик		2	2	2	-	V	M, B	
Fulica atra	Coot	Лиска		3		-	+	S	M, B,W	B – 12128 M - 466554
Galerida cristata	Crested lark	Посмітюха		3		-	-	D	M, B	
Gallinago gallinago	Common snipe	Баранець звичайний		3		-		S	M	
Gallinula chloropus	Moorhen	Курочка водяна		3		-	-	S	M, B,W	B – 2019 M - 256
Gelochelidon nilotica	Gull-billed Tern	Крячок чорнодзьобий		2		-	+	E	M, B	B –4377 M - 3243
Glareola pratincola	Collared Pratincole	Дерихвіст лучний	2	2		2	+	E	M, B	B – 1138 M - 1048
Grus grus	Common Crane	Журавель сірий	2	2	2	2	+	V	M	M - 526
Haematopus ostralegus	Oystercatcher	Кулик-сорока	3	3		2	-	S	M, B	B, - 402 M - 1457
Haliaeetus albicilla	White-tailed Eagle	Орлан - білохвіст	2	2	2		-	S	M, B,W	B – (20)
Himantopus himantopus	Black-winged Stilt	Кулик-довгоніг	2	2		2	+	S	M, B	B – 4144 M - 1660
Hydroprogne caspia	Caspian Tern	Крячок каспійський	3	2		2	+	E	M, B	B – 880 M - 1725
Ixobrychus minutus	Littern Bittern	Бугайчик		2		2	+	V	M, B	B – 557 M - 126
Larus cachinnans	Yellow-legged Gull	Мартин жовтоногий		3		-	-	S	M, B,W	B – 28226 M - 44338

Latin name	English name	Ukrainian name	Red Data Book of Ukraine	Bern Convention	CITES	CMS	AEWA	European Red List	Status in Azov-Black Sea region	Size of population in region
Larus canus	Common Gull	Мартин сивий		3		-	-	D	M	M
Larus genei	Slender-billed Gull	Мартин тонкодзьобий		2		-	+	S	M, B	B – 24223 M - 48540
Larus ichthyaetus	Great Black-headed Gull	Мартин каспійський	2	3		-	+	S	M, B	B – 716 M - 1419
Larus melanocephalus	Mediterranean Gull	Мартин середземноморський		2		2	+	S	M, B	B, - 100863 M - 41861
Larus minutus	Little Gull	Мартин малий		2		-	-	D	M	M - 48177
Larus ridibundus	Black-headed Gull	Мартин звичайний		3		-	-	S	M, B	B – 272 M - 148670
Limosa lapponica	Bar-tailed Godwit	Грицик малий		3		2	+	L	M	M - 2392
Limosa limosa	Black-tailed Godwit	Грицик великий		3		2	+	V	M	M - 6288
Locustella luscinioides	Savi's Warbler	Кобилочка солов'їна		2		2	-	S	M, B	
Melanocorypha calandra	Calandra Lark	Жайворонок степовий		2		-	-	D	M, B	
Mergus albellus	Smew	Крех малий		2		2	+	V	M	
Mergus merganser	Goosander	Крех великий		3		2	+	S	M	
Mergus serrator	Red-breasted Merganser	Крех середній	2	3		2	+	S	M, B	B – 384 M - 54
Motacilla alba	White-wagtail	Плиска біла		2		-	-	S	M, B	
Motacilla flava	Yellow Wagtail	Плиска жовта		2		-	-	S	M, B	B - 1808
Netta rufina	Red-crested Pochard	Чернь червонодзьоба		3		2	+	D	M, B,W	B – 163 M - 1910
Numenius arquata	Curlew	Кульон великий	2	3		2	+	D	M, B, W	B – 5 M - 2237
Numenius phaeopus	Whimbrel	Кульон середній	2	3		2	+	S	M	M - 118
Numenius tenuirostris	Slender-billed Curlew	Кульон тонкодзьобий	1	2	1	1	+	-	M	M - 12
Nycticorax nycticorax	Night Heron	Квак		2		-	-	D	M, B,W	B – 2850 M - 1120
Oenanthe isabellina	Isabelline Wheater	Кам'янка попеляста		2		2	-	S	M, B	
Oenanthe oenanthe	Wheater	Кам'янка звичайна		2		2	-	S	M, B	
Otis tarda	Bustard	Дрохва	2	2	2	1	-	D	M, B,W	
Pandion haliaetus	Osprey	Скопа	3		2	2		R	M, B,W	
Panurus biarmicus	Bearded Tit	Синиця вусата		2		-	-	S	M, B,W	B – 1695

Latin name	English name	Ukrainian name	Red Data Book of Ukraine	Bern Convention	CITES	CMS	AEWA	European Red List	Status in Azov-Black Sea region	Size of population in region
Pelicanus onocrotalus	White Pelican	Пелікан рожевий	2	2				S	M, B,W	B– 58 (350) M - 14926
Pelicanus crispus	Dalmatian Pelican	Пелікан кучерявий	2	2				S	M	M- 142
Perdix perdix	Partridge	Куріпка сіра		3		-	-	V	M, B,W	
Pernis apivorus	Honey Buzzard	Осоїд		2	2	2	-	S	M	
Phalacrocorax carbo	Great Cormorant	Баклан великий		3		-	-	S	M, B,W	B – 59940 M - 157222
Phalacrocorax pygmaeus	Pigmy Cormorant	Баклан малий	2	2	2	2	+	R	M, B,W	B – 1047 M - 2374
Phalaropus lobatus	Red-necked Phalarope	Плавунець круглодзьобий		3		2	+	S	M	M - 3458
Phasianus colchicus	Pheasant	Фазан		3		-	-	S	B, W	
Philomachus pugnax	Ruff	Брижач		3		2	+	S	M, W	M - 172799
Pica pica	Magpie	Сорока		3		-	-	S	M, B,W	
Platalea leucorodia	Spoonbill	Косар	2	2	2	2	+	E	M, B	B,- 213 M - 838
Plegadis falcinellus	Glossy Ibis	Коровайка	2	2		2	+	D	M, B	B – 1648 M - 2088
Pluvialis apricaria	Golden Plover	Сивка звичайна		3		2	+	S	M	M - 52
Pluvialis squatarola	Grey Plover	Сивка морська		3		2	+	S	M	M - 3603
Podiceps cristatus	Great Crested Grebe	Пірникоза велика		3		-	-	S	M, B,W	B – 1536 M - 17152
Podiceps griseigena	Red-necked Grebe	Пірникоза сірощока		2		-	+	S	M, B	B – 629 M - 390
Podiceps nigricollis	Black-necked Grebe	Пірникоза чорношия		2		-	-	S	M, B	B – 319 M - 21017
Podiceps ruficollis	Little Grebe	Пірникоза мала		2		-	-	S	M, B,W	B – 84 M- 291
Porzana parva	Spotted Crake	Погонич малий		2		2	+	S	M, B	B – 208 M - 5
Rallus aquaticus	Water Rail	Пастушок		3		-	-	S	M, B	B, - 628 M - 13
Recurvirostra avosetta	Avocet	Чоботар		2		2	+	L	M, B	B – 6380 M - 7886

Latin name	English name	Ukrainian name	Red Data Book of Ukraine	Bern Convention	CITES	CMS	AEWA	European Red List	Status in Azov-Black Sea region	Size of population in region
Remis pendulinus	Penduline Tit	Ремез		3		-	-	S	M, B	
Riparia riparia	Sand Martin	Ластівка берегова		2		-	-	D	M, B	B – 9016
Rufibrenta ruficollis	Red-breasted Goose	Казарка червоновола	2	2		2	+	L	M, W	
Somateria mollissima	Eider	Пухівка	2	2			+	L	M, B, W	B – 1103 M - 3600
Stercorarius parasiticus	Arctic Skua	Поморник короткохвостий		3		-	-	S	M	M - 3
Sterna albifrons	Little Tern	Крячок малий		2		2	+	D	M, B	B, - 1819 M - 2803
Sterna hirundo	Common Tern	Крячок річковий		2		-	+	S	M, B	B – 26482 M - 15039
Tadorna ferruginea	Ruddy Shelduck	Огар	2	2		2	+	V	M, B	B – 5 M - 17
Tadorna tadorna	Common Shelduck	Галагаз		2		2	+	S	M, B	B – 1113 M - 35967
Thalasseus sandvisensis	Sandwich Tern	Крячок рябодзьобий		2		2	+	D	M, B	B – 31378 M - 14564
Tringa erythropus	Spotted Redshank	Коловодник чорний		3		2	+	S	M	M- 684
Tringa glareola	Wood Sandpiper	Коловодник болотяний		2		2	+	D	M	M - 2837
Tringa nebularia	Greenshank	Коловодник великий		3		2	+	S	M	M - 3431
Tringa ochropus	Green Sandpiper	Коловодник лісовий		2		2	+	S	M	M - 1478
Tringa stagnatilis	Marsh Sandpiper	Коловодник ставковий	2	2		2	+	S	M	M- 2463
Tringa totanus	Redshank	Коловодник звичайний		3		2	+	D	M, B	B – 2786 M - 19904
Vanellus vanellus	Lapwing	Чайка		3		2	+	S	M, B	B – 1009 M - 3861

Additional information.

In ‘waterbirds’ there are also included birds observed in buffer zones and those in some year season functionally attached to water habitats

The given table requires additional species to be included during next project phases. A column ‘size of population’ needs to be further investigated and will be formed for some species in next reports.

Data on numbers for most breeding birds (pairs) are given for 1998 (Siokhin, Chernichko *et al.*, 2000), cormorant data for 2008 (Siokhin, Kostyushin, 2008).

Data on numbers of migratory birds (ind.) are given for first ten days of August 2004, according to counts taken under GEF project "Conservation of Biodiversity in the Azov-Black Sea region"

Legends:

M- migratory; B-breeding; W - wintering

E – engendered species
V – vulnerable species
R – rare species
D – declining species

L – localized species
Ins – insufficient data
S – protected
( ) – temporary status
^{W} – wintering population

Bern Convention		Species protected under the Convention of Migratory Species of Wild Animals
	2	Strictly protected fauna species
	3	Protected fauna species
	4	Prohibited means and methods of killing, capture and other forms of exploitation
Bonn Convention (CMS)		Species protected under the Convention on the Conservation of Migratory Species of Wild Animals
	1	Endangered migratory species
	2	migratory species which have an unfavourable conservation status and which require international agreements for their conservation and management
	CITES	Species protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora, Appendix II
	AEWA	Species protected under the Agreement on the Conservation of African-Eurasian Migratory Waterbirds

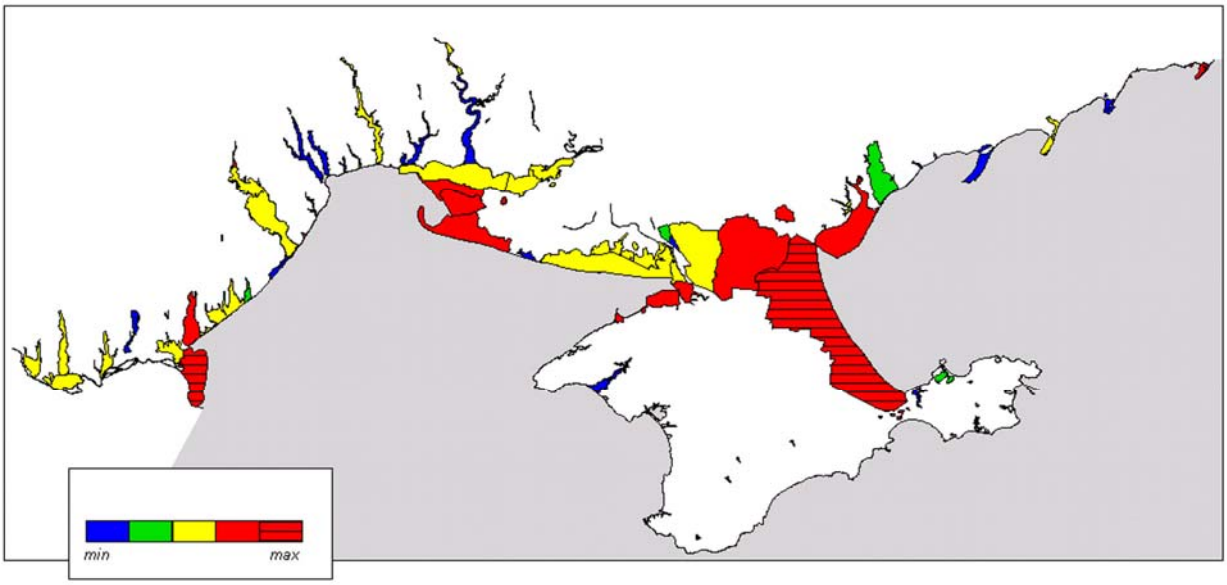


Fig 9. Numbers of birds listed in the red data Book in Ukraine (August 2004)

Odessa Oblast

Wetlands in the Odessa region play an important role in the protection of migratory and local populations of waterfowl. Their protection status is given in Table 10.

Table 10. List of main wetlands in Odessa region and their protection status.

Wetland	Protection status, protected zone
Оз. Lake Kartal	Ramsar site
ОзК Kugurlui	Ramsar site
Outer Danube Delta	Ramsar Site. Danube Biosphere Reserve
Stensovsko-Zhebriyansky Plavni	Ramsar Site. Danube Biosphere Reserve
Lake Sasyk	Ramsar Site. Danube Biosphere Reserve
Lake Dzhantsheiske and Maly sasyk	Danube Biosphere Reserve (south-western part of the wetland is included in a buffer zone)
Lake Shagany	Ramsar Site
Alibei complex	Ramsar Site
Lake Burnas and mouth of Alkalia River	Ramsar Site
Dniester Liman complex	Reserved site “Dniester Plavni” (south part of the liman)
Lower Dniester wetlands	Reserved site “Dniester Plavni”
Tiligulsky Liman	Regional landscape park “Tiligulsky”, ornithological ‘zakaznik’ “Strilka Spit”

Distribution of protected bird species per Odessa wetlands is divided into five groups in accordance to areas (Table 11)

Table 11. Number of bird species at Odessa wetlands included in Red Data Book of Ukraine

Latin name	Wetland					
	1	**2**	**3**	**4**	**5**	**Total**
Pelecanus onocrotalus	4316	578	560	210		**5664**
Pelecanus crispus	118	10	9	5		**142**
Phalacrocorax pygmaeus	641	402		184	3	**1230**
Ardeola ralloides	422	241	1	97	1	**762**
Platalea leucorodia	441	2	3	3	22	**471**
Plegadis falcinellus	161	103	4	257	9	**534**
Ciconia nigra	2					**2**
Tadorna ferruginea	2					**2**
Aythya nyroca	69	322		21	46	**458**
Bucephala clangula	1					**1**
Burhinus oedicnemus		1	5			**6**
Charadrius alexandrinus			80			**80**
Himantopus himantopus	77		2	3	66	**148**
Tringa stagnatilis		15			2	**17**
Haematopus ostralegus	146		146		83	**375**
Numenius tenuirostris	12					**12**
Numenius arquata	100		415		28	**543**
Numenius phaeopus	2		4			**6**
Glareola pratincola	1					**1**
Larus ichthyaetus	9		12			**21**
Hydroprogne caspia	78		18			**96**
	6598	**1674**	**1259**	**780**	**260**	**10571**

Notes: 1 - Danube Biosphere Reserve 2 – Danube lakes 3 – Tuzlov liman complex 4 – Dniester wetlands 5 – Odessa limans

Wetlands, which are fully or partly included in the Danube Biosphere Reserve traditionally support in a breeding period and during migration 18 species, listed in the Red Book of Ukraine. Total number of these species in 2004 was 6,598 individuals.

