

A satellite-style map of the East Atlantic Flyway region, showing the North Atlantic, Europe, and Africa. The map is overlaid with a semi-transparent teal banner containing the title text. The background features a vertical gradient from teal at the top to green at the bottom.

Simultaneous January 2023 waterbird and wetland census  
along the East Atlantic Flyway: National Reports



# Simultaneous January 2023 waterbird and wetland census along the East Atlantic Flyway: National Reports

Wadden Sea Flyway Initiative  
Wetlands International  
BirdLife International

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This census, part of a monitoring programme, was organized by the Wadden Sea Flyway Initiative, Wetlands International, and BirdLife International in cooperation with the national authorities, organisations and institutions responsible for waterbird and wetland monitoring in their country.

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## Summary

In January (and February) 2023, for the fourth time, a simultaneous waterbird count was organized along the East Atlantic Flyway. Countries were asked to prepare a short chapter of the results collected. Thirty-one out of 36 countries submitted their reports, of which 90% reported on their 2023 data. Some of the 2023 count data are still in the process of being validated and will be submitted for future analyses in due course along with the data from the remaining five countries. The results from all 36 countries, covering the whole East Atlantic Flyway, will be available for future analyses on updating distribution, trends and population size of waterbird populations up and including 2023.

The results from the 2023 counts, taking into account the data currently missing (by using the most recent former count, mostly from 2022) showed a total of 233 waterbird species (species belonging to waterbird families as defined under Ramsar, excluding seabirds and groups like Kingfishers), were recorded in the 36 countries. Of these species more than 20 million individuals were counted, almost 70% of which belong to the 67 species which are the core set of species using the East Atlantic coastal sites. This total underestimates the true number of individual waterbirds present in the East Atlantic Flyway because not all wetlands are surveyed. Future analyses are needed to account for the sites that were not counted and for sites for which a sampling approach was used. Because of the same reasons comparison of these counted numbers with former counted numbers, to make statements about changes in numbers, is not meaningful. A comprehensive analysis of the status and trends of the species populations using this flyway will be published at the end of 2024.

This work is part of a cooperation between the Wadden Sea Flyway Initiative (WSFI), Wetlands International (WI) and BirdLife International (BirdLife) to improve the monitoring of waterbirds and wetlands along the East Atlantic Flyway. In total more than 13,700 observers collected the field data, often in their free time or as officers from government institutions, national parks, nature reserves, NGOs, and research organisations.

## Résumé

En janvier (et février) 2023, pour la quatrième fois, un comptage simultané des oiseaux d'eau a été organisé le long de la voie de migration de l'Atlantique Est. Les pays ont été invités à préparer un petit chapitre pour donner une première impression des résultats collectés. 31 pays ont rédigé un chapitre dans ce rapport, dont 90% rapportent les données de 2023. Certains chiffres de 2023 sont encore en cours de validation et seront soumis pour des analyses futures en temps voulu. Cela sera également le cas, ou l'a déjà été, pour cinq autres pays qui n'ont pas de compte national dans ce rapport. Au total, les résultats de 36 pays, couvrant l'ensemble de la voie de migration de l'Atlantique Est, seront donc disponibles pour de futures analyses sur la mise à jour de la distribution, des tendances et de la taille des populations d'oiseaux d'eau jusqu'en 2023 inclus.

Sur la base des résultats pour 2023 inclus dans ce rapport et en tenant compte des résultats manquants actuels en utilisant les comptages antérieurs les plus récents (pour la plupart de 2022), certains faits peuvent être présentés. Au total, 233 espèces d'oiseaux d'eau (espèces appartenant aux familles d'oiseaux d'eau telles que définies par Ramsar, à l'exclusion des oiseaux de mer et des groupes tels que les martins-pêcheurs) ont été recensées dans les 36 pays en janvier (février) 2023 (2022). Parmi ces espèces, plus de 20 millions d'individus ont été dénombrés au total. Sur ces 20 millions, près de 70% appartiennent aux 67 espèces qui constituent le cœur du suivi des sites côtiers de l'Atlantique Est. Malgré le grand nombre d'individus dénombrés, il ne s'agit pas du nombre total réel d'oiseaux d'eau empruntant la voie de migration de l'Atlantique Est, qui est encore (beaucoup) plus important. De futures analyses sont nécessaires pour prendre en compte les sites non comptés et les sites pour lesquels une approche d'échantillonnage a été utilisée pour rapporter les tailles réelles des populations totales. Pour les mêmes raisons, il n'est pas encore possible de comparer ces nombres comptés avec les résultats antérieurs et de faire des déclarations sur les tendances. Une analyse complète de l'état des populations des espèces utilisant cette voie de migration sera publiée à la fin de l'année 2024.

Ce travail fait partie d'une coopération entre la Wadden Sea Flyway Initiative (WSFI), Wetlands International (WI) et BirdLife International (BirdLife) visant à améliorer la surveillance des oiseaux d'eau et des zones humides le long de la voie de migration de l'Atlantique Est. Au total, plus de 13 700 observateurs ont collecté des données sur le terrain, souvent pendant leur temps libre ou en tant qu'agents d'institutions gouvernementales, de parcs nationaux, de réserves naturelles, d'ONG et d'organismes de recherche.

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## 1. Introduction

This report presents results of monitoring work on 'coastal' waterbird populations of the East Atlantic Flyway. The East Atlantic Flyway ranges from arctic Northeast Canada to East Siberia, boreal and temperate Europe and Russia and continues along the East Atlantic seashore from Norway to South Africa. At this flyway many Palearctic and African waterbird populations occur, long and short distance migrants, and also resident populations. Monitoring flyway populations requires a moment during the year cycle that active migration is at its minimum and numbers can relatively easily be assessed at the whole range where the population occurs. This is mostly done during the breeding season, especially for species using colonies, or during non-breeding in January, especially for species which concentrate at discrete wetlands in winter (summer in the southern hemisphere). This report gives results about count data collected during January (and February) 2023 in all countries along the whole East Atlantic coast of Europe and Africa (see figure 1). Besides the assessment of waterbird numbers present also environmental circumstances, pressures and conservation measures at the sites visited were collected to allow future analyses of likely drivers for changes in population status.

This work is part of a cooperation between the Wadden Sea Flyway Initiative (WSFI), Wetlands International (WI), BirdLife International (BirdLife), national government institutions and non-government organisations of countries along the Flyway. The aim of the monitoring is to improve the knowledge base for the conservation and management of waterbirds and their sites using the East Atlantic Flyway. This cooperation started after the inscription of the Wadden Sea (shared by Denmark, Germany and The Netherlands) as a World Heritage site in 2009. Waterbird populations using the Wadden Sea, both during breeding and migration, depend on the (coastal) sites along the East Atlantic Flyway during periods of the year that they are not within the Wadden Sea itself. This perspective for cooperation is the same for other countries along the flyway as their breeding, migrant or wintering populations also use other sites along the flyway.

The overall aims of the survey 2023 were:

- Collect simultaneous counts of waterbirds using (coastal) wetlands along the East Atlantic Flyway in January 2023 as a contribution to assessments of population size, distribution and trends of flyway populations of waterbird species.

- Collect counts of individual (key) sites along this flyway as a contribution to monitoring these sites, especially their importance for waterbirds in the non-breeding period of January.
- To collect data about environmental circumstances, including human use and conservation at the sites counted as vital contributions to assessments of causes for population change.
- To increase capacity for monitoring of waterbird numbers and wetlands assessments contributing to local, national and flyway conservation and adaptive management.