Danube lakes have no protective status, though Kartal and Kugurlui are Ramsar sites. All system of lakes support breeding population of White-eyed Pochard, globally endangered species. Kartal Lake is probably the only place in Ukraine, where Dalmatian Pelican periodically breed. In August 2004, 9 species of the Red Data Book were recorded at the Danube lakes (the number of all individuals was 1,674)

In a breeding season Tuzlov Limans play an important role for local aggregations of Shelduck, terns and waders. 13 species having protected status(1,259 ind.) were observed in August 2004.

Dniester wetlands is one of the important places in southern Ukraine which support breeding populations of Ciconiiformes (Spoonbill, Glossy Ibis, all species of herons), pygmy cormorants, Anseriformes (Graylag goose, river ducks, Pochard and White-eyed Pochard), Rallidae (Coot, etc.), Whiskered Tern. In summer and autumn the area holds significant number of mallard, wigeon, Lesser White-Fronted Goose and Graylag Goose, Coot, various species of gulls. The number of rare species of birds are given in table.11.

Odessa limans such as Tyligulssy and Kuyalnytsky in a breeding period support breeding populations of Mediterranean gulls, Common terns and Black-winged Stilt. As for groups of migrating birds they are important areas for gulls and coots.

Although, as for species listed the Red Book of Ukraine, in the summer-autumn period, the value of Odessa limans was negligible. However, for migrating birds, these limans are rather important.

To provide adequate protection of waterfowl and their habitats in Odessa wetlands the following measures should be taken:

- Optimization of Shipping to ensure minimum impact on the natural processes of delta development (mouth of the Danube).
- Optimization of fishing equipment for greater security for the birds.
- Development of an integrated management of plan.
- Compliance of norms for allowed number of hunted birds (for all wetlands). The full ban on hunting Graylag goose in January.
- Regulation of the number of the Raccoon dogs, foxes and wild boar, especially in new accumulative formations in the front edge of the Danube Delta (areas of breeding of Charadriiformes).
- Preservation of reedbeds, plavni and tree/shrub vegetation, vegetation of saltmarshes (for all wetlands).
- Support of optimal mosaic of lands by implementation of special biotechnical measures.
- Complete ban for gill nets in ponds (fishing industry), especially in the autumn-winter period (Lake Sasyk).
- works on the establishment of Lower Dniester National Park.
- to provide tighter control over fishing activities on lakes, to prevent possibility of death of pygmy cormorants and grebes.
- carry out regular monitoring of compliance with the current hunting legislation, particularly in the field of norms of allowed number of acquired birds (for all wetlands).
- to hold annual rotation of hunting reproductive areas with 20% of wetlands.
- hunting should begin only after the completion of waterfowl breeding period, and not before the beginning of September.

Mykolaiv Oblast

The list of protected areas in the region is given in Table 12.

Table 12. List of wetlands included in the nature reserve fund or in Ramsar Sites.

wetland	Protection status, protected zone
Tyligulsky Liman	Ramsar site, Regional landscape park "Tyligulsky"
Lake Tuzlovske or Solonets	Hydrological zakaznik of local importance
Plavni of the Southern Bug River	Complex landscape zakaznik of local importance
Kinburnska Spit	Ramsar site, Regional landscape park "Kinburnska Spit" (a department of Black Sea Biosphere Reserve)
Yagorlytska Bay with adjacent coast and Adzhigol Site	Ramsar site, Black Sea Biosphere Reserve

In breeding period wetlands of the Oblast support breeding population of Charadriiformes (waders, gulls, terns), Anseriformes (Shelduck, Mallard), Rallidae(coots). In summer and autumn these areas are rather important for rare

species (tabl.13). August counts of 2004 recorded 3195 individuals in a total. The largest number of species were seen on Kinburnska Spit (17 species), with the number of individuals equal to 2,930.

Table 13. Number and distribution of waterfowl species listed in the Red Book of Ukraine on wetlands of Mykolaiv region.

Species	wetland			
	Tyligulsky Liman	Dniprovsky Liman	Kinburnska Spit	Total
Pelecanus onocrotalus		8	247	**255**
Phalacrocorax pygmaeus	3	5	6	**14**
Ardeola ralloides			1	**1**
Platalea leucorodia	22			**22**
Plegadis falcinellus			1	**1**
Ciconia nigra			2	**2**
Aythya nyroca	46		2	**48**
Bucephala clangula			1	**1**
Somateria mollissima		72	2345	**2417**
Mergus serrator			3	**3**
Charadrius alexandrinus		6	28	**34**
Himantopus himantopus	11	17	42	**70**
Haematopus ostralegus	60	4	102	**166**
Tringa stagnatilis	2		6	**8**
Numenius arquata	1		121	**122**
Numenius phaeopus			18	**18**
Larus ichthyaetus		5	2	**7**
Hydroprogne caspia		3	3	**6**
Total	**145**	**120**	**2930**	**3195**

To ensure adequate protection of waterfowl and their habitats the following measures should be taken:

- to restrict tourist visits to areas of bird breeding in a period of maximum recreational activity (lower reaches of Tyligulsky Liman, Kinburnska Spit).
- hunting season should be determined only after the completion of the period of breeding waterfowl, not before the beginning of September.
- to hold regular rotation of hunting reproductive areas with 20% of wetlands (game husbandry)
- control the number of predatory animals: the wolf, fox and raccoon dog .

Kherson Oblast

The most important wetlands in the area are included in the Black Sea Biosphere Reserve. In the Azov-Black Sea region these wetlands play an important role in supporting populations of Ciconiiformes (ibises, herons), Anseriformes (graylag goose, shelduck, river ducks, eider, red-breasted merganser), Charadriiformes (gulls, terns and some species of waders). The number of rare species is listed in the table. 15.

Table 14. List of wetlands included in the nature reserve fund or in Ramsar Sites.

Wetland	Protected zone
Dnipro River Delta	Ramsar site, forest zakaznik of local importance “Bakaisky”, zoological zakaznik of local importance “Bakaisky Zholob”
Left-bank ‘sagi’ of Dnipro River	zakaznik of local importance "Kardashinske Marsh"
Yagorlytska Bay with adjacent coast and Adzhigol Site	Ramsar site, Black Sea Biosphere Reserve
Tendrivska Bay	Ramsar site, Black Sea Biosphere Reserve
Dzharylgachska Bay and Dzharylgach Island	Ramsar site, Dzharylgach botanical zakaznik of state importance
North Karkinitsky Complex	Ramsar site
Western Sivash	Ramsar site
Central Sivash	Ramsar site, Azov-Sivash National Park (island Churyuk, island Kuyuk-Tuk)
Eastern Sivash	Ramsar site

Table 15. Number and distribution of waterfowl species listed in the Red Book of Ukraine on wetlands of Kherson Oblast.

Species	Wetland						
	1	2	3	4	5	6	7
Pelecanus onocrotalus	8	1		95	1167	94	290
Phalacrocorax pygmaeus	5	432	600		2		
Ardeola ralloides		40	4				4
Platalea leucorodia				3	70	26	
Plegadis falcinellus					7		22
Ciconia nigra					1		
Aythya nyroca		27	4				
Somateria mollissima	72			557	276	4	3
Mergus serrator				6	20		2
Grus grus					5	7	
Charadrius alexandrinus	6				150	118	38
Himantopus himantopus	17			69	20	6	8
Haematopus ostralegus	4			3	130	55	23
Tringa stagnatilis				6	9		
Numenius arquata				2	243	8	2
Numenius phaeopus					39	6	
Glareola pratincola							6
Larus ichthyaetus	5			48			26
Hydroprogne caspia	3	1		2	9		21

Notes: 1- Dniprovsky Liman, 2 - Dnipro River Delta, 3- Left-bank ‘sagi’ of Dnipro River (eastern part of the Dnipro Delta and western part of Lower Dnipro), 4- Yagorlytska Bay with adjacent coast and Adzhigol Site, 5 - Tendrivska Bay, 6 - Dzharylgachska Bay and Dzharylgach Island, 7- North Karkinitsky Complex

Adequate protection of waterfowl and their habitats requires the same measures as for the previously mentioned Oblasts.

Zaporizhzhya Oblast

The region includes very important wetlands: Molochny Liman and Utlyuksky Liamn, lake Sivashyk and Obitochna Spit. In a breeding period the most important areas are Molochny Liman and Obitochna Spit, with annually observed colonial settlements of herons, Common Tern and Sandwich Tern, Kentish Plover, Black-winged Stilt, Oystercatcher, Collared Pratincole.

In summer and autumn in water bodies located in the south of the region concentrate in large numbers of mute swan, a White-fronted Goose and Graylag goose, river ducks (mallard, wigeon), pochards (pochard, Tufted Duck, Scaup), Goldeneye; waders (Dunlin and Curlew Sandpiper, Redshank, Grey Plover, Curlew and others). It should also be emphasized that the Azov-Black Sea wetlands of Zaporizhzhya Oblast represent the highest indices of biodiversity: Utlyuksky Liman - 63 species, Lake Sivashyk – 56, Obitochna Spit - 42, Molochny Liman - 39. In August there were recorded 16 species listed in the Red Book of Ukraine (Table 17).

Table 16. List of wetlands included in the nature reserve fund or in Ramsar Sites.

Wetland	Protected zone
Utlyuksky Liman with Fedotova Spit and Biryuchy island	Ramsar site, Azov-Sivash National park (Biryuchy island), Hydrological zakaznik of state importance “Fedotova Spit”
Lake Sivashik	Hydrological zakaznik of state importance “Fedotova Spit”, "Sivashik"
Molochny Liman with Molochnaya River Mouth	Ramsar site, Hydrological zakaznik “Molochny Liman”, Ornithological zakaznik “Tashchenaksky Pod”, Landscape zakaznik “Stepanivska Spit”
Obitochna Spit and Obitochna Bay	Ramsar site, landscape zakaznik of state importance "Obitochna Spit"
Berda River Mouth, Berdianska Spit and Berdianska Bay	Ramsar site, zakaznik of state importance "Plavni of Berda River", zakaznik of local importance "Head/front edge of Berdianska Spit”

Table 17. Number and distribution of waterfowl species listed in the Red Book of Ukraine on wetlands of Zaporizhzhya Oblast.

Species	1	2	3	4	5
Platalea leucorodia				2	1
Plegadis falcinellus	12			1	2
Ciconia nigra			8		
Tadorna ferruginea				11	
Bucephala clangula			1		
Mergus serrator					4
Grus grus					32
Charadrius alexandrinus	2			9	3
Himantopus himantopus	122		4	15	18
Haematopus ostralegus		21	25	6	97
Tringa stagnatilis	5			116	148
Numenius arquata	9		38	35	186
Numenius phaeopus				8	4
Glareola pratincola	1			27	2
Larus ichthyaetus			1	1	2
Hydroprogne caspia			1	7	18

To maintain biodiversity the following measures are proposed:

The most important wetlands (Molochny Liman, Utlyuksky Lyman Lake Sivashyk, Obitochna Spit) should be included in future Priazovsky National Park.

to provide tighter control over fishing activities on the waters of lakes, to prevent possibility of loss of significant numbers of sea ducks (pochards).

to restrict tourist visits to areas of bird breeding in a period of maximum recreational activity (all wetlands).

Donetsk Oblast

In breeding period wetlands of the Oblast (spits of the Azov Sea) are among the most important breeding areas of terns (Sandwich Tern, Common Tern, Little Tern) and waders(Kentish Plover, Collared Pratincole, Oystercatcher).On Kryva Spit there is recorded one of the largest post-breeding aggregations of the Great Black-headed Gull, in which there were 1213 individuals.

Table 18. List of wetlands included in the nature reserve fund or in Ramsar Sites.

wetland	Protection status, protected zone
Bilosaiska Bay and Bilosaraiska Spit	Ramsar site, Regional landscape park "Bilosaraiska Spit"
Kryva Bay and Kryva Spit	Ramsar site, Regional landscape park "Kryva Spit"

Table 19. Number and distribution of waterfowl species listed in the Red Book of Ukraine on wetlands of Donetsk Oblast.

Species	Wetland	
	Bilosaiska Bay and Bilosaraiska Spit	Kryva Bay and Kryva Spit
Burhinus oedicnemus	1	
Charadrius alexandrinus	1	10
Himantopus himantopus	2	2
Haematopus ostralegus	24	29
Tringa stagnatilis		20
Larus ichthyaetus		1213
Hydroprogne caspia		1

To provide adequate protection of waterfowl there is a need of further development of infrastructure of regional landscape park "Meotida" and expansion of its territory.

Crimea

Most wetland of the Crimea are characterized with the highest indices of biodiversity (Eastern Sivash - 81 species, the South Karkinitsky complex - 71, Central Sivash - 68, West Sivash - 53). In a breeding period Sivash, as the most important wetland, supports populations of Anseriformes (mute swan, graylag goose, duck river, red-crested pochard), ibises (Spoonbill, Glossy Ibises), Ciconiiformes (herons), Charadriiformes (terns, gulls, waders). The coastline of Tarhankut Peninsula is one of the most important breeding places of Shag, while Kerch Peninsula is important for

Ruddy Shelduck. In August, wetlands of the Crimea play a leading role in preserving the species listed in the Red Book of Ukraine (table 21).

Table 20. List of wetlands included in the nature reserve fund or in Ramsar Sites.

wetland	Protection status, protected zone
South Karkinitsky complex	Ramsar site, department of Crimean natural reserve "Lebyazny Islands", ornithological zakaznik "karkinitsky" and Regional landscape park "Baikalska Spit"
Central Sivash	Ramsar Site, Azov-Sivash national park
Arabatska Strelka	Zakaznik of state importance "Arabatsky"
Eastern Sivash	Ramsar site, territory reserved for establishment of Sivash national park
Lake Donuzlav	Landscape zakaznik of local importance (north-eastern part of the lake)
Lake Aktash with Astanino Plavni	Kazantip Natural Reserve, ornithological zakaznik of state importance "Astanino Plavni"

Table 21. Number and distribution of waterfowl species listed in the Red Book of Ukraine on wetlands of Crimea.

Species	Wetland					
	1	2	3	4	5	6
Pelecanus onocrotalus		5518			1454	
Phalacrocorax pygmaeus		101				
Ardeola ralloides		116			3	
Platalea leucorodia	1	228	128		6	
Plegadis falcinellus	25	889	358		103	
Ciconia nigra					0	
Tadorna ferruginea		2		2		
Aythya nyroca		5			5	
Bucephala clangula		1				
Somateria mollissima						1
Mergus serrator		1			18	
Grus grus	12	56	414			
Anthropoides virgo		2	814			
Burhinus oedicnemus		3	5			
Charadrius alexandrinus	43	857	13	2	106	4
Himantopus himantopus	42	262	724	16	18	17
Haematopus ostralegus	2	459	19		37	1
Tringa stagnatilis		1904	30	150	48	
Numenius arquata	73	726	78		115	6
Numenius phaeopus	2	27			1	
Glareola pratincola	47	386	297		245	11
Larus ichthyaetus	13	29	54			
Hydroprogne caspia		1115	47		401	

Notes: 1 – Western Sivash, 2 – Eastern Sivash, 3 – Central Sivash, 4 - Lake Aktash with Astanino Plavni, 5 – South Karkinitsky complex, 6 – wetlands of Tarkankut Peninsula.

To provide adequate protection of waterfowl the following measures should be taken:

The most important wetlands should be included in future Sivash National Park (islands of Lake Aigul, Chongarsky Islands, Dzhankoyska Bay, Kalinovsky Bay, Salgir River Mouth, Indolska Bay, some areas of Arabatska Strelka).

provide tighter control over fishing activities on water bodies of Sivash, Karkinitsky Bay, wetlands of Tarhankut and Kerch Peninsulas, especially in summer and autumn, to prevent the possibility of loss of significant numbers of sea ducks (pochards) and the Shag.

to restrict tourist visits to areas of bird breeding in a period of maximum recreational activity (Arabatska Strelka).

to carry out annual complex biotechnical activities in game husbandries to improve breeding of waterfowl species (development of artificial open water stretches in game husbandries by mowing plots of surface vegetation).

carry out constant control to prevent taking of clutches and chicks of rare species.

contribute to successional changes in structure of habitats.

3.2 Research, counts and monitoring

Organization of waterbird counts

Methodical approaches on organization and execution of seasonal counts of birds are presented in relevant publications and based on generally accepted method of counts of waterbirds. Main publications are as follows:

Scientific Program on Monitoring and support of biological diversity in wetlands of Ukraine. "Branta", the Azov-Black Sea Ornithological Station. - Melitopol, 1995 .- 299 pp.

Programme and Action Plan for Waterbird Monitoring in the Azov-Black Region of the Ukraine.Wetlands International-AEME / Azov-Black Sea Ornithological Station. - Kyiv, 2000. - 75 p.

Methods of inventory and estimation of current state of biodiversity in natural complexes and landscapes, necessary for development of regional ecological networks. "Branta", the state department for environmental protection in Zaporozhye region. – Melitopol-Zaporizhzhya, 2007. - 125 pp.

For the large-scale synchronized counts at the Azov-Black Sea coast of Ukraine there were developed additional organization measures methodological approaches which included:

background for the timing of counts

development of criteria for selecting areas or wetlands (the importance of a water body for seasonal distribution of birds, presence of annual monitoring of ornithofauna or the real possibility of its organization in future)

preparation of a list of wetlands which should be counted

division of wetlands into separate areas

identification of number of mobile groups, their leaders and counters

development of working scheme for use of cars, boats for mobile groups and separately for each wetland

Carrying out of a training with the counters to agree on methods of counts and scheme of works

Preparation of standardized cards, forms to fill in and design of reports.

Special researches connected with hunting

There are almost no special researches connected with hunting in Ukraine. However in recent years (2004-2006), in Azov-Black Sea wetlands, such works were implemented by the Azov-Black Sea Ornithological Station, and other research units of the Ministry of Education and Science. Major works were carried out as a part of the GEF project "Conservation of biodiversity in the Azov-Black Sea Corridor" № TF028267UA.

Among these researches the following should be mentioned:

Project "Assessment of resources for game waterfowl at Sivash in autumn-winter period and priding recommendations on their rational use in game husbandries of the Crimea.". The main objectives of the project were to assess diversity and distribution of game waterfowl in wetlands of Sivash and in the surrounding area to identify the most important places of seasonal distribution of birds and develop recommendations for their rational use in game husbandries of the Crimea.

Project “Development of the project for internal organization of hunting for the Crimean Republican Union of hunters and fishermen”. The project area was Dzhankoysky Rayon, Dzhankoyskaya Bay, which is a part of the territory of future National Natural park "Sivashsky”.The objectives of the project included the development of recommendations for the rational use of natural resources, protection and restoration of hunting and fishery resources, optimizing the functioning of game husbandries.

Project "Biodiversity Assessment of migratory waterfowl in wetlands in the corridor and identification of important areas of seasonal distribution, feeding and ways of movement". In our view the latest project for the first time in Ukraine evaluated the number and distribution of gamebirds in the Azov- Black Sea region of Ukraine. Maybe this is the first project also in the Black Sea basin. The obtained materials are of great importance to start planning resource management of game species and protection of migrating birds.

The basis of reporting was the results of bird counts, which were held from 10 to 23 August 2004. The counts covered about 400 monitoring plots in 58 wetlands or complexes of wetlands in southern Ukraine. In addition to the Azov-Black Sea Ornithological Station, the counts were participated by representatives of 7 areas of the natural reserve fund of the Southern Ukraine: Danube Biosphere Reserve, the

Black Sea Biosphere Reserve, Biosphere Reserve Kherson,regional landscape parks Kinburnska Spit, Granite-Steppe Pobuzhe, Meotida and Odessa Zoo. In a total the expedition was participated by 66 people, and generally in the implementation of the project there were involved about 90 people. According to its scale is the largest Action of bird counts in Eastern Europe. The main results of the project are presented below.

Monitoring (status and problems)

The overall status of biodiversity monitoring in Ukraine.

At the state level, the organization of works on the conservation and monitoring of biological diversity is defined by relevant departments of the Ministry for Environmental Protection. Agencies that conduct monitoring of biodiversity are: the State Forestry and Hunting Committee, the State Committee of Fisheries, Ministry of Agriculture and Food, the State Committee for Land Resources, the State Committee for Water Management, State Committee of geology. Initiative researches related to inventory and monitoring of biodiversity are provided by scientific institutions and research centers of the National Academy of Sciences, Institute of the Ministry of Education and Science.

Today, in Ukraine there are few scientific programs for monitoring biodiversity. Among the specialized programs that are implemented or recommended to the implementations are the following:

"Chronicle of nature" - the annual summary of data on the number of animals and plants, biological diversity, dynamics of ekosystems.It is conducted by Nature Reserves.

Program of monitoring biodiversity of marine ecosystems that have been developed by State Committee for Fisheries, are implemented by 'AzPivdNIRO' (Berdiansk) and 'YugNIRO' (Kerch) in water bodies of Azov-Black Sea coast of Ukraine.

Program "Monitoring and support of biological diversity in wetlands of Ukraine", developed in 1995 by a team of scientists of National Academy of Sciences, Ministry of Education and Science under the guidance of the Azov-Black Sea Ornithological Station. When creating this scientific program it was taken into account integral values of wetlands among other natural systems and especially their functional interaction with the anthropogenic environment. The structure and content of the program is adapted to international conventions and is the first comprehensive national review of monitoring biodiversity in wetlands.

"Programme and Action Plan for Waterbird Monitoring in the Azov-Black Sea Region of Ukraine" was published also in English in 2000 for countries of the Black Sea region. The program was created in 1998 with the assistance of Wetlands Internationl-AEME and the Azov-Black Sea Ornithological Station, and focused on monitoring of waterfowl. The programme was prepared in the context of implementation of Ukraine obligations to the Ramsar Convention,

to facilitate its participation in Bonn Convention and in the Agreement on the Conservation of African-Eurasian Migratory Waterbirds.

South Ukraine has formed a quite solid information base for implementation of regional monitoring. Among the main sources of information should be noted:

Black Sea biological diversity, Ukraine (1998);

Black Sea Red Data book (1999);

IBA areas: areas, important for conservation of species diversity and abundance of birds (1999);

Biodiversity in the Crimea: evaluation and needs of conservation (1997);

Developing priorities: a new approach to conserving biodiversity in the Crimea (1999);

Biodiversity of the Danube Biosphere Reserve, conservation and management (1999);

Distribution of waterbirds at Sivash in summer-autumn period (1999);

Winter counts of birds along the Azov-Black Sera coast of Ukraine (1999, 2000, 2001);

Number and distribution of breeding waterbirds in wetlands of the Azov-Black Sea coast of Ukraine (2000)

Counts and ecology of waterbirds in the Sivash, Ukraine (2001).

Implementation of bird monitoring in the region

Until the present time, there is no national system of bird monitoring in Ukraine, but a draft of the Law on monitoring biodiversity is already under discussion. However, at the regional level and in some departments of ministries and other institutions, monitoring of birds are held, though in different volumes and intervals.

The long-term monitoring of bird diversity is provided in nature reserve areas in a form of the long-term review called “Chronicles of nature” and is obligatory. Such institutions as the Danube Biosphere Reserve, the Black Sea Biosphere Reserve, Sivash National Park, Tiligulsky Regional Landscape Park, the Regional Landscape Park “Meotida” conduct such monitoring.

In the Azov-Black Sea Ecological Corridor Regional ornithological monitoring (ROM) is provided. The leading agency on organization and implementation is the Azov-Black Sea Ornithological Station. In the Azov-Black Sea region almost all scientific institutions are involved in ROM. According to ROM results four ROM Bulletins has been issued already. In our view, this is the most promising monitoring of birds in the Azov-Black Sea Ecological corridor, which engages different institutions into co-operation on a contractual basis.

The principal founder of many years databases (own and regional ones) on seasonal diversity of birds, their number and distribution is the Azov-Black Sea Ornithological Station. Main monitoring plots are located in 7 wetlands of South Ukraine (Dzharylgachska Bay, Western Sivash, Central Sivash, Eastern Sivash, Molochny Liman, Obitochna Bay, Berdianska Bay). Databases on bird monitoring contain about 180,000 records. Accumulated data are the base for the creation of “Monitoring Service for gamebirds” both at the regional level and in some Oblasts.

The most important works in the Azov-Black Sea Ecological Corridor are:

- Estimation of the number of migrating waders at Sivash and their protection (WIWO-Foundation Working Group International Wader and Waterfowl Research, The Netherlands), the Azov-Black Sea Ornithological Station, 1992, 1993, 1996)
- Estimation of the number of birds breeding in wetlands of the region (the organizer and coordinator - the Azov-Black Sea Ornithological Station, 1993)
- Inventory of colonies of waterbirds to prepare their monitoring (finances and organization activities - Wetlands International - AEME, 1998)
- August counts of seasonal concentrations of birds at Sivash (financed by the MATRA Fund / Programme International Nature Management (PIN) Ministry of Agriculture, Nature Management and fishery and the Ministry of Foreign Affairs of the Netherlands, organization activities - the Azov-Black Sea Ornithological Station, 1998)
- Estimation of number and distribution of August seasonal concentration of birds in wetlands of the region (financed by GEF, organization activities - the Azov-Black Sea Ornithological Station, in 2004, 2006)
- Wintering of waterbirds in wetlands of the region (finances and organization activities - Wetlands International, the Azov-Black Sea Ornithological Station, 1998 -2008)
- Evaluation of numbers of breeding Cormorants in wetlands of the region (Azov-Black Sea Ornithological Station, organization activities - Wetlands International, the Azov-Black Sea Ornithological Station, 2008)

Monitoring of some taxonomical groups of birds in the regional wetlands is carried out both at the state (areas of nature reserve fund), and initiative levels, and includes:

- waders (migration) - Azov-Black Sea Ornithological Station, Odessa University
- Cormorant (breeding, seasonal distribution) - the majority of scientific institutions in the region, reserve areas
- gulls (breeding) - Azov-Black Sea Ornithological Station, the Danube and Black Sea Biosphere Reserves, the Regional Landscape Park "Meotida"
- Geese and ducks (migration, wintering) - Azov-Black Sea Ornithological Station, Odessa University, the Danube and Black Sea Biosphere Reserves, the Regional Landscape Park "Meotida", NGOs

Some works on monitoring of individual species in the region are carried out not regular and mostly related to the following species:

- Bustard - estimation of species in wintering areas, the coordinator Yu. Andryushenko
- Red-breasted Goose - estimation of species in wintering areas and during migration, the coordinator JE Andryushenko
- Shag - estimation of numbers in breeding areas, coordinator M.M. Beskaravainy

Approaches to implement ornithological monitoring in different seasons

The experience of ornithological monitoring at the Azov-Black Sea station encourages the necessity to define clearly the different categories. For example, the large area of land for the monitoring works is often divided into smaller parts. Large sectors of land are often referred to some small, but morphologically outlined parts of large bays (eg. Sivash, Karkinitsky or Tendrivsky Bay), large accumulative spits are also designated as wetland sectors as they are different in habitats comparing with the main water body (for example Arabatskaya Strelka, Tendra, Lebedivska, Obitochna and other spits). In addition, the sector may be divided into separate smaller monitoring (inventory) plots, which is very convenient for a detailed ornithological or other functional zoning, monitoring of habitats, breeding populations and so on.

Combining individual wetlands in larger complexes and groups is quite artificial, but it is a practical and useful approach in monitoring. Often these complexes (experience of use of wetland complexes are well-known for Bulgaria, Georgia and other Mediterranean countries) form close, perhaps genetically linked in the past, water bodies, which in their modern form has hydrological and landscape-biotopic differences. Quite often this is due to human activities and transformation of the landscape. In this respect, a model for the region is Shagani-Alibei-Burnas Complex; Dniester Liman with interfluval areas of the Dniester and Turunchuk and Kuchurgansky Liman; lakes Yalpug, Kugurlui and Kartal. Developing complexes for the Azov-Black Sea coast is not finished or moreover perfect and is under development.

Wetland groups include geographic “wetlands-neighbours”, scheme of their investigation as well as the ornithological situation is quite similar, and therefore in the process of monitoring it is advisable to investigate them together. In addition, wetland groups are useful and convenient when comparing ornithological situation over the large area.

Tables 22 and drawings 10-12 use an attempt to rank wetlands according to the above-mentioned scheme taking into account their role in support of number and diversity of waterfowl.