The current report summarizes the basic results per country and forms a background document for the future analysis. A full assessment of the results will be pushed in 2024 as was done for the 2020 results (van Roomen et al. 2022).

## January 2023, Total waterbird and their sites count. Coordinated along the East Atlantic Flyway Janvier 2023, Dénombrement total des oiseaux d'eau et de leurs sites. Coordonné le long de la voie de migration de l'Atlantique Est

Working together for better knowledge and conservation  
Travailler ensemble pour une meilleure connaissance et conservation

**To all involved in the January 2023 count**

The East Atlantic Flyway encompasses key sites and other wetland habitat from the Arctic to Southern Africa where waterbirds find refuge during breeding, migration and wintering/non-breeding. Insights about the total numbers, trends and distribution of the populations using this flyway and pressures/threats at their sites is a prerequisite for their conservation. To build this knowledge a huge joint effort is needed as the populations concerned are distributed over many countries on long distances.

In a combined effort of governments, institutions, NGOs, volunteers and international organisations, as many as possible, coastal sites of the East Atlantic Flyway will be covered during the January 2023 census. This major survey is a follow-up of similar efforts in January 2014, 2017 and 2020.

We would like to call for your cooperation and beforehand express our sincere thanks to everybody involved in the census, either in the organization, carrying out the counts and registration of environmental conditions or in providing funding at both the national and/or international level. We are looking forward to the results and to share them with the wider network for use in conservation work!

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**A tous ceux qui participent au comptage de janvier 2023**

La voie de migration de l'Atlantique Est englobe des sites clés et d'autres habitats de zones humides, de l'Arctique à l'Afrique australe, où les oiseaux d'eau trouvent refuge pendant la reproduction, la migration et la période d'hivernage/de non-reproduction. La connaissance des effectifs totaux, des tendances et de la répartition des populations utilisant cette voie de migration et des pressions/menaces sur leurs sites est une condition préalable à leur conservation. Pour acquérir ces connaissances, un énorme effort commun est nécessaire car les populations concernées sont réparties dans de nombreux pays sur de longues distances.

Grâce à un effort combiné des gouvernements, des institutions, des ONG, des bénévoles et des organisations internationales, le plus grand nombre possible de sites côtiers de la voie de migration de l'Atlantique Est sera couvert lors du dénombrement de janvier 2023. Cette grande enquête fait suite à des efforts similaires en janvier 2014, 2017 et 2020.

Nous faisons appel à votre coopération et remercions sincèrement toutes les personnes impliquées dans le recensement, que ce soit au niveau de l'organisation, de l'exécution des comptages et de l'enregistrement des conditions environnementales ou du financement au niveau national et/ou international. Nous sommes impatients de connaître les résultats et de les partager avec le réseau élargi afin de les utiliser dans le travail de conservation!

*Marc van Roopen & Kristine Meise (Wadden Sea Flyway Initiative)  
Gabin Agblonon, Tom Langendoen & Szabolcs Nagy (Wetlands International)  
Geoffroy Citegetse, Aissatou Yvette Diallo & Olivia Crowe (BirdLife International)*

**Organizations involved in international coordination and financing**





















Figure 1. Poster used for the announcement of the Total East Atlantic Flyway survey of January 2023.



## 2. Methods

### Monitoring strategy

The monitoring strategy consists of abundance monitoring, environmental monitoring and vital rate monitoring (van Roomen, Delany & Schekerman 2013). This integrated approach assesses the state of the species and contributes to the assessment of site conditions (at site level more counts in other months of the year are needed than only in January for a proper state monitoring). It enables warnings where conservation and management actions are needed and it will help with pointing to likely causes and formulating hypotheses for more in depth research. At the same time the programme also enables evaluation of ongoing and new responses in conservation and management collecting data about successes and where improved approaches are needed. Of the three elements of the programme, currently the abundance and environmental monitoring is implemented within the WSFI, WI and BirdLife cooperation and covered in this report. Vital rate monitoring is also carried out for many species and populations by many organisations and institutes but is mostly not brought together across species on flyway level

### Abundance monitoring methods

#### Species and populations

The principles as outlined in the guidelines for waterbird monitoring (Hearn et al. 2018 and partly updated in Nagy et al. 2021) developed under the African Eurasian Waterbird Agreement (AEWA) are followed. For most waterbird species, the breeding period, or the non-breeding period (January) is the best time for monitoring flyway populations across countries. The non-breeding period is optimal for species which breed across large ranges of remote habitats in relatively low densities. In winter they often concentrate on a few sites in high concentrations. The current report focuses mainly on these species and follows the methodology of the International Waterbird Census.

This so-called mid-winter or January count is part of a long tradition of waterbird surveys under the umbrella of the world-wide International Waterbird Census (IWC) coordinated by Wetlands International. International manuals for this census are available (Delany 2010, Hearn et al. 2018) and most countries have developed their own manual in local language. An East At-

lantic Flyway manual for Africa in English, French and Portuguese is available as well (van Roomen et al. 2014). For the same region also a photographic guidebook of waterbirds for the African East Atlantic Flyway is widely distributed to help identification of species (Barlow & Dodman 2015).

#### Sites

The International Waterbird Census contributes to the assessment of the status of waterbird species and flyway populations but can collect valuable data for site monitoring as well. The counts are site based and the January counts contribute to our knowledge of the value of individual sites as well. It is a robust assessment of the importance of sites in the middle of the non-breeding period. The data presented in this report contributes also to that aim. However, sites should not only be assessed for their importance in January and proper site monitoring should also include the periods during migration time, moult and breeding when different populations and sometimes much higher numbers are present. This kind of site monitoring is carried out in many individual countries and for site monitoring and complete site assessment that data needs to be used. Summary data of these national site monitoring programmes often contributes to the Important Bird and Biodiversity areas programme of BirdLife International (BirdLife International 2006), see also Wetlands International & BirdLife International (2018). Counting total numbers at sites is often straight-forward in relatively small sites but becomes much more difficult in large complex sites. Many of these large and complex sites are covered in this report. In tidal areas waterbirds are often distributed over large areas of mudflat during low tide but are fortunately gathering during high water at high tide roots. This is the moment to count them, and coordinated surveys require many observers at a large number of counting units, sometimes on uninhabited islands, at the right time. A large number of tropical tidal wetlands even provides more difficulties as they are fringed by mangroves making high tide roost counts impossible. At these sites only sample counts of parts of the area are possible and extrapolations are needed to assess total numbers at these sites. These kinds of analyses are not done yet for the surveys reported in this report. Also, in other countries and other sites the numbers reported for 2023 are counted numbers only and no corrections for incomplete coverage or different detectability are made yet.

## Environmental monitoring

Based on the Important Bird and Biodiversity areas programme to assess state of habitat, pressures and conservation responses at sites (BirdLife International 2006) a questionnaire was developed to collect expert opinions from local observers and site managers. This questionnaire was further fine-tuned and extended during pilot use in 2013 and 2014 and was in full use during the survey in 2017, 2020 and now during the 2023 survey. In 2023 we developed an online application in JotForm to enter the data which facilitates the filling in and handling of the data. Some countries also continued with using the standard excel form.