Table 22. Identification of key wetlands in the corridor for organization of continuous monitoring (numbers given according to data of August 2004)

Species	Numbers	Support of 75% numbers	Support of 50% numbers
Fulica atra	233299	Western Sivash Utlyuksky Liman South Karkinitsky complex North Karkinitsky Complex Lake Yalpug Dniester Liman complex	Western Sivash
Philomachus pugnax	172799	Eastern Sivash Central Sivash South Karkinitsky complex	Eastern Sivash
Phalacrocorax carbo	157222	Eastern Sivash Utlyuksky Liman Outer Danube Delta Tendrivska Bay Obytochna Bay and Obitochna Spit	Eastern Sivash Utlyuksky Liman Outer Danube Delta

Species	Numbers	Support of 75% numbers	Support of 50% numbers
Larus ridibundus	148670	Eastern Sivash Utlyuksky Liman Central Sivash Lake Shagany Molochny Liman Big Adzhalyk Tyligulsky Liman Yagorlytska Bay and Lake Adzhygol Lake Sasyk Dniprovsky Liman Outer Danube Delta Lake Dzhantsheisky and Maly Sasyk Alibei Liman Lake Katlabuh Lake Sivashik	Eastern Sivash Utlyuksky Liman Central Sivash Lake Shagany Molochny Liman
Anas platyrhynchos	127745	Outer Danube Delta Eastern Sivash Utlyuksky Liman South Karkinitsky complex Lake Sivashik Lake Sasyk Kryva Bay and Kryva Spit	Outer Danube Delta Eastern Sivash
Anas querquedula	63473	Eastern Sivash Central Sivash Outer Danube Delta Stensovsko-Zhebriyansky Plavni Lake Aktash with Astanino Plavni Utlyuksky Liman	Eastern Sivash Central Sivash
Larus minutus	48177	Kuyalnitsky Liman	Kuyalnitsky Liman
Larus genei	48540	Western Sivash Eastern Sivash South Karkinitsky Complex	Western Sivash Eastern Sivash
All species listed in Red Data Book in Ukraine	40783	Eastern Sivash Outer Danube Delta Central Sivash Kinburnska Spit South Karkinitsky Complex Tendrivska Bay Kryva Bay and Kryva Spit Lake Sasyk Yagorlytska Bay and Lake Adzhigol	Eastern Sivash Outer Danube Delta Central Sivash

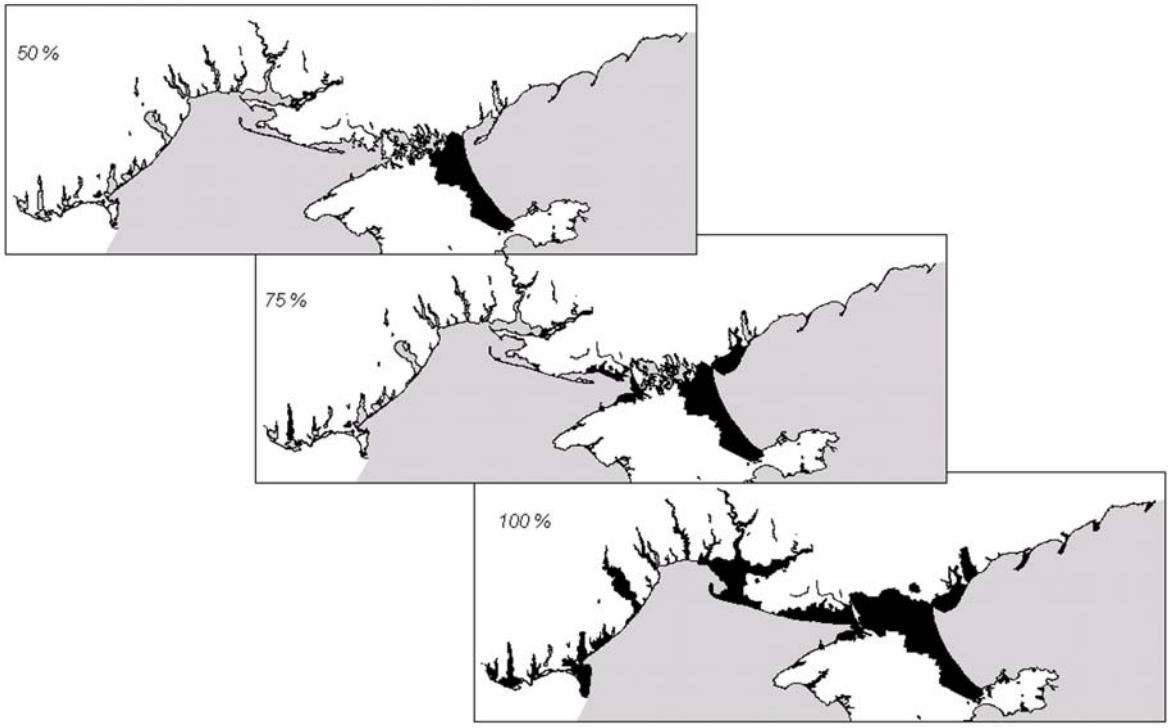


Fig.10. Importance of wetlands in supporting Coot numbers

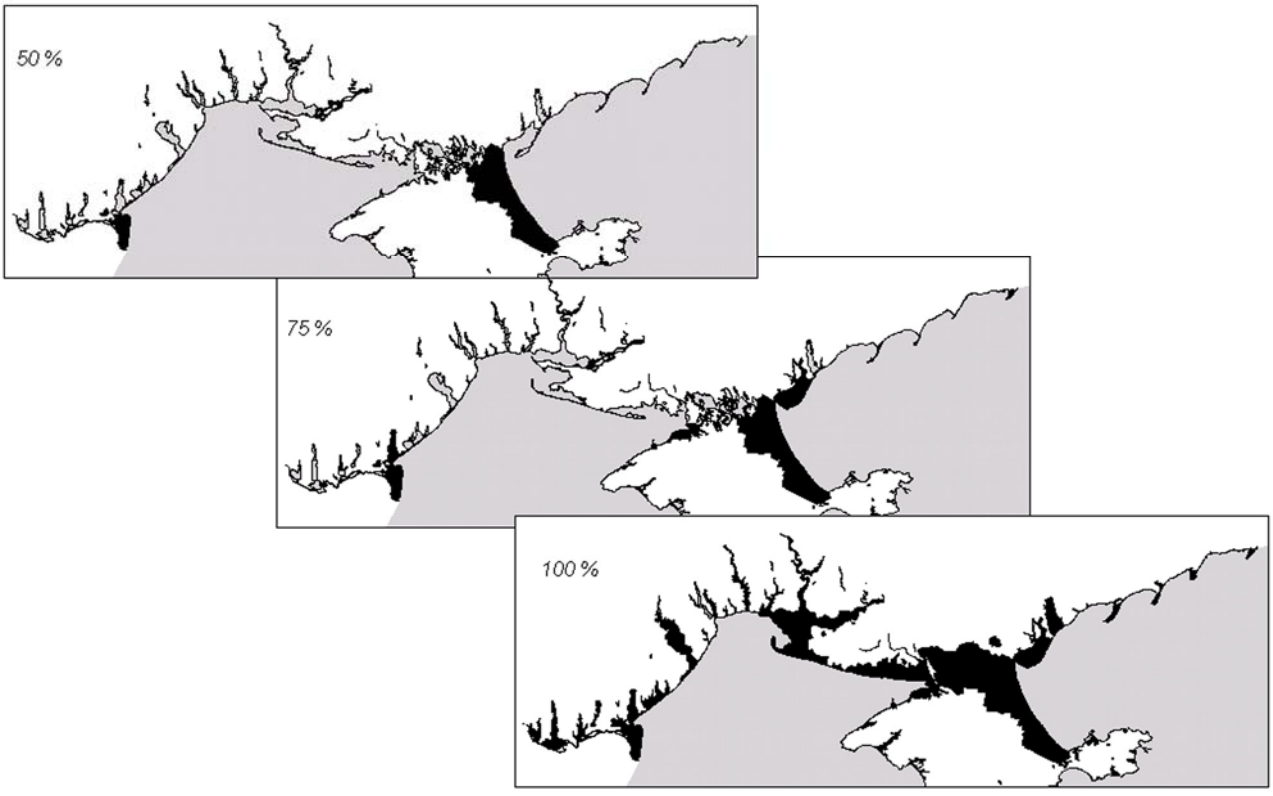


Fig.11. Importance of wetlands in supporting Mallard numbers

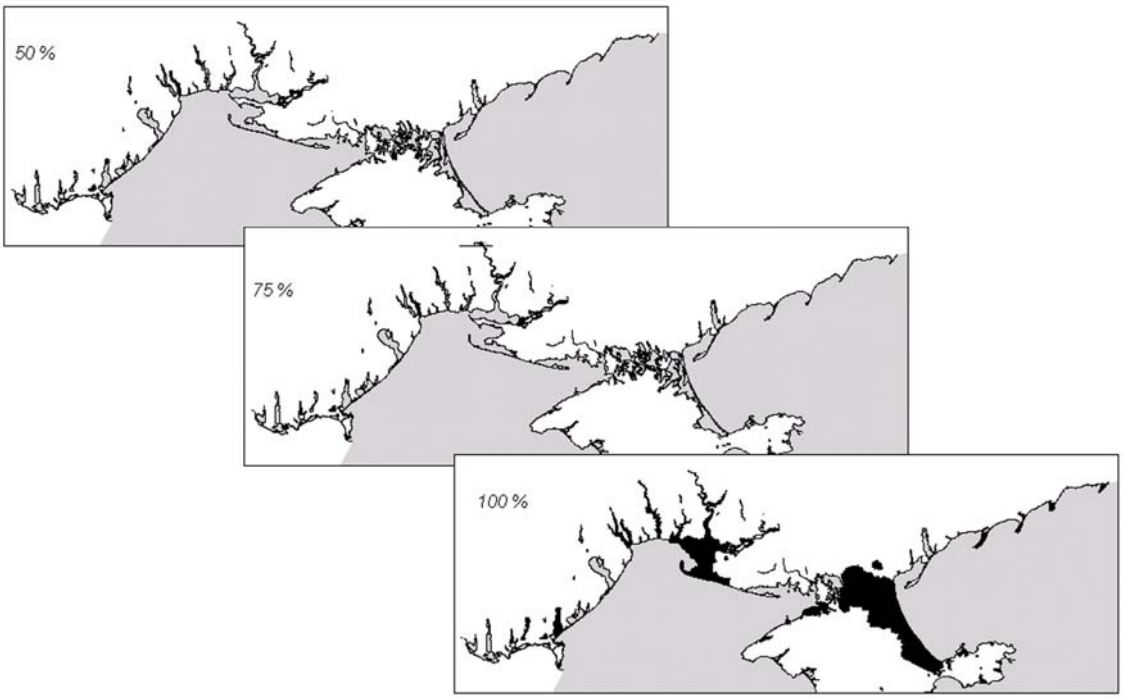


Fig.12. Importance of wetlands in supporting Little Gull numbers

From the table 22 the role of individual wetlands is well seen, above all on the example of distribution of numerous species. Among the 101 species registered only 10 had overall numbers exceeding 40 thousand, 5 of which exceeded the 100-thousand barrier. It's quite indicative that Eastern Sivash supported 50% of the total number for 7 numerous species and for the majority of rare species. Outer Danube delta took second place in this respect. Utlyuksky Liman and Central Sivash took the third, and Western Sivash, Kuyalnytsky Liman and Molochny Liman took the fourth place. A few number of wetlands also support 75% of numbers of numerous species.

Analysis of significance of the different wetlands of the Corridor in supporting rare species of birds can be seen in the table 23.

Table 23. Importance of individual wetlands of the Corridor in supporting diversity of the species listed in the Red Data Book in Ukraine (according to the number given in August 2004).

Wetland or wetland complex	A	Number of species	%
Eastern Sivash	8	21	87,5
Kinburnska Spit	5	17	70,8
Outer Danube Delta	5	16	66,6
South Karkinitsky Complex	5	15	62,5
Tendrivska Bay	3	14	58,3
Utlyuksky Liman	5	13	54,2
Central Sivash	4	13	54,2
North Karkinitsky Complex	1	12	50,0

Wetland or wetland complex	A	Number of species	%
Lake Sivashik	1	12	50,0
Lake Sasyk	1	11	45,8
Yagorlytska Bay and Lake Adzhygol	2	10	41,6
Western Sivash Complex	1	10	41,6
Lake Shagany	1	9	37,5
Alibei Liman	1	9	37,5
Dzharylgachska Bay and Dzharylgach Island	0	9	37,5
Dniester Liman Complex	1	8	33,3
Dniprovsky Liman	1	8	33,3
Tyligulsky Liman	1	7	29,2
Stensovsko-Zhebriyanski Plavni	1	7	29,2
Lake Kugurlui	0	7	29,2
Molochny Liman and Molochnaya River	1	7	29,2
Adjacent water area of Tarkhankut Peninsula and Lake Dzharylgach, Lake Yarylgach, Lake Panske	0	6	25,0
Lake Yalpug	1	6	25,0
Lake Kartal	0	6	25,0
Lake Kagul	0	6	25,0
Lake Dzhantsheisky and Maly Sasyk	1	6	25,0
Kryva Bay and Kryva Spit	2	6	25,0
Berda River Mouth, Berdianska Spit and Berdianska Bay	0	6	25,0
Shpindiar Site	0	5	20,8
Plavni of Lower Dniester	0	5	20,8
Dnipro River Delta	0	5	20,8
Pond near village Yachmennoye	0	4	16,6
Lake Kitay	0	4	16,6
Lake Katlabuh	1	4	16,6
Lake Burnas with Alkalia River Mouth	0	4	16,6
Lake Aktash with Astanino Plavni	0	4	16,6
Maly Adzhalyk	0	4	16,6
Bilosaraiska Bay and Bilosaraiska Spit	0	4	16,6
Lake Donuzlav	0	3	12,5
Left-bank "sagi" of Dnipro (eastern part of Dnipro River Delta and western part of Lower Dnipro)	0	3	12,5
Ali-Bai dry area	0	3	12,5
Tubalsky Liman with river mouths	0	2	8,3
Lake Tuzlovske or Solonets	0	2	8,3
Kuyalnitisky Liman	1	2	8,3
Budaksky Liman	0	2	8,3
Khadzhibeisky Liman	0	1	4,2
Lower reaches of Beresansky Liman	0	1	4,2
Lake Ustrichny with adjacent lands	0	1	4,2
Obitochna Spit and Obitochna Bay	1	1	4,2
Total of "Red Data Book" species		**24**	**100**

Notes: A – index, showing number of numerous species which the wetland support on 75%, relevant lines are coloured in grey.

% - per cent of "Red Data Book" species registered in wetlands in comparison with general numbers of waterfowl, listed in the Red Data Book of Ukraine (1994).

Thus, at least 27 wetlands (coloured lines) worth being monitored annually, and not only in the summer-autumn season, and for 49 wetlands monitoring should be provided once in two or three years.

Ornithological monitoring in natural areas of South Ukraine should be conducted on the basis of the ecosystem approach.There is a reason to develop recommendations for organizing and conducting monitoring not only for birds, but also for other groups of biota, separate groups of landscape, indicators of the state of natural and transformed ecosystems. Taxonomic approach is also based on identification of important and model objects of plant and animal world for the Azov-Black Sea coast of Ukraine, including the species and groups with significant numbers, local and wide distribution, which are indicators of the state of natural systems and individual groups, many of mass species, especially piscivorous,game species and others, economic important species of birds, rare and endangered species of flora and fauna that are the most typical for the region are engendered in Ukraine, or represent a significant portion of a particular geographic population.

Identifying gaps in the existing monitoring system

The main gaps in the current system of biodiversity monitoring are:

- No agreed system of coordination between research institutions and agencies which activities are connected with the protection and use of resources;
- there annual Regulation on monitoring of biodiversity;
- there is a need to harmonize major components of the national legal base in accordance with international requirements;
- low efficiency of state funding, while the efficiency of financial income from abroad on these types of work is almost nonexistent;
- there is no clear identification of users of biodiversity monitoring system at the state level;
- Organizations that are subjects of monitoring the environment have closed formats of databases on environmental monitoring;
- Lack of field and technical equipment for works connected with study of biodiversity and conduct of monitoring;
- Insufficient number of specialists, textbooks, methodical guides, lack of subjects and educational programs in the areas of biodiversity, taxonomy, monitoring biodiversity and the environment.

Identification of ways and mechanisms to fill gaps in monitoring of biodiversity

Main proposals for the study of biodiversity and its monitoring:

- Creation of national coordinating councils for implementation of the Ramsar Convention on wetlands of international importance, Bonn Convention on the Conservation of Migratory Species of Wild Animals and agreements on the Conservation of African-Eurasian Migratory waterbirds, the Bern Convention on the conservation of European wildlife and Natural habitats, CITES "Convention on International Trade in endangered species of wild fauna and flora;

- At the regional level to develop long-term and operational monitoring plans;
- to make list of institutions and organizations which can be potential executors(implementers, realizers) of monitoring works;
- Coordination of work between the subjects of environmental and institutions involved in biodiversity monitoring;
- Approval of leading agencies, coordinating and executing the work on study of biodiversity and implementation of monitoring;
- Creation of multilevel complex of scientific programs on monitoring of biodiversity for main landscape-biotopic complexes in accordance with signed international agreements and European Strategy for Conservation of Biological and Landscape Diversity (coastal and marine; River and related wetlands; inland (overland) wetlands);
- Preparation of species monitoring programs which primary objective is the conservation of rare and endangered species of plants and animals based on centers of their concentration and zones of risk. Development and implementation of a series of practical measures for protection and reproduction of species that are endangered at national and international levels;
- Development of the regulations and the establishment of a comprehensive electronic information system (via websites) on biodiversity of individual areas, landscape units, taxonomic groups and species;
- Development of multi-level monitoring system for various types and forms of monitoring, which requires a unified system of the listing and scheme of collecting parameters for different levels of monitoring, as well as determination of the quantitative characteristics of monitoring indicatorstheindices, creation of database management systems in the process of monitoring;
- Creation of a uniform computer database on GIS-basis.

4 Waterbird hunting in the Azov-Black Sea region

4.1 Historical perspective

In 1862 for the first time in Russia there was founded Moscow Hunting Union named after the Emperor Alexandr The Great. Alexandr the Great founded also Kazan Union. After the Russian Socialist Revolution in 1917 this union became a public organization.

The most popular NGO, included a great number of people was Ukrainian Union of Hunters and Fishermen founded on 10th July, 1921, in Kharkiv. That time the first journal of Elizavetgrad Union of Hunters and Fishermen also appeared, titled "Hunting and Fishing". It was the first edition in Ukraine, which quickly became popular in different regions of Ukraine, and played a great culture-and-awareness role. Everywhere 'nature corners', and 'museums of nature' were founded, active workers of the Union and teachers provided lectures on nature conservation among young people.

Then this organization became a victim of Josif Stalin's regime. However, in 1946 Ukrainian government made a resolution about organization of Ukrainian voluntary Union of Hunters and Fishermen. It was a period of restoration of this organization. The first session of the Union was in Kyiv in 1947. The Statute was approved and ways of the Union's revival identified.

Due to effort of local people several experimental game husbandries were created.

The game husbandry "Katerinka" (UUHF of Mykolaiv Oblast Council) in 1959 kept 1,500 pheasants, 13 roe deers, 200 hares, 50 foxes. The Union brought and settled game fauna, carried out activities to save game animals during floods, and in the process of building large water reservoirs at the Dnipro/Dnieper.

In several oblasts new boating stations were built, and new boat berths, including well-equipped berth for 1,200 boats of UUHF of Zaporizhzhya City Council.

The most fruitful activity in this direction was provided by City Councils of UUHF in Zaporizhzhya, Kharkiv, Poltava and Dnipropetrovsk Oblasts. A wide network of specialized shops of UUHF was developed, 177 shops in 1967. Under UUFH it was carried out active activity aimed at involvement of local people, awareness and promotion.

1970-1980s can be considered as next period of the UUFH development. These years were the most favourable for improvement of all spheres of UUHF activities. From 1973 to 1984 in close cooperation with scientists there have been implementing different guides and recommendations of 32 project themes relating to different spheres of hunting economy.

During the same period there were permanent refresher training courses at the base of Lviv Forest-and-Technical University and Zaporizhzhya State University. These courses played a great and effective role in education of personnel and game managers. It was the background when main current specialists and staff of leaders of UUHF obtained their skills.

In February 2000 the Supreme Council (Verkhovna Rada) of Ukraine included in legislation juridical, economical and organization principles of activities of legal and private entities in hunting economy in Ukraine.

4.2 Hunting as a socio-economic activity

Hunting in Ukraine is of great socio-economic and recreational importance. More than half of million persons have a hunting certificate and most of them are members of non-governmental hunting associations. These people annually pay to Ukrainian governmental budget for control cards of shot birds, fines if they offence hunting rules, membership fees to hunting association. They buy licenses and special 'shooting cards' to shoot wild animals and bids, buy ammunition and equipment, bird models, clothes, boots, etc.) This way they make contribution to hunting industry.
Hunters go in for hunting for recreation, only partly for subsistence, because shot game (meat) cannot compensate costs spent for hunting (fees, 'shooting cards', ammunition, guns, etc. etc.)

4.2.1 Information about hunters

Above 520,000 hunters are registered in Ukraine, among them about 300,000 take part in hunting season. Information about numbers of hunters employing different hunting methods is absent.
As a rule most hunters take part in opening hunting season for waterfowl (second Saturday of August) and hunting for fur-bearing animals (European brown hare). In other period of hunting their numbers are much smaller.
During hunting of waterfowl along the Azov-Black Sea wetlands, hunters shoot birds from hunter's hides during their morning and evening flights using models of ducks and gun dogs, and in meadows when waterfowl is on feeding.

4.2.2 Hunting techniques

According to the Law of Ukraine "About Hunting Economy and Hunting" hunting is executing only by following means:

- Individual hunting
- Collective hunting

For hunting it is used hunting guns, gun dogs, other hunting animals and birds, decoy-ducks and geese.
In south Ukraine hunting for waterfowl is individual, guns are used for birds. Hunters make hides in reedbeds or on boats, use decoy-ducks or rubber (plastic) models and calls. There are no regional differences in hunting techniques.

4.3 Hunting legislation

4.3.1 Legal and illegal hunting

Illegal hunting covers the following:

1. hunting without permissions, which include:
   - Hunting certificate; annual 'control card for shot game and offences of hunting rules' with a mark certifying that a hunter paid governmental taxation; permission for hunting on game animals (license, 'shooting cards', etc.); permission for use a fire-gun; passport for a hunting dog or other hunting animal certifying that a hunting with this animal is permitted in this current year;
   - hunting for animals which are not included in lists of permitted game animals or if the volume of bags exceed the approved limits.
2. hunting in areas where the hunting is prohibited, namely
   - in territories and objects included in nature reserve fund of Ukraine, where the hunting is prohibited
   - in areas of game husbandries specially designated for restoration
   - in settlements (villages, towns, cities), except for cases, specially mentioned in decrees of Council of Ministers of Autonomous Republic of Crimea, oblast council, city councils of Kyiv and Sevastopol;
   - in game husbandries not listed in permission
   - at the distance less than 200 m from buildings of a settlement of single buildings where presence of people is possible;
3. hunting in banned period, namely:
   - out of periods open for hunting for certain species of animals;
   - out of daylight (later than one hour after sunset and earlier than one hours before sunrise)
4. hunting with use of banned equipment or by prohibited means, namely
   - limesticks, meshes/loops, undercuts, hooks, pitfall traps, self-firing units/arbalests;
   - poisonous and anesthetic baits;
   - alive blind or crippled animals as decoys;
   - sound-producing devices;
   - electric devices for bagging birds;
   - artificial sources of light, devices for highlighting of targets, including noctovisors;
   - mirrors and other devices that dazzle/blind animals;
   - explosive materials;
   - from moving auto-moto-transport as from swimming vehicles with working engine;
   - from airplanes and helicopters;
   - use of non-hunting (including military) fire-guns, pneumatic and other shooting arms, and rifled, semi-automatic or automatic guns with magazines with more than 2 cartridges;
   - damage of animal houses, beaver's houses, bird nests;

- use of gas and smoke;
- filling of animal holes with water;
- and also there is prohibited to hunt for :
- animals which are in danger (saving from fire, inundation; are getting across water or ice);
- for birds when using rifled weapon

5. transportation or moving/transferring of bags/animals or their parts not marking this fact in the hunting permission
6. releasing of dogs in hunting grounds without supervision
7. hunting with violation of hunting rules approved for a certain area (region, game husbandry, etc.)
8. hunting for banned animals
9. collecting bird eggs, dead animals or their parts, damage, destruction or spoiling of artificial nests, salinity, feeding racks/mangers for animals, plantations of forage crops, hunting towers, indicating marks, relevant signboards or other attributes of hunting economy.

4.3.2 Hunting periods

According to the Law of Ukraine “On hunting economy and hunting” the hunting periods/hunting seasons are the following:

- For the Great Crested Grebe and ducks (except for Goldeneye, White-eyed Pochard, White-headed Duck, Ruddy Shelduck, Shelduck, Eider, Smew, mergansers), Coot, Moorhen, Water Rail, waders (except for Oystercatcher, Black-winged Stilt, Avocet, curlews, gulls, Stone Curlew, pratincoles, Marsh Sandpiper, Turnstone, Green Sandpiper, Common Sandpiper, Wood Sandpiper, Kentish Plover, Little Ringed Plover, Greater Sand Plover, Ringed Plover), pigeons (except for Stock-dove) – in August-December;
- For geese: Greylag Goose, White-fronted Goose, Bean Goose – in August-January;
- For Partridge, Chukar, Pheasant, Hazel Grouse, Black Grouse – in October – December
- For Quail – in August-October
- Hunting during hunting season can be executed in all days of week.
- Hunting periods (the date of start/opening and the date of end/closing of hunting for a certain species of animals, certain days of hunting) and hunting rules are determined by a relevant central department of executive authorities of hunting economy in agreement with a relevant central department of executive authorities of environmental protection, other interested central and local bodies of executive authorities. After that this information disseminate to users of hunting grounds and local people.

Hunting regions and specific conditions

Waterfowl is hunted along the Azov-Black Sea coast of Ukraine. This area is an integral territorial-habitat complex. It includes coasts of two seas with a system of limans, bays and adjacent agricultural lands.

Basing on this facts, specific conditions developed as follows:

individual type of hunting

only fire-arms are used for birds

hunters camouflage themselves in hides in reedbeds or on boats

decoy ducks or rubber (plastic models) and calls are used

4.3.3 Hunting economy

Hunting tourism

Hunting tourism in Ukraine only starts developing. It can be divided as internal (in Ukraine) and external (outside Ukraine).

In Ukraine the hunting is organized for both Ukrainian and foreign tourists. In general, foreign tourists hunt for geese, ducks, quail, woodcock, hoofed animals (deer, wild boar). Hunting conditions for foreigners, days of hunting, norm of bags/animals, payment for services and bags are regulated by relevant agreement between foreigners or legal persons which organize their hunting and game husbandries. The base for these regulations are annual orders of State Committee of Forestry of Ukraine such as “About order and terms of hunting” and “Rules for organization of hunting and services for foreign tourists-hunters”.

Prices are regulated by the order of State Committee of Forestry of Ukraine “About price limits for hunting trophies, hunted by foreigners and prices limits for services given to them”.

Ukrainian hunters go to Belorus and Russia to hunt for goose, woodcock, wood grouse, mallard and males, because spring hunting in Ukraine is prohibited.

Official data on numbers of tourist agencies specialized in hunting tourist or on numbers of tourists-hunters are absent. Only scarce data are available.

Large tourist agencies specialized in hunting and fishing tourism are ‘Safari-Ukrayina’, ‘Myslivsk’ki podorozhi’, ‘Myslyvturservis’, ‘Kashtan’, etc. which organized hunting for waterfowl in Azov-Black Sea wetlands. The most visitable areas are wetlands in Odessa, Kherson Oblasts and Crimea AR.

Hunting as an economic activity

Hunting as an economical activity include:

- management of hunting economy as a branch of national economy of Ukraine
- commercial activity connected with hunting and sale of hunting arms, cartridges, equipment, etc.
- organization of hunting tourism, accompanying services (hotels, rent of boats, transport)
- restoration and breeding of hunting species of waterfowl and their further release in hunting grounds

Main part of economical activity is management of hunting economy, comprising infrastructure, staff, hunting grounds, and state hunting fund.
Hunting economy in Ukraine include the area of 47.2 mln ha, given to different land users: of them 35 mln ha (73.9%) are given for Ukrainian Union of Hunters and Fishermen (UUHF); 6.4 mln ha (13.5%) are given to enterprises of State Committee of Forestry in Ukraine; 860,000 ha (1.8%) are for Union of Military Hunters and Fishermen; the rest of 5.1 mln ha (10.8%) are divided among 225 other land users (mainly private enterprises and non-governmental hunting associations. In a total, 910 legal persons are involved into hunting economy (fig. 13).