## About this report

Countries from Iceland to Estonia and from Norway to South Africa, all along the East Atlantic Flyway, participated to the 2020 East Atlantic Flyway survey as part of their International Waterbird Census. In many countries in East Atlantic Africa also financial support and in some extra countries were organized to contribute to this survey. Countries have been requested to contribute a small national overview to this report to give a first impression of the results collected and put emphasis to the large local and national efforts to this kind of international programmes. Of in principle 40 countries, 32 has done so, giving a large overview of results from all over the flyway both in Africa and Europe. It is as such a follow-up report of the one made after the total survey of 2017, which covered East Atlantic Africa (Agblonon et al. 2017). Countries missing are often contributing to the results which later will be analyses for trends etc. but were not able, for several reasons, to contribute a chapter at this stage. Also results of more inland countries will be used in future analyses as not all species and populations of interest are only occurring in the countries covered. Countries reporting count results have done so for the East Atlantic Flyway 'focal' species as covered in van Roomen et al. 2018 or for the whole group of waterbird species following Ramsar definition of "waterbirds". Only species with less than 50 counted individuals along the whole flyway have been excluded from that countries list. Taxonomy and bird names follow Handbook of the Birds of the World and BirdLife International (2019).

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## 3. Norway



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### Results of January 2023 counts of waterbirds along the Norwegian coast

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#### 1. INTRODUCTION

Stretching from 64 to 79 °N the Norwegian coast offers a multitude of suitable habitats for wintering waterbirds, from rocky coasts to tidal areas. Monitoring of wintering birds are, however, challenging as the mainland coastline, including fjords and small bays, covers nearly 29,000 km, and nearly 101,000 km when including the shores of all islands outside the coast. Only a fraction of these coastlines are accessible from roads. Furthermore, harsh weather during daytime, and lack of daylight north of the Arctic circle during

the winter months make monitoring of waterbirds even more challenging.

Monitoring of wintering waterbirds in Norway was initiated in some selected stretches of coastline in 1975, and with a national coverage of 9 selected areas since 1980 (figure 1). The monitoring is organised by the Norwegian Institute for Nature Research, NINA, and is conducted by members of the Norwegian Ornithological Society. Annually about 100 members of the Ornithological society participates in the monitoring.

#### 2. METHODS

The 9 selected areas for monitoring is divided into smaller localities/count units, 299 in total, each 1–2 km long (some up to 4–5 km), covering minimum 600 km of coastline (c. 2% of the mainland coastline). Each of these localities are counted from land at fixed vantage points, preferably by the same person each year. The counts are performed during late January to late February in most areas except the two northernmost areas (Troms and Varangerfjorden) where they are performed in early March due to the lack of daylight during winter.

#### 3. RESULTS

The results are submitted to Wetlands International annually. The most numerous species is reflecting the coastal coverage of the monitored sites. The five most common wintering waterbirds

within the selected areas is the Common eider (*Somateria mollissima*), followed by mallard (*Anas platyrhynchos*), common guillemot (*Uria aalge*), king eider (*Somateria spectabilis*) and the Long-tailed duck (*Clangula hyemalis*). This does not change substantially from year to year.

#### 4. DISCUSSION

Shallow wintering areas might be affected by bottom-dwelling wind turbines which are being planned in some areas. Also conflicts of area use with salmon farms might affect wintering waterbirds. The shipping traffic poses a risk of oil spills which could severely impact diving species like cormorants, ducks, grebes and divers. Bycatch might be a problem at least with local fisheries at certain times of the year. A decreasing number of some of the benthic feeders (diving ducks) suggest that changes in food availability, possibly related to climate change, might be important.

#### Acknowledgements

The monitoring programme for wintering waterbirds is financed by the Norwegian Environmental Agency. In total more than 75 observers participated in the counts. We are very thankful to all members of the Norwegian Ornithological Society that participates in the counts every winter.



Figure 1. Map showing the 9 areas selected for monitoring of wintering waterbirds along the Norwegian coast. The red dots represent the centre of each of the localities/count units.

Table 1. Numbers of counted waterbirds in Norway in January 2023

Scientific name	Common name (EN)	2023
<i>Cygnus olor</i>	Mute Swan	73
<i>Cygnus cygnus</i>	Whooper Swan	591
<i>Branta canadensis</i>	Canada Goose	392
<i>Anser anser</i>	Greylag Goose	34
<i>Anser brachyrhynchus</i>	Pink-footed Goose	1
<i>Anser albifrons</i>	Greater White-fronted Goose	1
<i>Clangula hyemalis</i>	Long-tailed Duck	2,972
<i>Somateria spectabilis</i>	King Eider	1,278
<i>Somateria mollissima</i>	Common Eider	16,856
<i>Polysticta stelleri</i>	Steller's Eider	459
<i>Melanitta fusca</i>	Velvet Scoter	2,183
<i>Melanitta nigra</i>	Common Scoter	980
<i>Bucephala clangula</i>	Common Goldeneye	1,219
<i>Mergellus albellus</i>	Smew	7
<i>Mergus merganser</i>	Goosander	17
<i>Mergus serrator</i>	Red-breasted Merganser	2,414
<i>Tadorna tadorna</i>	Common Shelduck	1
<i>Aythya fuligula</i>	Tufted Duck	247
<i>Aythya marila</i>	Greater Scaup	54
<i>Mareca penelope</i>	Eurasian Wigeon	1,807
<i>Anas platyrhynchos</i>	Mallard	12,508
<i>Anas acuta</i>	Northern Pintail	9
<i>Anas crecca</i>	Common Teal	79
<i>Tachybaptus ruficollis</i>	Little Grebe	24
<i>Podiceps grisegena</i>	Red-necked Grebe	53
<i>Podiceps cristatus</i>	Great Crested Grebe	100

Scientific name	Common name (EN)	2023
<i>Podiceps auritus</i>	Horned Grebe	238
<i>Rallus aquaticus</i>	Western Water Rail	1
<i>Gallinula chloropus</i>	Common Moorhen	1
<i>Fulica atra</i>	Common Coot	10
<i>Gavia stellata</i>	Red-throated Loon	295
<i>Gavia arctica</i>	Arctic Loon	3
<i>Gavia immer</i>	Common Loon	148
<i>Ardea cinerea</i>	Grey Heron	719
<i>Phalacrocorax carbo</i>	Great Cormorant	1,884
<i>Haematopus ostralegus</i>	Eurasian Oystercatcher	312
<i>Pluvialis squatarola</i>	Grey Plover	1
<i>Vanellus vanellus</i>	Northern Lapwing	2
<i>Numenius arquata</i>	Eurasian Curlew	69
<i>Arenaria interpres</i>	Ruddy Turnstone	69
<i>Calidris canutus</i>	Red Knot	1
<i>Calidris alpina</i>	Dunlin	1
<i>Calidris maritima</i>	Purple Sandpiper	1,138
<i>Gallinago gallinago</i>	Common Snipe	3
<i>Tringa totanus</i>	Common Redshank	6
<i>Rissa tridactyla</i>	Black-legged Kittiwake	1,061
<i>Larus ridibundus</i>	Black-headed Gull	35
<i>Larus canus</i>	Mew Gull	594
<i>Larus fuscus</i>	Lesser Black-backed Gull	1
<i>Larus argentatus</i>	European Herring Gull	7,759
<i>Larus hyperboreus</i>	Glaucous Gull	6
<i>Larus marinus</i>	Great Black-backed Gull	1,159

## 4. Sweden



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### Results of January 2023 counts of waterbirds in Sweden

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Fågeltaxering

#### 1. INTRODUCTION

Sweden, with a coastline of around 2,400 km, is situated in the northern part of Europe. At the Swedish west coast, the water has a typical marine character, whereas the water at the east coast (Baltic Sea) is more or less brackish. In winter, most waterbird habitats are found along the coasts, as most inland waters except in the south are covered with ice. When the International

Waterfowl Count (IWC) started, the Baltic coast north of Stockholm archipelago was normally totally ice-covered. In later years, winters have been milder and open water has been available also along more northerly areas of the east coast and, to a large extent, also in the inland of south Sweden. In response to that we have increased the network of observers further north.

The southern part of the Swedish coastline, including the two large islands Öland and Gotland, has an open coastline with a mix of beaches, shallow vegetated areas, and moraine coasts. Extensive archipelagos with thousands of small islands and skerries are found along most of the Baltic coast, the archipelagos being widest in the Stockholm region (up to 70 km from the mainland to the outermost skerries).

In Sweden, regular January counts have been undertaken every year since the start of the International Waterfowl Count in 1967. Every winter a network of sites (both coastal and inland) has been surveyed by a large number of volunteers. In addition to these annual counts, large scale country-wide surveys were organized in 1971–1974, 1987 – 1989 (partial), 2004, and 2015 (see Nilsson & Haas 2016). These country-wide surveys included inland waters, all inshore coastal waters (including the archipelagos) but not the offshore-areas. In recent time large scale offshore surveys targeting wintering waterbirds have been carried out in 2016 (Nilsson 2016) and 2020.

This chapter is focused on the January count in

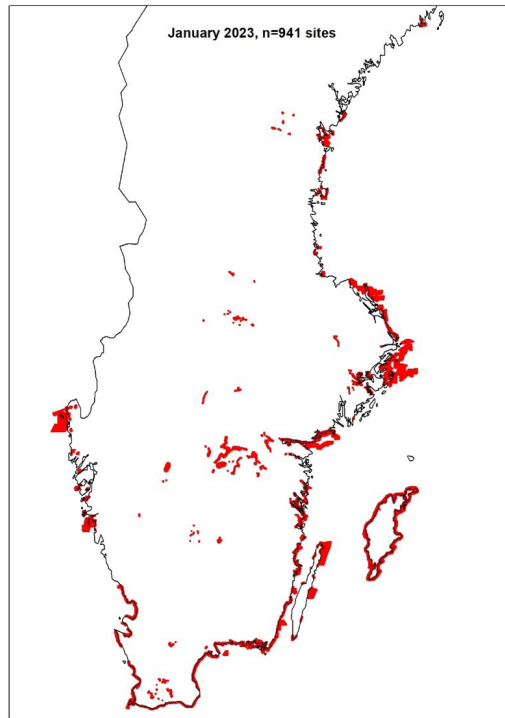


Figure 1. Map showing the distribution of Midwinter counts in January 2023.

2023, but results are shown for 2021 to 2023. No data from offshore areas are included.

## 2. METHODS

The January survey of waterbirds are based on counts of birds in predefined areas (counting units/sites). The entire Swedish coast is covered by such counting units, but also inland waters are part of the system. The survey is mainly carried out from land, but boats are used to some extent to get samples from archipelagoes. In January 2023, around 220 observers manage to cover 941 sites (Figure 1). Of these, 155 were inland sites and 786 coastal. The survey effort was about the same in 2021 (905 sites) and 2022 (917 sites). Goose data come from three different sources; the IWC counts, dedicated goose surveys, and the Swedish species gateway (Artportalen). Long-tailed ducks, who mainly are wintering offshore, are not presented here because the IWC survey does only cover a very small fraction of the population wintering in Sweden.

The Swedish midwinter counts cover most waterbird groups, but not gulls.

## 3. RESULTS

Almost 735 000 waterbirds were observed during the January 2023 count (Table 1). Geese excluded, the number of surveyed waterbirds ranged between 452,000 and 569,000 over the years 2021 to 2023. Worth noting is the high number of wintering scaups. Over 47,000 scaups were observed in 2023, the vast majority along the coast of Gotland. This suggests that about 25% of the population wintering in western and northern Europe did so in Swedish waters (cf. Marchowski et al. 2020). The totals above do not include the mainly offshore wintering species long-tailed duck. The absolute majority of the population wintering in Swedish waters are found on offshore banks in the central parts of the Baltic Sea. The number of Long-tailed Ducks was estimated to be around 370,000 within the Swedish Exclusive Economic Zone of the Baltic Sea in the winter of 2016 (Nilsson 2016).

## 4. DISCUSSION

All species wintering in the inshore parts of Swedish coastal waters increased markedly between 1966 and 2015 (Nilsson & Haas 2016), and in general terms this trend seems to continue even if there are exceptions. There might be several drivers behind the positive trends, but climate change is likely to be a key factor. The increasing numbers imply that Swedish waters are becoming more and more important for wintering waterbirds, and with that comes a responsibility to provide conditions, and a network of protected areas, that are suitable in the long run.

### Acknowledgements

Over the years, several hundred observers have taken part in January counts. Without their help, we would not have been able to cover so many sites as we did. Financial support to the project has been obtained from the Swedish Environmental Protection Agency.

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Nilsson L. 2016. Changes in numbers and distribution of wintering Long-tailed Ducks *Clangula*

hyemalis in Swedish waters during the last fifty years. *Ornis Svecica* 26:162–176.

Nilsson L. & Haas F. 2016. Distribution and numbers of wintering waterbirds in Sweden 2015 and changes during the last fifty years. *Ornis Svecica* 26:3–54

Table 1. Total numbers of observed waterbirds in the Swedish IWC counts 2021 – 2023. NA = data not available. Species occurring in very low numbers and gulls are not included.

Scientific name	Common name (EN)	2021	2022	2023
<i>Gavia arctica</i>	Black-throated diver	69	170	129
<i>Gavia stellata</i>	Red-throated diver	200	72	113
<i>Podiceps cristatus</i>	Great crested grebe	3,418	4,590	3,108
<i>Podiceps grisegena</i>	Red-necked grebe	38	57	47
<i>Podiceps auritus</i>	Slavonian grebe	56	161	219
<i>Tachybaptus ruficollis</i>	Little grebe	317	177	256
<i>Phalacrocorax carbo</i>	Great cormorant	12,036	14,110	12,673
<i>Phalacrocorax aristotelis</i>	Shag	213	1,532	2,988
<i>Ardea cinerea</i>	Grey heron	1,826	939	1,387
<i>Ardea alba</i>	Great white egret	13	6	29
<i>Anas platyrhynchos</i>	Mallard	122,051	96,206	108,055
<i>Anas crecca</i>	Teal	2,853	2,649	1,966
<i>Anas strepera</i>	Gadwall	560	997	1,171
<i>Anas penelope</i>	Wigeon	27,535	21,401	22,186
<i>Anas acuta</i>	Pintail	587	393	370
<i>Anas clypeata</i>	Shoveler	88	2	99
<i>Aythya marila</i>	Scaup	19,474	34,000	47,167
<i>Aythya fuligula</i>	Tufted duck	96,840	193,671	112,857
<i>Aythya ferina</i>	Pochard	1,022	1,941	1,856
<i>Bucephala clangula</i>	Goldeneye	58,261	69,658	61,232
<i>Melanitta fusca</i>	Velvet scoter	9,443	2,266	3,976
<i>Melanitta nigra</i>	Common scoter	6,912	6,365	5,783
<i>Somateria mollissima</i>	Eider	7,269	10,237	12,467
<i>Mergus serrator</i>	Red-breasted merganser	4,342	5,856	6,419
<i>Mergus merganser</i>	Goosander	15,405	27,363	15,576
<i>Mergellus albellus</i>	Smew	7,154	11,043	9,192
<i>Tadorna tadorna</i>	Shelduck	15	80	80
<i>Anser anser</i>	Greylag goose	NA	NA	45,909
<i>Anser fabalis</i>	Bean goose	NA	NA	35,810
<i>Anser brachyrhynchus</i>	Pink-footed goose	NA	NA	782
<i>Anser albifrons</i>	White-fronted goose	NA	NA	6,343
<i>Branta canadensis</i>	Canada goose	NA	NA	38,340
<i>Branta leucopsis</i>	Barnacle goose	NA	NA	118,791
<i>Cygnus olor</i>	Mute swan	26,056	38,269	29,778
<i>Cygnus cygnus</i>	Whooper swan	4,658	3,327	1,995
<i>Cygnus columbianus</i>	Bewick's swan	11	29	1
<i>Gallinula chloropus</i>	Moorhen	95	27	87
<i>Fulica atra</i>	Coot	20,317	19,775	24,425
<i>Haematopus ostralegus</i>	Oystercatcher	9	32	16
<i>Vanellus vanellus</i>	Lapwing	19	13	8
<i>Pluvialis apricaria</i>	Golden plover	13	46	1
<i>Numenius arquata</i>	Curlew	417	279	290
<i>Tringa totanus</i>	Redshank	24	49	68
<i>Calidris maritima</i>	Purple sandpiper	1,299	1,066	839
<i>Calidris alpina</i>	Dunlin	1,447	157	83