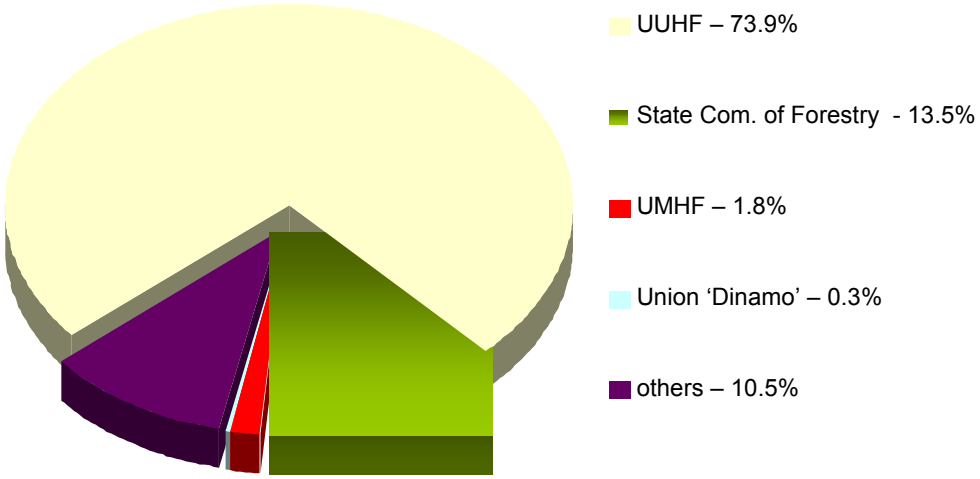


Fig. 13. *Hunting economy in Ukraine*

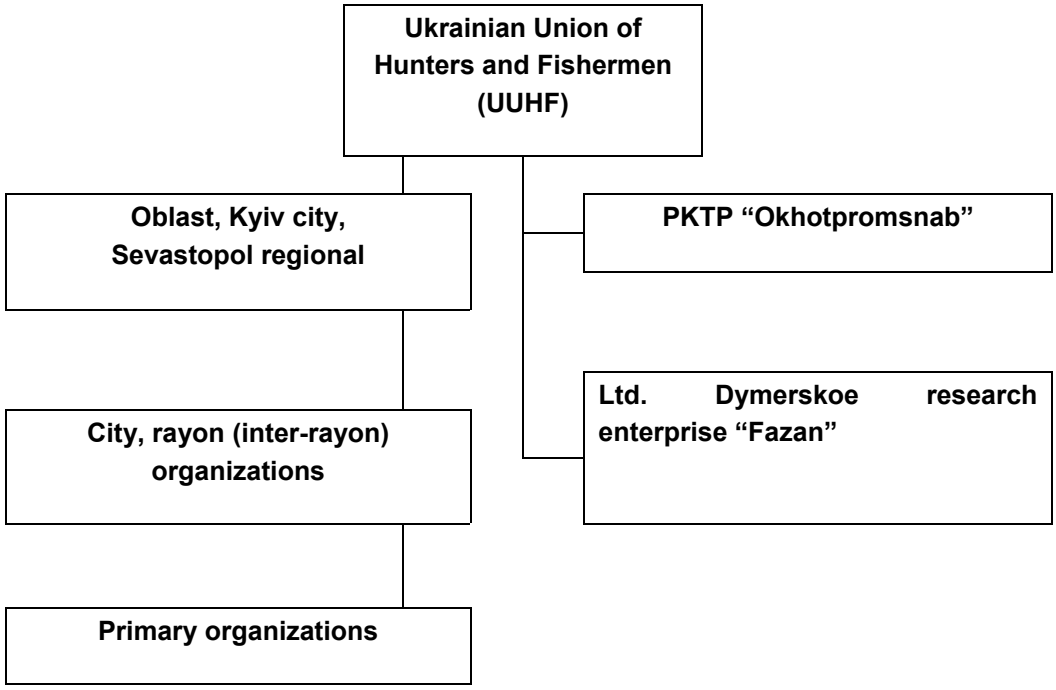
Over 520,000 hunters are officially registered in Ukraine, of them about 300,000 take part in a hunting season.
Hunting economy has about 6,000 workers, of them 600 game managers and 4,100 game-keepers. In average, there is one game-keeper for 11,600 ha of hunting grounds.

Hunting industry engages a lot of people. It begins with the Management Board of Hunting Economy of State Committee of Forestry, Oblast management boards of Forest and Hunting, with departments of hunting economy or experts. Ministry of Nature of Ukraine is responsible for governmental control of hunting industry. All these structures are financed at the expense of state budget of Ukraine.

Non-governmental hunting associations:

Ukrainian Union of Hunters and Fishermen (UUHF)

Structure of the union



As a rule rayon/district organizations, and sometimes oblast organizations are engaged into hunting industry. At this they assign/allot 20% of the sum of annual and entrance membership fee to oblast organizations of the union, and oblast organizations in their turn assign 20% of payments received to all-Ukrainian Council of UUHF. The Union of Military Hunters and Fishermen has a similar system, the only difference – they united according to military 'okrugs' (districts).

These unions are financed at the expense of membership fee and economical activity (hunting and fishery).

At this period, general expenses of own funds of land users of hunting grounds for hunting industry increased twice – from 26.4 mln UAH to 70.1 mln UAH. Receipts of money (services) from hunting industry increased from 12.6 mln UAH to 35.2 mln UAH (2.8 times). Pay-back of the hunting industry keeps as 50% (receipts – 35.2, expenses – 70.1 mln UAH). Hunting industry is unprofitable for most of users.

4.3.4 Legislation

Hunting for commercial trade

Hunting for commercial trade is not practiced in Ukraine

Hunting on endangered species

Hunting on endangered species is banned by current laws of Ukraine. However, facts of shooting of these species are known in the region.

Use of lead shot

Only lead shot is used in Ukraine, because only lead shot is sold in Ukrainian hunting shops (made in Ukraine, Russia, Germany, Czech republic, France, etc). And the main reason is that all guns produced in the former USSR, Russia or are imported now from abroad are designed only for cartridges with lead shot.

Use of steel shot according to European experience is a prospective, but needs a long transition period.

Birds killed as pests (e.g. cormorants)

Birds killed as pests are Hooded Crow, Magpie, Rook. These species and their shooting is regulated by Article 33 of Law of Ukraine “Shooting and catching of predators and pests, hunting for game animals with scientific aim, resettlement of game animals in new habitats”.

Shooting and catching of these species are executed by hunters during hunting according to permissions of the Directorate of game husbandries during hunting for other species of hunting animals. Shooting and catching of these species out of hunting seasons or in areas where hunting is prohibited can be executed by hunters according to permission of local bodies of State Forestry Committee, in reserved areas – according to permissions of local bodies of Ministry of Nature of Ukraine, when a statement is applied to these bodies from the Directorate of game husbandries.

Migratory species hunted

Migratory species are hunted in Ukraine from August to January inclusively.

Hunted migratory species are: geese (Greylag Goose, White-fronted Goose, Bean Goose), ducks (except for Goldeneye, White-eyed Pochard, White-headed Duck, Ruddy Shelduck, Shelduck, Eider, Smew, mergansers), and also Quail and Woodcock.

Hunting periods depend on migratory waves. What does it mean? When the weather begins to get worse in Siberia and North Kazakhstan wild ducks and then geese start migrating, flying across the Azov-Black Sea coast of Ukraine. Birds stop for rest and feeding at wetlands, where they are hunted. The migration starts late October-early November. After that a part of waterfowl continues migration further to the south, and a part winters in Ukraine if the weather is favourable.

Cultural aspects of hunting

Hunting for waterfowl is of cultural importance in Ukraine. Start of hunting season is celebrated by hunters, usually at the second Saturday of August. Hunters cook various dishes from waterfowl, mainly 'shurpa' (soup).

Other traditions are almost lost or are practiced only be a small number of hunters.

Captive breeding and release programmes

There is no governmental programme for gamebirds breeding in Ukraine. To-date, there are designed oblast programmes on development of hunting economy according to decision of the Collegium of State Forestry Committee of Ukraine.

The only acting programme in Ukraine is the developed and approved programme "Programme of development of hunting economy in Poltava Oblast for 2008-2013". This programme foresees creation of complex centers for restoration of main species of animals including purchase of mother/parental livestock population.

Almost all game husbandries breed game animals and release them into the wild. They do this work at their own expenses or at sponsor/s' cost. Among gamebirds the mallard and pheasant are released.

Until the present moment Ukraine has three big farms of gamebirds, where mallards and pheasant are bred. They are "Fazan" (of UUHF structure, Kyiv Oblast), "Starobeshevo" (UUHF structure, Donetsk region), "Kholodnaya Gora" (State Forestry Committee, Crimea). However, last two farms works not at full capacity or changed their profile.

Besides, there is a farm on breeding mallard and pheasant belonging to Ltd "Safari-Ukraina" (game husbandry "Rakytne", Kharkiv region). During 2006-2008 there were bred 32,000 young pheasants and 37,000 young mallards. They were released into hunting grounds of "Rakytne" or sold to other game husbandries.

4.4 Research on waterbird hunting

Protected areas

Each game husbandry has an approved scheme of dividing the territory into zones and project of their management. Zones include hunting areas and reproduction areas of game animals (for one or several species). Reproduction areas take at least 20% of the whole territory of game husbandry.

Reproduction area is created by heads of game husbandry for at least 3 years to reproduce and increase numbers of game animals. In this area hunting is totally prohibited. Economical activities in reproduction zones are agreed with the administration of hunting economy.

Apart from this, areas of natural reserve fund also can be included in game husbandries.

The following areas cannot be used as hunting grounds: areas within natural reserves, reserved zones of biosphere reserves, reserved zones and zones of

regulated recreation of national natural parks, ‘zakazniks’ (small reserved areas), and nature monuments of ornithological, general zoological importance, and reserved sites.
Territories of other ‘zakazniks’ (landscape, forest, botanical, hydrological, geological etc.), if included in hunting grounds, are recommended to use as reproduction areas.

Number of bags per year (per region)
In the end of hunting season all game husbandries prepare reports on hunting. The report includes numbers of main species of game animals, results of hunting and introduction, and financial reporting of game husbandry. However, this report does not include detailed division of waterfowls per species, and a wetland of shooting or catching is not mentioned.
This information is partly mentioned in control cards of counts of shot and captured animals. As an example, we present below statistics for a wetland “Molochny Liman” for 2000-2004.
At Molochny Liman the hunting is executed only in three game husbandries (husbandries are divided into numerated sites for convenience). These game husbandries are “Komyshy” (Melitopol State forest-game husbandry, 193 numerated sites, all hunting season), “Rozhok” Union of Hunters and Fishermen called “Oleksandrivka”, 25 numerated sites, all hunting season), and “Peresyp” (department of UUHF in Yakymivka Rayon, 20 numerated sites, hunting from November to December). Duration of the whole hunting season is from August to January inclusively, hunting is three days a week. During one hunting season usually 900 hunter’s cards are given.

In hunting seasons of 2000-2004 at Molochny Liman there were shot/captured:

Geese: - 346
Shovelers -158
Pintails -46
Waders -250
Teals - 1049
Coots - 330
Mallards - 1563
Moorhens - 26
Pochard (Aythya ferina) - 74
Other pochards - 230
(see fig.2.8.5.2)

Comparing data of counts and data of bags we can see that only 10-20% of the total game waterfowl in the wetland are bagged.
For Molochny liman use of game resource corresponds to capacity of the wetland. Number of the bags does not bring about reduction of numbers of these bird groups. Also it is difficult to use more volume of the resources because birds mostly keep open stretches of water, where they are hunted more difficult than along the coastal shallows.

Hunting resource at Molochny Liman is rather stable, but last 50 years we observe the insignificant trend of reducing. It is connected with reduction of bird feeding base because of changes in hydrological regime (irregular functioning of local water draw).

Problems regarding hunting for red list species or rare species

Most red list species of waterbirds are migrants, often they are in mixed flocks with other birds (geese and ducks). They are Red-breasted Goose, Lesser White-fronted Goose, duck species included in the red Data Book of Ukraine)

They can be shot because of the following reasons:

- impossible to identify the difference between red list species and others during early morning of late evening
- hunters do not know/do not identify red list species
- impossible to identify rare and red list species
- impossible to provide real protection by game-keepers hunting grounds and provide governmental control by governmental bodies

There are facts of illegal bagging of rare and red list species in Ukraine.

4.5 Administration and management of hunting

4.5.1 National legislation and regulations

Responsible authorities (organisations and responsibilities)

Relations in subdivision of organizations and their control are regulate by laws of Ukraine “About hunting economy and hunting”, “About Animal World”

Hunting economy are regulated and managed on governmental level by:

- Cabinet of Ministers of Crimean AR;

Local state authorities;

- State Committee of Forestry and Hinting Economy
- Ministry of Environmental Protection

Implementation of hunting economy are controlled on governmental level by:

- State Committee of Forestry and Hinting Economy
- Ministry of Environmental Protection

Users of hunting grounds are game husbandries, and other enterprises, organizations and associations which have special departments for implementation of hunting economy and have hunting grounds given in their use.

There are three types of game husbandries in Ukraine:

- State game husbandries are mostly subdivided to State Committee of Forestry of Ukraine. Directors of game husbandries are appointed by the head of the Committee. They work by contract. These game husbandries are subdivided to State Committee of Forestry of Ukraine and its regional departments.
- Collective game husbandries – mostly included in the structure of UUHF and UMHF of Military Forces of Ukraine.

Besides, some collective game husbandries are not included in these structure, they are separate.

Private game husbandries – privately owned enterprises, Ltd., clubs.

Directors are appointed by owners of enterprises.

The main control structure is State Committee of Forestry. And oblasts have Oblast management boards of forestry and hunting economy.

Status of hunting management in the Azov-Black Sea region

Today there is no single approved system of methods of counts of game species in Ukraine. Development of this system is an urgent task, necessary for sustainable hunting and using of the resource.

Each oblast carries out counts according to local approved scheme.

As for Zaporizhzhia oblast game husbandries make counts of game species in wetlands in second half of July and in March. It is according to oblast approved scheme, and they involve experts of the Azov-Black Sea Ornithological Station.

Based on count data, before the start of the hunting season ornithologists experts give background for hunting, its periods of volume of hunting/hunting pressure.

Annually experts of the Azov-Black Sea Station determine numbers of waterfowl per species, which was possibly hunted in each wetland.

When the hunting season is finished, game husbandries submit reports to control bodies about numbers of hunted birds per species.

The counts are controlled by oblast departments of State Committee of Forestry and Ministry of Nature. Basing on results of counts they give a conclusion if they correspond to existing methods of counts.

Besides, game husbandries submit summarized report on hunting economy, where they mention numbers of bags, to oblast departments of State Committee of Forestry. Departments also summarize these reports and submit a general oblast report to the State Committee of Forestry.

Rules, regulations and guidelines for hunting

Rules, regulations and guidelines for hunting regulate some parts of hunting economy (for example, designation of reproduction sites). There are approved by one order or joint orders of some governmental bodies. They can be national or oblast, and are obligatory for all game husbandries.

This issue is controlled by State Committee of Forestry and Ministry of Nature, and their oblast departments.

Hunting periods (exact date of opening and closing of hunting for exact game species, days of hunting) and procedure are determined by a relevant central executive body of hunting economy and agreed with a relevant central executive body of environmental protection, also with other interested central and local executive

authorities. Information about these approved hunting periods communicates to users of hunting grounds and local people.

Legislation and law enforcement

In Ukraine hunting economy is regulated by 12 laws and acts.

Principal are Ukrainian Laws “About Hunting Economy and Hunting”, “About Animal World”, “About Environmental Protection”.

The law of Ukraine “About Hunting Economy and Hunting” determine legislative, economical and institutional aspects of hunting economy, provides equal rights for all users of hunting grounds in hunting economy, protection, use and reproduction of animal world.

The law of Ukraine “About Animal World” regulates issues of protection, use and reproduction of animal world, which live in nature, half-captivity or captivity, on land, in water or air, inhabit Ukraine territory permanently or temporary or belong to natural resources of its continental shelf and partly marine economical zone.

The law of Ukraine “About Environmental Protection” regulates protection, use and restoration of natural resources, ecological security, prevention and removal of negative affects of state and other activity on environmental protection, conservation of natural resources, genetic nature fund, landscapes and other natural complexes, unique areas and natural objects connected with historic and cultural inheritance.