## 5. Estonia



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### Results of January 2023 counts of waterbirds in Estonia

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bird Census (IWC) project, led by International Waterfowl Research Bureau (IWRB). From 1991 the project has been managed by the Estonian Ornithological Society. Initially the concept was an annual complete count, but starting 1991 the project was changed into a traditional monitoring programme, where counts are held on monitoring sites. From 1996 onward the mid-winter count is a part of the Estonian State Monitoring Programme. The estimation of wintering waterfowl was done by the Commission of Bird Numbers in The Estonian Ornithological Society.

### 2. METHODS

Most of the data of the IWC are collected by volunteers and some more professional teams. Numbers of observers in Estonia are between 300 and 350. The count is held in January with centralised dates in the middle of the month. Estonian waters have been divided into 7 main sections, 20 subsections and 338 counting units. Depending on ice conditions and the coverage areas the coast of Estonia has been divided into monitoring and non-monitoring units. There are 98 monitoring sites in total on Estonian coast and 40 sites inland (Figure 1). Aerial surveys took place in winter 2016 and 2021 but not in winter 2023.

### 3. RESULTS

Table 1 (p. 17): Numbers of wintering waterbirds in Estonian monitoring sites counted in 2021–2023



### 1. INTRODUCTION

Mid-winter counts (IWC) in Estonia were conducted for the first time in the winter of 1960/61. The project was run by the Baltic Commission for the Study of Bird Migration. In 1967 Estonia was one of the first to join the International Water-



based on the IWC data. Also given is the status and numbers of wintering waterbirds in Estonia (2013-2017) (Eltis et al. 2019) and updated estimation by Leho Luigujõe, based on data from IWC and aerial surveys (Table 1).

#### 4. DISCUSSION

Main threats for waterbirds are by-catch and small oil spills. High pressure expected in future concerning offshore powerplants.

#### Acknowledgements

Acknowledgements for observers (349 observers in the year 2023).

Funding: Environment Agency of Estonia, Environmental Board of Estonia, Estonian University of Life Sciences, The Cohesion Fund EU.

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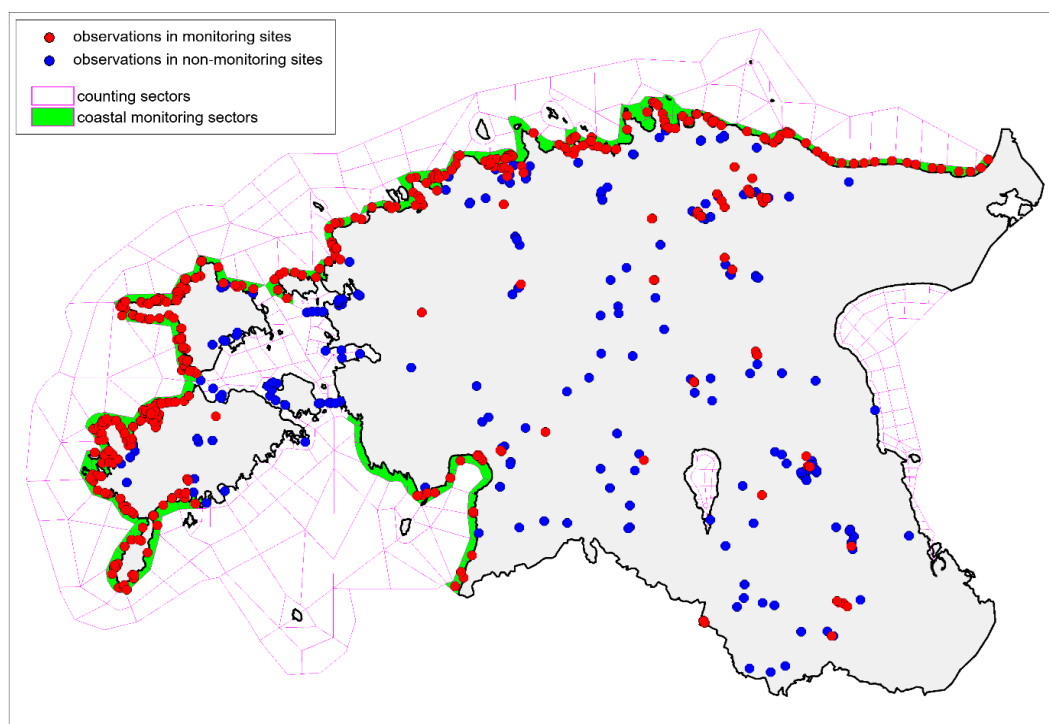


Figure 1. Coverage of IWC in Estonia in January 2023

Table 1. Number and estimations of wintering birds in Estonia.