Relations in sphere of environmental protection in Ukraine are regulated by this latter law and also by legislations developed correspondingly to it – land laws, water laws, forestry laws, laws on the interior of the Earth, laws on protection of atmosphere air, laws on protection of plant and animal world, and by other special laws.

Permits licenses and fees

Birds are hunted by special permission – ‘permits shooting card’.

License is given for hunting of wild boar, fallow deer, red deer and dappled deer, roe deer, elk, moufflon, squirrel, bobac, nutria, common marten and stone marten, American mink, polecat.

'Shooting card' is used for birds, European rabbit, European hare, raccoon dog, wolf and fox.

Wolves are also allowed to be hunted if a hunter has a licence or shooting card for other game species.

Licenses are given to hunters by game husbandries. Game husbandries receive them from Oblast Departments of State Committee of Forestry.

Shooting cards are given to hunters by a user of hunting grounds.

Licenses and shooting cards given to hunters mention period and place of hunting taking into account limits of hunting of game animals and capacity of hunting grounds.

According to article 18 “Prices of permits for hunting of game species”, Charter 3 “Hunting” of Law of Ukraine “About hunting economy and hunting” it is approved that prices of licenses for game animas are stated by State Committee of Forestry in agreement with Ministry of Finances.

Price of shooting cards is determined by a game husbandry in accordance with local body of Ministry of Finances.

Designation of game species and bag limits

According to the Law of Ukraine hunted bird species are:

Permitted species are:

- Great Crested Grebe
- ducks (except for Goldeneye, White-eyed Pochard, White-headed Duck, Ruddy Shelduck, Shelduck, Eider, Smew, mergansers)
- Coot, Moorhen, Water Rail, waders (except for Oystercatcher, Black-winged Stilt, Avocet, curlews, gulls, Stone Curlew, pratincoles, Marsh Sandpiper, Turnstone, Green Sandpiper, Common Sandpiper, Wood Sandpiper, Kentish Plover, Little Ringed Plover, Greater Sand Plover, Ringed Plover), pigeons (except for Stock-dove)
- Geese: Greylag Goose, White-fronted Goose, Bean Goose
- Partridge
- Chukar
- Pheasant
- Hazel Grouse
- Black Grouse
- Quail

Hunting of other hunted animals are regulated by norms of shooting, approved for hunting season by a relevant central executive body of environmental protection and by a relevant central body of hunting economy and hunting in Crimea, oblasts, Kyiv and Sevastopol.

Norm of getting of gamebird by a hunter for one day of hunting is fixed by annual order of State Committee of Forestry and usually it should not exceed the following:

- Geese – 3
- Ducks – 5
- Coots – 7
- Waders – 10
- Pigeons – 15
- Quails – 15
- Partriges – 3
- Pheasants – 3

Norm of getting by a hunter for one day of hunting the gamebird raised in a farm and then released to hunting grounds is fixed by the user of hunting grounds.

Species harmful to agriculture or safety

Waterfowl can harm agriculture only during migration. Geese and ducks feed on agricultural fields mainly on winter wheat. Depending on their number and period of staying harm can be considerable. Nobody estimates the volume of harm because nobody compensate loss to agriculture caused by waterfowl.

Designation of hunting grounds

Hunting grounds are areas of land or water, inhabited by game animals or animals that can be used for hunting economy.

Permitted or forbidden species

Permitted species are: Great Crested Grebe, ducks (except for Goldeneye, White-eyed Pochard, White-headed Duck, Ruddy Shelduck, Shelduck, Eider, Smew, mergansers), Coot, Moorhen, Water Rail, waders (except for Oystercatcher, Black-winged Stilt, Avocet, curlews, gulls, Stone Curlew, pratincoles, Marsh Sandpiper, Turnstone, Green Sandpiper, Common Sandpiper, Wood Sandpiper, Kentish Plover, Little Ringed Plover, Greater Sand Plover, Ringed Plover), pigeons (except for Stock-dove)

Geese: Greylag Goose, White-fronted Goose, Bean Goose

Partridge, Chukar, Pheasant, Hazel Grouse, Black Grouse and Quail

Other species are forbidden

Fines or other penalties for illegal hunting

Violation of legislation in a sphere of hunting economy and hunting entails disciplinary, administrative, civil or criminal legal liability in accordance with the laws of Ukraine.

The prosecution of violators to justice does not free them from liability to restore the damage caused by these violations.

Illegally shot hunting animals or products made from them, and also equipment with whith the law was violated are confiscated according to the law.

In case of confiscation of alive hunting animals, illegally shot or acquired in other way, there must be taken measures to preserve them and, if possible, return to the natural environment.

Compensation of damage caused by violations of the law in hunting economy and hunting, is done voluntarily or by order of the Ukrainian court according to the legislation and prices approved for such a compensation.

Prices for calculating the size of damage caused by violations of the law in hunting economy and hunting, are approved by Ministry of Nature in agreement with State Committee of Forestry and the Ministry of Finance.

If illegally taken hunted product cannot be confiscated (if used for personal purposes or became unfit for use by fault of offender) the offender must cover its cost, which is calculated based on market prices for meat, leather, fur and other raw materials of high quality, according to current prices for the moment of compensation, in such amounts (at least):

Swan, bustard: meat - 5 kg;

capercaillie, geese: meat - 3 kg;

black grouse, pheasant, European rabbit: meat - 1 kilogram,
ducks, coot: meat - 0.5 kilograms,
and other small gamebirds: meat - 0.3 kilograms.

Control of hunting practices

The control of hunting practices is executed by the State Committee of Forestry and Hunting and the Ministry of Environmental Protection. In the oblasts the control is executed by oblasts departments of Forestry and Hunting, departments of Environmental Protection and state ecological inspections.

These bodies have staff of workers and conduct special raids to check hunters, they also check hunting activity of each game husbandry.

Monitoring of bags

Monitoring of is as follows.

Hunters mark out their start of hunting in the control card, and when they finish hunting they mention numbers of bags per species in this control card and in their shooting card too.

After the end of hunting season, hunters exchange their control cards in oblast Departments of Forestry, and shooting cards they give to administration of game husbandries. Game husbandries generalize the data on bags and submit reports on the number of bags per species to supervisory bodies.

In addition, the game husbandry submit a summarized report on hunting activity, with the number and amount of bags to the regional departments of State Committee of Forestry. Which in turn also summarizes it and submit this report to State Committee of Forestry.

Ringing records from hunted birds

Hunters, in case of getting birds with rings, send these rings to the Azov-Black Sea Ornithological Station, the Ukrainian Ringing Center or to the administration of game husbandries.

Finances of hunting administration

Departments of Hunting Economy of State Committee of Forestry, oblast Departments of Forestry and Hunting, which has hunting departments or experts of Ministry of Environmental Protection, which is responsible for implementing state control of hunting activity are funded by the state budget of Ukraine. Ministry of Nature and its regional departments are also funded by state budget.

As a rule rayon/district organizations, and sometimes oblast organizations are engaged into hunting industry. At this they assign/allot 20% of the sum of annual and entrance membership fee to oblast organizations of the union, and oblast organizations in their turn assign 20% of payments received to all-Ukrainian Council of UUHF. The Union of Military Hunters and Fishermen has a similar system, the only difference – they united according to military ‘okrugs’ (districts).

These unions are financed at the expense of membership fee and economical activity (hunting and fishery).

Private game husbandries are financed at the expense of funds of their owners.

Regional legislation and regulations related to hunting of migratory waterbirds

Local game husbandries: policy, activities and aims

Policy of local hunting is aimed at rational and sustainable conducting of hunting economy in compliance with the requirements of current nature conservation legislation. Activities are aimed at providing services for the conducting of hunting, and obtaining profits from economic activities in this field.

Responsible local or regional (Oblast) authorities

In each of the five Oblasts and Crimean AR there are governmental bodies of State Committee of Forestry and Hunting economy of Ukraine. They are Oblast Departments of Forestry and Hunting (in the Crimea this is Republican Committee of Hunting Economy), and also the Ministry of Environmental Protection in Ukraine - State Departments of Environmental Protection and the State Ecological Inspectorates (in Crimea this is Republican Committee of Nature).

In rayons there are relevant (inter-rayons) game managers and rayon (inter-rayons) State Environmental Inspectorates.

Communication, reporting and responsibilities to national government

The government i.e., the Cabinet of Ministers carries out state control and regulation of hunting, it has a separate government body for conducting of hunting activity, namely the State Committee of Forestry and Hunting Economy. It determines the order and forms of reporting of game husbandries to it, and it itself reports to the government about conducting og hunting economy.

Governmental control over the conduct of hunting are executed by:

The State Committee of Forestry and Hunting Economy

Ministry of Environmental Protection.

In the end of hunting season all game husbandries prepare reports on hunting. The report includes numbers of main species of game animals, results of hunting and introduction, and financial reporting of game husbandry. However, this report does not include detailed division of waterfowls per species, and a wetland of shooting or catching is not mentioned.

Game husbandries of UUHF submit monthly, quarterly and annual reports to oblast organizations, and they, in turn, reports to the all-Ukrainian Council of UUHF. The simiar system is in UMHF.

5 Discussion, conclusions and recommendations

5.1 Discussion

Although some information on the status of waterbirds in the region exists, this often only exists for specific sites and for specific times. Comprehensive information on the numbers, distribution and trends of waterbirds species throughout the region are essential if the potential effects of hunting are to be accurately assessed. Similarly, information on the levels, locations and types of hunting is sparse. More information about the birds being hunted and the locations at where this happens is needed to be able to assess any potential effects on the waterbirds.

To support any outcomes of the result of monitoring programs a strong legislative framework is needed, which when implemented will support the aim of sustainable waterbird hunting throughout the region.

5.2 Conclusion and recommendations

5.2.1 Legislative and implementation gaps

Does the existing legislation provide an adequate framework for the implementation of sustainable hunting of migratory birds? Existing legislation is adequate, but not a full framework for the implementation of sustainable hunting of migratory birds, namely:

Existing legislation does not make difference between hunting on released and migratory game birds (norms of shooting are the same, days of hunting are also the same, hunting grounds capacity is calculated without taking into account the migratory birds, counts are carried out by game husbandries and local game animals are counted)

There is no single approved method for counts of waterfowl in Ukraine, so a considerable error is possible in assessing the resource of hunted waterfowl, there is a problem of monitoring of status of the resource by supervisory bodies

Game husbandries have a request to expand the list of species of waterfowl permitted for hunting (for example, Mute Swan and Cormorant).

Gaps:

A lack of integration between different parts of the legislation, connected with hunting. The State Committee of the Forestry and Hunting Economy controls activities of hunting economy, though its structures (State Committees of Forestry, game husbandries) also conduct hunting economy.

Penalties are inadequate to current situation, particularly for natural reserve areas.

Not all legal acts are agreed with/correspond to the requirements of the Law of Ukraine on “hunting and hunting economy”.

Data are not updated regularly in the field of hunting economy and hunting, so effects cannot be monitored

There is lack of scientific basis, resulting in inadequate or incomplete data on the status of bird populations of waterbirds in Ukraine.

There is a need for improvement of hunting legisalation.

National gaps:

Various government agencies are responsible for the same activities (Control of hunting economy are as well executed by State Committee of Forestry as the Ministry).

There is no single organization that represents the interests of all hunters.

Fines and penalties rather are insignificant, as well as implementation of penalties in court for violations of environmental laws is weak.

Low awareness of hunters about decreasing populations of migratory birds.

Research, monitoring, gathering data is often poor and scattered, and implemented by various organizations that use different methods. There is a the lack of mechanism for integration and summarizing of results.

Lack of a national development program for the hunting economy in Ukraine.

Regional gaps:

Research, monitoring, collection of data are insufficient and scattered, there is a need for collecting data for implementing rational hunting.

missing or incomplete data on the sizes of populations of game species of birds, hunted birds per species, the impact of hunting on rare species of birds .

Lack of management mechanisms for the exchange of data. There is a need for the establishment and management of database with information on regional ways of migration, etc.

There is a need to raise regional awareness, improving and standardizing collection of data, and their exchange within the region, Ukraine and European countries.

5.2.2 Short-comings in the current information on waterbirds

Lack of nationally coordinated waterbird monitoring

Currently, no national bird monitoring scheme exists in Ukraine, however, some monitoring is undertaken at a number of regional or site-based institutes. This lack of a central monitoring scheme increases the chance that any monitoring within the region is undertaken using different methods and also that data are not comparable between sites. The coordination of counts is essential in ensuring that data are comparable across the region and between years. Basic information, such as whether the count included all species within the area and if all of the area was counted is vital for the comparison of counts and the estimation of waterbird numbers and trends.

The coordination of waterbird counts also has the advantage that data can be stored centrally and in a standardised format, meaning that data can be retrieved and

analysed more readily. This may also increase the cooperation and collaboration between regional monitoring institutions.

Although the current level of waterbird monitoring in some areas is sufficient, in many areas monitoring data are lacking. Ideally regular monitoring should be undertaken on all areas, but not practised. Counts could, therefore, be undertaken at a number of sample areas, which should be representative of the areas across the region and should include both hunted and non-hunted areas. Monitoring should also be carried out throughout the crucial periods for waterbirds, including the migratory and wintering periods. Internationally recognised methods of counting, data collection and data storage should be followed to ensure that data are comparable in an international context.

Recommendation
The development of a commonly approved monitoring system and improved coordination between institutions involved with monitoring across the regions is an urgent task, necessary for sustainable hunting and the use of this resource.

Up-to-date information on the status of waterbirds
Although sufficient data exist for some areas, widespread coordinated counts are less frequent. The last synchronised survey of breeding waterbirds was undertaken over ten years ago, while winter counts were undertaken over three years ago. Regular and up-to-date information on waterbird numbers across the regions are essential for estimating trends and distributions and to assess any potential effects of hunting.

Recommendation
Regular counts, particularly from key wetlands as well as from a representative sample of other wetland sites should be carried out, ideally throughout the year but certainly throughout the main migratory and wintering periods, to ensure that up-to-date information on waterbirds is available.

Information of waterbird species shot per wetland
Currently, information on hunting activity, such as the numbers of quarry species bagged, is reported by game husbandaries. These seasonal reports do not include, however, information for individual wetlands or on the hunting methods used.

It is essential that data on hunting activity are collected in a way that it is comparable to count data so that any possible effects of hunting can be assessed. In particular, details of the numbers and locations of each species bagged will provide important information for assessing the effects of hunting on wild populations.

Recommendation
Collect comprehensive information on birds shot in each wetland, in particular species, number, location and dates and ideally demographic and hunting information.

Information should be collected following standardised methods such as the initiative on EU scheme for bag statistics.

The impact of hunting on rare waterbird species

Information on bagged animals are collected, in part, through 'control cards'. These cards also provide the opportunity to collect information on all species bagged. Closer monitoring of the numbers of all species bagged, in particular, the numbers and demographic details of rarer and non-game species is essential to understanding the impact of hunting on these species.