Scientific name	Common name (EN)	2021	2022	2023	Totals estimated 2013-2017	Totals estimated 2017-2023
<i>Cygnus olor</i>	Mute swan	15,633	22,876	18,503	8,000-17,000	10,000-30,000
<i>Cygnus columbianus</i>	Bewick's Swan	2	0	0	5-30	0-20
<i>Cygnus cygnus</i>	Whooper Swan	1,663	644	1,473	1000-3,000	1,000-3,000
<i>Branta leucopsis</i>	Barnacle Goose	193	0	1	not estimated	0-200
<i>Branta canadensis</i>	Canada Goose	12	4	1	not estimated	0-30
<i>Anser anser</i>	Greylag Goose	14	1	0	not estimated	0-20
<i>Anser fabalis</i>	Bean Goose	1	0	0	not estimated	0-10
<i>Anser albifrons</i>	White-fronted Goose	0	0	0	not estimated	0-5
<i>Anas acuta</i>	Pintail	4	1	3	not estimated	0-10
<i>Anas penelope</i>	Wigeon	148	0	40	10-50	10-200
<i>Anas strepera</i>	Gadwall	46	0	3	0-5	0-100
<i>Anas crecca</i>	Teal	78	35	18	20,-100	20-200
<i>Anas platyrhynchos</i>	Mallard	18,235	10,935	10,887	16,000-21,000	15,000-30,000
<i>Aythya ferina</i>	Pochard	55	71	1	5-30	10-100
<i>Aythya fuligula</i>	Tufted Duck	9,788	10,935	13,992	3,000-5,000	5,000-15,000
<i>Aythya marila</i>	Scaup	1,276	1,576	1,142	300-3,500	500-3,500
<i>Somateria molissima</i>	Eider	4	4	1	10-30	10-40
<i>Polysticta stelleri</i>	Steller's Eider	109	303	143	800-1,500	800-1500
<i>Clangula hyemalis</i>	Long-tailed Duck	17,359	20,282	31,690	100,000-500,000	100,000-500,000
<i>Melanitta nigra</i>	Common Scoter	596	535	435	12,000-240,000	12,000-250,000
<i>Melanitta fusca</i>	Velvet Scoter	1,482	365	557	2,000-10,000	2,000-10,000
<i>Bucephala clangula</i>	Goldeneye	17,225	22,938	20,539	30,000-50,000	30,000-40,000
<i>Mergellus albellus</i>	Smew	1638	3060	3632	1,000-3,000	1,000-4,000
<i>Mergus serrator</i>	Red-breasted Merganser	585	1955	2197	500-2,500	500-2,500
<i>Mergus merganser</i>	Goosander	8,106	10,221	13,345	4,000-22,000	5,000-20,000
<i>Gavia stellata</i>	Red-throated Diver	115	27	79	500-3,000	500-3,000
<i>Gavia arctica</i>	Black-throated Diver	16	7	13	50-350	50-300,
<i>Gavia adamsii</i>	Yellow-billed Diver	0	0	1	not estimated	0-1
<i>Tachybaptus ruficollis</i>	Little Grebe	43	35	24	15-30	20-60
<i>Podiceps cristatus</i>	Great Crested Grebe	140	38	137	50-250	50-250
<i>Podiceps grisegena</i>	Red-necked Grebe	3	0	4	5-20	5-20
<i>Podiceps auritus</i>	Horned Grebe	2	3	8	1-20	5-20
<i>Phalacrocorax carbo</i>	Great Cormorant	706	45	673	100-1,000	100-1,000
<i>Botaurus stellaris</i>	Bittern	1	3	0	1-10	1-10
<i>Ardea alba</i>	Great White Egret	3	1	3	0-3	1-10
<i>Ardea cinerea</i>	Grey Heron	609	6	81	150-600	200-1,100
<i>Ciconia ciconia</i>	White Stork	0	1		0-3	0-3
<i>Grus grus</i>	Common Crane	0	0	4	not estimated	0-5
<i>Rallus aquaticus</i>	Water Rail	6	0		10-50	10-50
<i>Gallinula chloropus</i>	Moorhen	0	0	1	1-10	1-10
<i>Fulica atra</i>	Eurasian Coot	219	0	51	50-2,500	100-2,500
<i>Calidris maritima</i>	Purple Sandpiper	6	0	83	50-150	20-100
<i>Vanellus vanellus</i>	Lapwing	4	0		not estimated	0-5
<i>Scolopax rusticola</i>	Woodcock	1	0	0	5-50	5-50
<i>Gallinago gallinago</i>	Common Snipe	17	0	1	5-30	5-30
<i>Larus ridibundus</i>	Black-headed Gull	645	671	832	500-3,000	500-3,000
<i>Larus canus</i>	Common Gull	1,282	3,497	2,576	50,000-100,000	4
<i>Larus fuscus</i>	Lesser Black-backed Gull	1	0		0-3	2
<i>Larus argentatus</i>	Herring Gull	4,094	8,643	7,308	30,000-50,000	30,000-300,000
<i>Larus marinus</i>	Great Black-backed Gull	209	252	275	500-1,000	500-2,000
<i>Uria aalge</i>	Common Guillemot	0	0	1	0-5	0-5
<i>Alca torda</i>	Razorbill	5	1	1	50-200	50-200
<i>Cephyphs grylle</i>	Black Guillemot	2	8	3	50-100	50-100

## 6. Latvia



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### Results of January 2023 counts of waterbirds in Latvia

Antra Stīpniece, Latvian  
Ornithological Society



#### 1. INTRODUCTION

IWC is an international public monitoring project launched in Europe in 1967. It is coordinated by Wetlands International. In January 2023, the survey took place for the 57th time in Latvia. Since 2016, wintering waterbirds surveys have been part of the Latvian Biodiversity Monitoring Program and are financed by Latvian Nature Conservancy Board. The aims of the project are to obtain data on wintering of waterfowl on the coast (along its entire length) and in at least 130 inland places (Figure 1) and to identify trends in changes in the number of common species.

#### 2. METHODS

Counts should be carried out every year in the same sites, the boundaries of which do not change from year to year. Wintering sites should be surveyed on the central dates of the survey (14/15 January in 2023) or on the day as close as possible to the central dates with suitable weather conditions for the survey (good visibility, not disturbed by waves and fog).

In winter 2022/2023 a warm autumn was followed by a frosty December. The 1st decade of January was rich in precipitation and the central dates came with warmer weather. As a result water levels were high in all country and in one region even the red flood warning was announced. The central dates were also stormy. Therefore for the most of seacoast sites the next weekend was used for bird counts.

On the central dates 42% of site visits were made (Figure 2). If more than one count is received for a site, the one closest to the central date, performed by the same observer as in previous years, or the one where the site survey is more complete, was used.

The species of birds, the number, if possible, sex, age, census accuracy, ice condition (what % of water body is frozen) and the extent to which the census is affected by weather and disturbance is recorded. It is also reported if the place is completely frozen or dry and there are no birds. The survey of wintering waterfowl on the coast



Figure 1. Sites visited during IWC 2023 in Latvia.

was carried out on foot along the shore, grouping observations in 1 km sections, the boundaries of which were determined using GPS devices. Majority of data were reported via portal [www.Dabasdati.lv](http://www.Dabasdati.lv).

Between 7 and 26 January, 417 possible wintering places for waterfowl were inspected, including the entire available shoreline. One third of the sites checked were without birds – either ice-covered or flooded. Seacoast was ice-free.

Most counts were performed on foot. Engure Lake was checked by means of a drone.

### 3. RESULTS

A total of 102,306 birds of 47 species were counted – 56,872 on the coast and 45,434 inland. Table 1 presents only the birds actually counted and identified to species.

### 4. DISCUSSION

The swiftly changing weather conditions had had impact on bird numbers and distribution – there were less swans, Coots, Mallards, Goosanders and Goldeneyes counted in January 2023 than in previous two years, the long-term trend still remaining stable for Mute Swan and moderate increase for Coot, Mallard, Goosander, Goldeneye and Whooper Swan. However, geese flocks were met in the southwestern part of Latvia. The recent years more often geese arrive already in end of January. Also, the first Lapwings were present in January.

Last twelve years show a steep increase of fish-eating birds in mid-January – Grey Heron and Great White Heron in inland waters and Great Crested Grebe and Great Cormorants wintering mainly in seacoast waters.

Near coast only part of the wintering Scoters, Long-tailed Ducks and Loons are met. Both Velvet and Common Scoters show strong increase near coast during last twelve years. These species as well as majority of gulls should be evaluated from data of another monitoring project – plane based counts. For gulls also not all waste tips were visited and sometimes birds are hard to sort by species. We also could not check so many fields as it is done during swan censuses.

### Acknowledgements

Many thanks to all observers (178 in 2023). Funding was received from the Latvian Nature Conservancy Board.