Recommendation

Collect comprehensive information on all non-quarry species shot, in particular species, number, location and dates and ideally demographic and hunting information. Due to the sensitivity of information on rarer species, in particular as their hunting may constitute illegal activity, it may be necessary to consider the methods used in collecting these data to ensure its availability and validity.

5.2.3 Improvements needed

Hunting legislation should distinguish between released and migratory game birds

Captive-bred birds are released specifically for hunting. Although few figures on the numbers of each species and release locations were available, this information is important for monitoring the effect of hunting on wild populations. Currently, hunting legislation makes no distinction between released and migratory game birds.

Recommendation

Collect information on all captive-bred birds released for hunting, including the location of release. Whenever possible record the original of bagged birds, perhaps consider using the marking of released birds.

Development of a single approved monitoring system for monitoring of water birds

The development of a singularly approved monitoring system for waterbirds is an essential to understanding the effects of hunting on these populations. Any monitoring scheme should be applicable throughout the region and, to ensure widespread implementation, should meet the needs of local monitoring schemes as well as fulfilling the national requirement.

Recommendation

A standardised method of waterbird monitoring, with clear aims, should be outlined and standardising recording material (forms, software etc...) should be widely available. Coordination between local institutions should be improved and a central committee responsible for national monitoring should be established.

Increased dissemination of knowledge on waterbirds

The coordination of a national monitoring scheme should include regular publication of the results. These summaries would provide valuable feedback to contributing institutions. Furthermore, a communication network between monitoring organisations as well as hunting institutions could have the benefit of ensuring that knowledge can be shared quickly and easily.

Recommendation

Establish a means of communication between monitoring and hunting organisations. A national report on the results of waterbird monitoring would ensure that waterbird data are widely available. In addition, knowledge on waterbirds and conservation issues could be shared among institutions through means of an online resource or mail group.

Integration of different parts of legislation connected with hunting

A lack of integration between different parts of legislation connected with hunting has been highlighted. The State Committee of the Forestry and Hunting Economy controls activities of hunting economy, however, not all legal acts are agreed with or correspond to the requirements of the Law of Ukraine.

Recommendation

Hunting legislation needs to be integrated to ensure that legislation corresponds with national and international laws. Furthermore, data on hunting and the economy of hunting should be updated regularly.

Penalties and fines for illegal hunting are inadequate.

Penalties for illegal hunting should be an adequate deterrent to such activities. The effectiveness of the current penalties should be assessed and, if necessary, reviewed.

Recommendation

Carry out a review of the effectiveness of the penalties for illegal hunting.

5.2.4 Training requirements

Identification and awareness of rare species

To reduce the incidences of rare and protected species being hunted there is an urgent need to increase the awareness of the conservation issues, of these and other species, as well as to improve hunters' identification of these species.

Recommendation

Offer education and training courses to hunters to increase their awareness of these species. Literature, such as leaflets and documents detailing conservation issues and identification cards for the key species could be distributed at the start of each season with hunting permits and possibly through hunting suppliers.

Monitoring methods

A widescale monitoring program may involve a number of different people and organisations. It is, therefore, important to ensure that data are collected in a standardised way and that data are comparable.

Recommendation

Offer education and training courses to counters to increase their knowledge of waterbirds and monitoring. Training should include field methods as well as data recording, storage and reporting.

6 Literature

Andryushchenko, Yu.A., Chernichko, I.I., Kinda, V.V., Koshelev, A.I., Koshelev, V.A. *et al.* Results of the first large census of wintering birds in zonal landscapes of South Ukraine. In: Branta: Transactions of the Azov-Black Sea Ornithological Station. Melitopol: 2006. Iss. 9. P. 123-149 [in Russian].

Andryushchenko, Yu.A., Gorlov, P.I., Diadicheva, E.A., Koshelev, A.I., Lysenko, V.I., Popenko, V.M., Siokhin, V.D., Chernichko I.I. 1998. Distribution and numbers of wintering birds in Prisivashje and Priazovje. In: Winter bird counts at the Azov-Black Sea coast of Ukraine. Alushta, Kiev. P. 3-13 [in Russian].

Andryushchenko, Yu.A., Gorlov, P.I., Kinda, V.V., Koshelev, A.I., Koshelev, V.A., Peresadko, L.V., Pokusa, R.V., Popenko, V.M. *et al.* 2001. Results of mid-winter census of birds in Sivash and North-Western Priazovje in 2002. In: Winter bird census at the Azov-Black Sea coast of Ukraine. Iss.3. Odessa-Kiev. Wetlands International. P. 29-33. [in Russian].

Andryushchenko Yu.A., Siokhin V.D. & Chernichko I.I. 2000. Numbers and distribution of breeding waterbirds in wetlands of the Azov-Black Sea coast of Ukraine. (ed. Siokhin V.D.), Branta, Melitopol. P. 217-250.

Ardamatskaya, T.B. 1996. Present state of goose population in the North Prichernomorje. In: Bulletin of Goose Working Group in Eastern Europe and North Asia. Kazarka 2: 276-284. Moscow. [in Russian].

Ardamatskaya, T.B. 2008. Past and present status of the Red-breasted Goose *Branta ruficollis* in the Azov-Black Sea region of the Ukraine. Vogelwelt 129:218-220.

Chernichko I. (ed.) 2004. Results of the regional ornithological monitoring (Southern Ukraine and eastern Priazovie. Winter 2002-2003). ROM Bulletin 1. 21pp.

Chernichko I.I. (ed.) 2005. Results of regional ornithological monitoring. August 2004. Azov-Black Sea coast of Ukraine. Branta, Melitopol, Issue 2, 67 pp.

Chernichko I. (ed.) 2006. Results of the regional ornithological monitoring August 2004 Azov-Black Sea coast of Ukraine. ROM Bulletin 2. 28pp.

Chernichko I.I., Siokhin, V.D., Koshelev, A.I., Diadicheva, E.V., Kirikova, T.A. 2000. Molochny Liman. In: Numbers and distribution of breeding waterbirds in wetlands of the Azov-Black Sea coast of Ukraine. Melitopol-Kiev. Branta. P. 339-372. [in Russian].

Diadicheva, E.A., Koshelev, A.I. Molochnyy Liman as a stopover for Anseriformes In: Branta: Transactions of the Azov-Black Sea Ornithological Station. Melitopol: 2006. Iss. 9. P. 97-113 [in Russian].

Falco, A.N. 2003. White-headed Duck (Oxyura leucocephala) records in the North-Western near Azov area. In: Branta 6: 204-205.

Grinchenko, A.B. 2001. Passage and wintering of Lesser White-fronted Goose in the Crimea. In: Bulletin of Goose Working Group in Eastern Europe and North Asia. Kazarka 7: 130-136. Moscow. [in Russian].

Grinchenko, A.B., Koshelev, A.I., Chernichko, I.I. 1995. Migration and wintering concentration of Anseriformes in the Azov-Black Sea region of Ukraine and prospectives of their protection. In: New investigations on geese of Palearctic. Zaporozhye. P. 54-58. [in Russian].

Grinchenko, A.B., Popenko, V.M., Aarvak, T., Nordensvan, G., Pinnonen, Yu. 2003. Census of wintering geese in Prosivashje and steppe region of the Crimea. In: Bulletin of Goose Working Group in Eastern Europe and North Asia. Kazarka 9: 313-316. Moscow. [in Russian].

Gorban, I., Zhmud, M. 2000. National Action Plan for conservation of White-eyed Pochard (Aythya nyroca) in Ukraine. In: National Action Plan for conservation of globally endangered bird species. Kyiv, Vid-vo SoftArt. P. 82-88. [in Ukrainian].

Korzyukov, A.I. 2001. Towards current estimation of numbers of the White-eyed Pochard in Ukraine. In: Bulletin of Goose Working Group in Eastern Europe and North Asia. Kazarka 7: 222-223. Moscow. [in Russian].

Koshelev, A.I. 2001. Reasons of degradation of local breeding populations of waterfowl in South Ukraine. In: Problems of investigation and conservation of Anseriformes of Eastern Europe and North Asia. M: RGG. P. 71-72. [in Russian].

Koshelev A.I. Depression of Number wintering of the Goose in Northern Priazovie in 2000 – 2004//8-th Annual Meeting of the Goose Specialist Group 95-10 March 2004). Odessa, Ukraine, 2004. – p. 71-75.

Koshelev, A.I., Koshelev, V.A., Peresadko, L.V., Popenko, K.V. 2002. Results of counts of wintering birds in Northern Priazovje in January 2001. In: Monitoring of wintering birds in the Azov-Black Sea region of Ukraine. Odessa-Kyiv, Pripodnoye nasledie. P. 30-40. [in Russian].

Koshelev, A.I., Kosenchuk, O.L., Mitiay, I.S. 2003. Scale of death of waterfowl in fishing nets in northern part of the Sea of Azov. In: Birds of the Azov-Black Sea region: monitoring g and conservation. Nikolaev. Izd-vo NGU. P. 41-46. [in Russian].

Koshelev, A. I., Koshelev, V.A., Zhmud, M.E., Pokusa, R.V., Chichkin, V.N., Fedorenko, A.V. Distribution and numbers of waterfowl during the period after breeding in Stensovsko-Zhebriansky Plavni of the Danube Delta iIn 2001. Branta 4: 79-100.

Koshelev, A.I., Popenko, V.M., Koshelev, V.A., Chichkin V.N. 2002. Distribution and numbers of waterfowl during the period after breeding in Stensovsko-Zhebriansky Plavni of the Danube Delta in 2000. Branta 5: 58-69.

Koshelev, A.I., Zhmud, M.E. 2003. Monitoring of waterfowl in natural and man-transformed habitats of the Danube Biosphere Reserve: propositions to management-plan. In: Biodiversity and role of zoocoenosis in natural and anthropogenic ecosystems. (Proceedings of 2nd Scient. Conf.). Dniepropetrovsk, Izd-vo DNU. P. 208-210. [in Russian].

Koshelev, A.I., Zhmud, M.E., Koshelev, V.A., Pokusa, R.V., Chichkin, V.N., Fedorenko, L.V. 2001. Toward restoration of population and reproduction of White-eyed Pochard in South Ukraine in 2001. In: Zoological researches in Ukraine at the border of millennium. Kryvyi Rih, IBI. P. 109-111. [in Russian].

Koshelev, O.I. 2000. National action plan for conservation of the White-headed Duck (Oxyura leucocephala) in Ukraine. In: National action plans for conservation of globally endangered bird species. Kyiv, SoftART. P: 89-100. [in Russian].

Korzuykov, A., Rusev, I. & Gerjik, I. 1998. Coast of the NW Black Sea as migration root of birds Europe and Asia. Proceedings of the 1996 EUCC international symposium: Management and conservation of the Northern-Western Black sea coast. Odessa:83.

Kreitzberg-Mukhina, E.A. 2002. Review of present status of eastern populations of the White-headed Duck. In: Bulletin of Goose Working Group in Eastern Europe and North Asia. Kazarka 8: 277-294. Moscow. [in Russian].

Lysenko, V. 2000. National action plan for the conservation of the Lesser White-fronted Goose in Ukraine. In: National Action Plans for conservation of globally endangered bird species. Kyiv, Vid-vo SoftArt. P. 57-66. [in Ukrainian].

Rudenko, A.G., Yaremchenko, O.A., Rybachuk, K.I. 2000. Characteristics of winterings of waterfowl in the Black Sea Biosphere Reserve. In: Bulletin of Goose Working Group in Eastern Europe and North Asia. Kazarka 6: 302-314. Moscow. [in Russian]

Rudenko, A.G., Yaremchenko O.A., Moskalenko Y.A. & Rudenko V.P. 2008. Long-term monitoring of wintering geese in the Ramsar wetlands of the northern Black Sea coast. Vogelwelt 129: 201-203.

Rusev, I. & Barker, N. 1995. The wetlands of the Dnestr delta: present situation and management. In Healy M.G. & Doody J.P. 1995. Directions in European coastal management: 519-524.

Rusev, I.T., Gerzhik, I.P., Vasilkov, I.A., Pavlov, A.V., Potapov, O.V., Korzyukov, A.I. 1996. Results of census of wintering Anseriformes in the North-Western Black Sea area in 1995. In: Bulletin of Goose Working Group in Eastern Europe and North Asia. Kazarka 6: 285-291. Moscow. [in Russian].

Rusev, I.T., Korzyukov, A.I. Pre-wintering concentrations of White-fronted Geese and Red-breasted Geese in North-Western Black Sea area in 2000. In: Bulletin of Goose Working Group in Eastern Europe and North Asia. Kazarka 6: 315-316. Moscow. [in Russian].

Rusev, I. & Korzuykov, A. 2006. Ukraine as an ecological corridor for the transcontinental migration of birds in the Afro-Eurasian region and questions of epidemiological safety. Waterbirds around the world. (Eds) G.C. Boere, C.A. Galbraith & D.A. Stroud. The Stationery Office, Edinburgh, UK. p. 446.

Rusev, I., Lysenko, V. 2000. National action plan for the conservation of the Red-breasted Goose in Ukraine. In: National Action Plans for conservation of globally endangered bird species. Kyiv, Vid-vo SoftArt. P. 67-81. [in Ukrainian]

Schegolev, I. & Rusev, I. 1995. The coastal wetlands of the Ukrainian Black Sea:present situation and conservation proposals. In: Proceedings of the 4th EUCC conference (1993), Coastal Management and Habitat Conservation 1:385-394.

Siokhin, V.D. (eds.) 2000. Numbers and distribution of breeding waterbirds in wetlands of the Azov-Black Sea coast of Ukraine. Melitopol-Kiev. Branta. 476 pp.

Van der Winden, J. 2000. WIWO-studies in the Mediterranean and Black Sea: numbers, migration and ecology of gulls and terns in coastal wetlands. In Yesou, P. & Sultana, J: Montoring and conservation of birds, mammals and sea turtles of the Mediterranean and Black Seas. Proceedings of the 5th Medmaravis Symposium Gozo, Malta. Environment Protection Department, Malta.

Van der Winden, J., Diadecheva, E.A., de Nobel, W.T. & van Roomen, M.W.J. 2001. Counts and ecology of waterbirds in the Sivash, Ukraine, August 1998. WIWO-report 71. WIWO Zeist.

Wintering bird counts at the Azov-Black Sea coast of Ukraine. Transactions. Issue 3. Odessa-Kiev: Wetlands International, 2001, 67 pp. [in Russian, Ukrainian]

Zhmud, M.E. 1996. Present state of geese of Ukrainian Danube Delta and adjacent areas. In: Bulletin of Goose Working Group in Eastern Europe and North Asia. Kazarka 2: 292-301. Moscow. [in Russian].

Zhmud, M.E., Koshelev, A.I., Formanyuk, O.A. 2004. Results of bird counts in the Danube Delta and Stensovsko-Zhebrianskiye Plavni. In: Rom Bulletin. Results of regional ornithological monitoring. Iss.2, 28 pp. [in Russian].