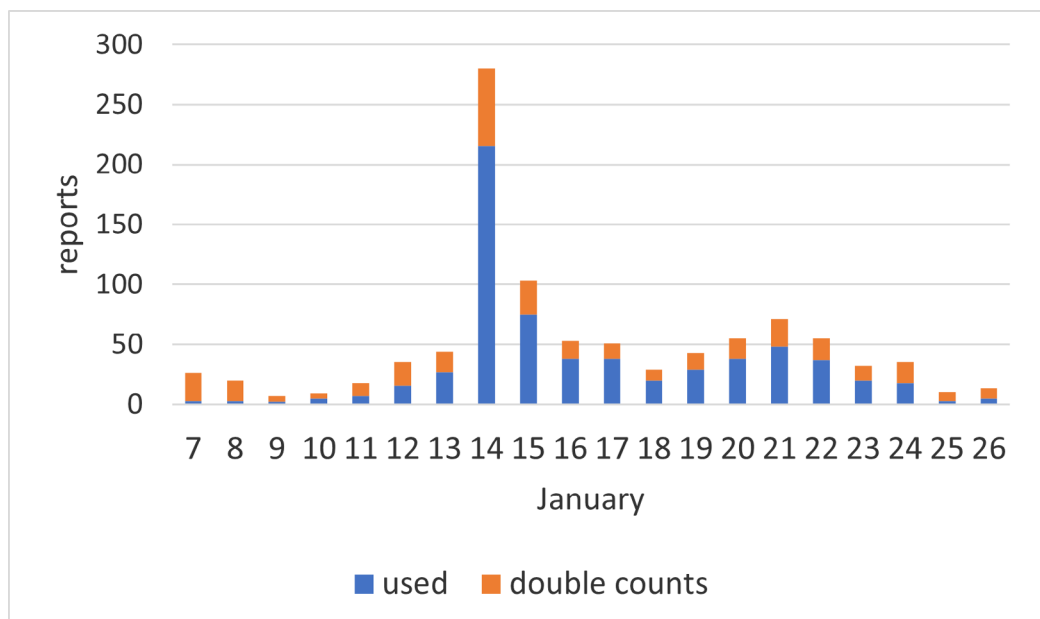


Figure 2. Number of IWC reports in 2023 in Latvia.

Table 1. Birds identified to species in mid-January 2023 in Latvia

Scientific name	Common name (EN)	Number	Scientific name	English name	Number
<i>Cygnus olor</i>	Mute swan	406	<i>Rallus aquaticus</i>	Western Water Rail	5
<i>Cygnus cygnus</i>	Whooper Swan	339	<i>Gallinula chloropus</i>	Common Moorhen	4
<i>Branta canadensis</i>	canada Goose	1	<i>Fulica atra</i>	Common Coot	121
<i>Anser anser</i>	Greylag Goose	336	<i>Grus grus</i>	Common Crane	2
<i>Anser fabalis</i>	Bean Goose	403	<i>Gavia stellata</i>	Red-throated Loon	883
<i>Anser albifrons</i>	Greater White-fronted Goose	54	<i>Gavia arctica</i>	Arctic Loon	58
<i>Clangula hyemalis</i>	Long-tailed Duck	21,326	<i>Ardea cinerea</i>	Grey Heron	84
<i>Melanitta fusca</i>	Velvet Scoter	9,983	<i>Ardea alba</i>	Great White Heron	39
<i>Melanitta nigra</i>	Common Scoter	2,439	<i>Botaurus stellaris</i>	Eurasian Bittern	3
<i>Bucephala clangula</i>	Goldeneye	4,338	<i>Phalacrocorax carbo</i>	Great Cormorant	2,321
<i>Mergus albellus</i>	Smew	38	<i>Scolopax rusticola</i>	Eurasian Woodcock	1
<i>Mergus merganser</i>	Goosander	3,785	<i>Vanellus vanellus</i>	Northern lapwing	117
<i>Mergus serrator</i>	Red-breasted Merganser	120	<i>Calidris maritima</i>	Purple Sandpiper	1
<i>Aix galericulata</i>	Mandarin duck	1	<i>Larus ridibundus</i>	Black-headed Gull	2,069
<i>Aythya fuligula</i>	Tufted Duck	1,040	<i>Larus canus</i>	Common Gull	3,121
<i>Aythya marila</i>	Greater Scaup	58	<i>Larus fuscus</i>	Lesser Black-backed Gull	175
<i>Mareca strepera</i>	Gadwall	4	<i>Larus argentatus</i>	Herring Gull	19,900
<i>Mareca penelope</i>	Eurasian Wigeon	6	<i>Larus cachinnans</i>	Caspian Gull	13
<i>Anas acuta</i>	Pintail	1	<i>Larus marinus</i>	Great Black-backed Gull	577
<i>Anas platyrhynchos</i>	Mallard	20,905	<i>Alca torda</i>	Razorbill	1
<i>Anas crecca</i>	Common Teal	38	<i>Alcedo atthis</i>	Common Kingfisher	21
<i>Tachybaptus ruficollis</i>	Little Grebe	10	<i>Buteo lagopus</i>	Rough-Legged Buzzard	8
<i>Podiceps grisegena</i>	Red-necked Grebe	1	<i>Circus cyaneus</i>	Hen Harrier	2
<i>Podiceps cristatus</i>	Great Crested Grebe	1,074	<i>Haliaeetus albicilla</i>	White-tailed Sea Eagle	60
<i>Podiceps auritus</i>	Horned Grebe	2	<i>Milvus milvus</i>	Red Kite	1

## 7. Lithuania



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### Results of January 2023 counts of waterbirds in Lithuania

Laimonas Šniaukšta<sup>1,2</sup>

<sup>1</sup>On behalf of Lithuanian Ornithological Society, Naugarduko str. 47-3, LT-03208 Vilnius, Lithuania.

<sup>2</sup>Birds at river Nemunas near Kaunas.



#### 1. INTRODUCTION

Lithuania is a country in the Baltic region of Europe, situated on the eastern shore of the Baltic Sea. Lithuanian ecosystems include natural and semi-natural (forests, bogs, wetlands and meadows) and anthropogenic ecosystems. Winters in Lithuania used to be cold, when the temperature drops down to  $-20^{\circ}\text{C}$ , most of open water is frozen

and wintering water birds could be found mainly at the sea or near power or hydroelectric power plants. As the climate warms, winters are increasingly warmer when water bodies do not freeze and wintering birds spread throughout the country.

IWC counts are organised every winter from 2010 in Lithuania. More than 37,000 birds are counted during cold winter counts with up to 112,000 birds during warm winters.

Main sites in Lithuania are: Baltic Sea coast, Lithuanian part of Kuršių Bay, Nemunas and Neris rivers near Kaunas City, Flooded meadows in Šilutė district (during warm winters).

#### 2. METHODS

Counts were done at 51 sites by the volunteers mainly with a help of National and Regional parks and reserves employees. Main counts were carried out on January 13-15 (total January 13-22).

#### 3. RESULTS

123 observers registered more than 80,000 wintering birds (Figure 1). The weather in January was cold, although it warmed up before the census, but most of the lakes and other standing water bodies were frozen at the time of the census. Baltic sea coastal observation conditions during the weekend from 13th to 15th of January were inappropriate for counting birds due to a very strong wind and big waves, therefore, the counts in the area were

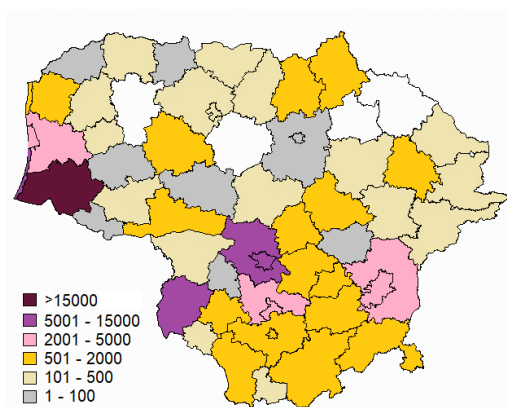


Figure 1. Map with indication of coverage of the country and total numbers of waterbirds counted in January 2023

performed one week later. Mallard was the most numerous waterfowl species with total number of more than 32,500 registered birds. The second most abundant species was Common Goldeneye with a number of almost 11,000 and the third – Velvet Scoter with a number of more than 5,500 birds registered. These three species are the most common during winter counts in Lithuania. Eurasian Coot (~4,900), Tufted Duck (~2,900) and Great Crested Grebe (~2,800) were also numerous this year. Common Merganser was only seventh most numerous species (~2,600) during this count.

#### 4. DISCUSSION

Mild winters makes it hard to have good coverage of wintering birds as they are spread through the country. It has become common for one winter to be mild and the next to be cold. Sometimes weather conditions change during the counts. These changing conditions make it difficult to adequately compare counts data from several years or evaluate species trends.

Species like Common and Velvet Scoters, Long-tailed ducks are getting less numerous at the Lithuanian Baltic Sea coast. This could be the result of lack of food, change of wintering territories or bycatch and death of wintering birds in fishing nets.

At Nemunas river in Kaunas abundant gatherings of wintering swans is an annual event. During recent warm winters when the temperatures are mild and waters or the river not frozen kayaking became quite a popular activity. However, it was noticed that passing kayaks scares and flushes swans, some of which collides with electrical wires across the river and get killed or severely injured. Some preventive measures have been implemented: dedicated markings were placed on

the wires and also informative messages were sent to the kayaking organizing parties with a request to avoid the territory.

#### Acknowledgements

Last winter 123 observers (most of them volunteers) took part in IWC, we thank them all very much.

Table 1. Waterbird species and numbers counted at the sites covered.

Scientific name	Common name (EN)	Total
<i>Gavia arctica</i>	Black-throated Diver	4
<i>Gavia stellata</i>	Red-throated Diver	155
<i>Podiceps auritus</i>	Slavonian Grebe	1
<i>Podiceps cristatus</i>	Great Crested Grebe	2,839
<i>Tachybaptus ruficollis</i>	Little Grebe	38
<i>Phalacrocorax carbo</i>	Great Cormorant	547
<i>Ardea cinerea</i>	Grey Heron	141
<i>Egretta alba</i>	Great White Egret	59
<i>Anas crecca</i>	Green-winged Teal	32
<i>Anas penelope</i>	Wigeon	122
<i>Anas platyrhynchos</i>	Mallard	32,684
<i>Anas strepera</i>	Gadwall	20
<i>Aythya ferina</i>	Pochard	1
<i>Aythya fuligula</i>	Tufted Duck	2,953
<i>Aythya marila</i>	Greater Scaup	101
<i>Bucephala clangula</i>	Goldeneye	10,982
<i>Clangula hyemalis</i>	Long-tailed Duck	292
<i>Melanitta fusca</i>	Velvet Scoter	5,513
<i>Melanitta nigra</i>	Common Scoter	180
<i>Mergellus albellus</i>	Smew	81
<i>Mergus merganser</i>	Goosander	2,686
<i>Anser albifrons</i>	White-fronted Goose	9
<i>Anser anser</i>	Greylag Goose	1,680
<i>Anser fabalis</i>	Bean Goose	152
<i>Anser spp.</i>	unidentified geese	1,700
<i>Cygnus Cygnus</i>	Whooper Swan	2,007
<i>Cygnus olor</i>	Mute Swan	1,625
<i>Cygnus spp.</i>	unidentified swans	7
<i>Fulica atra</i>	Common Coot	4,920
<i>Gallinula chloropus</i>	Moorhen	12
<i>Larus argentatus</i>	Herring Gull	2,010
<i>Larus cachinnans</i>	Caspian Gull	1
<i>Larus canus</i>	Common Gull	5,582
<i>Larus marinus</i>	Great Black-backed Gull	74
<i>Larus ridibundus</i>	Black-headed Gull	623
<i>Larus spp.</i>	unidentified gulls	530

## 8. Poland



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### Results of the January 2023 counts of waterbirds in Poland

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#### 1. INTRODUCTION

IWC is launched in Poland in seventies of the last century, but in 2010 it was included to the State Environmental Monitoring coordinated by the Polish Society for the Protection of Birds (OTOP), a BirdLife partner. All monitoring projects conducted within the State Environmental Monitoring are financed by the Chief Inspectorate of Environmental Protection.

#### 2. METHODS

Counts of wintering waterbirds are carried out every year in the same 563 sites, the boundaries of which do not change from year to year (fig. 1). In 2023, they were performed at 558 sites. Wintering sites were surveyed preferably on the central dates of the survey (14/15 January 2023) or on two neighbouring days. On days considered to be the optimum time to carry out the count, 77% of sites were checked (fig. 2). During the survey, bird species, number if possible, sex, age, census accuracy and ice condition (what percentage of the water body is frozen) were recorded. The counts were organised on days with good visibility so that the results were not dependent on the weather. The survey of wintering waterbirds was mainly carried out on foot, but large lagoons (i.e. the Vistula Lagoon and the Szczecin Lagoon) and some sections of the Vistula River were surveyed from a plane or motor boat.

According to [www.tutienpo.net](http://www.tutienpo.net), the average air temperature in Central Poland (Warsaw) in January 2023 was + 3.4° C.

#### 3. RESULTS

A total of 943,388 waterbirds were recorded, including 1,092,322 stationary and 24,729 in flight. The most numerous was the Mallard accounting for 36% of all individuals of known species seen during the survey (Table 1). Long-term changes in the abundance of wintering waterbirds were





Figure 1. Distribution of IWC sites (dark blue) in Poland. Boundaries of the Natura 2000 areas are shown in red.

checked for 14 species, for which the counting method used allows the majority of individuals to be detected in a given area. An statistically significant increase in wintering populations of 12 species was recorded in the period between 2011 and 2023: Coot, Great Crested Grebe, Cormorant, Grey Heron, Common Pochard, Scaup, Tufted Duck, Whooper Swan, Mute Swan, Goldeneye, Red-breasted Merganser and Mallard. Whereas in the case of Goosander and Smew a statistically significant decrease in abundance was observed over the analysed time period.

#### 4. DISCUSSION

In the 13 years of IWC surveys, it is clear to see how the number of individuals of duck species

such as Wigeon, Teal and Gadwall, which 30-40 years ago wintered in Poland in low numbers, is increasing nowadays. Only Goosander and Smew show a decrease in numbers, which may be due to a change in distribution on their European wintering grounds, where they are moving closer to their breeding grounds as the climate warms.

The results obtained during the 13 years of monitoring confirm the very high importance of the Szczecin Lagoon with the Świna Delta and the outer and inner Puck Bay for waterbirds wintering in Poland. These water bodies gather more than 20,000 wintering waterbirds each year. The Warta Mouth National Park is also one of the most important national wintering grounds, and such a high concentration of waterbirds as in 2023 has not been found there so far. Concentrations of more than 150,000 individuals of wintering waterbirds have not yet been reported from Polish inland sites.

Far more waterbirds winter in the western than in the eastern part of Poland, influenced by the higher January temperatures and the greater number of large, rarely fully frozen bodies of water.

#### Acknowledgements

Many thanks to all the observers (456 in 2023) and to Tomasz Chodkiewicz and Łukasz Ławicki from the Polish Society for the Protection of Birds for their invaluable help in preparing the database. Funding was received from the Chief Inspectorate of Environmental Protection.

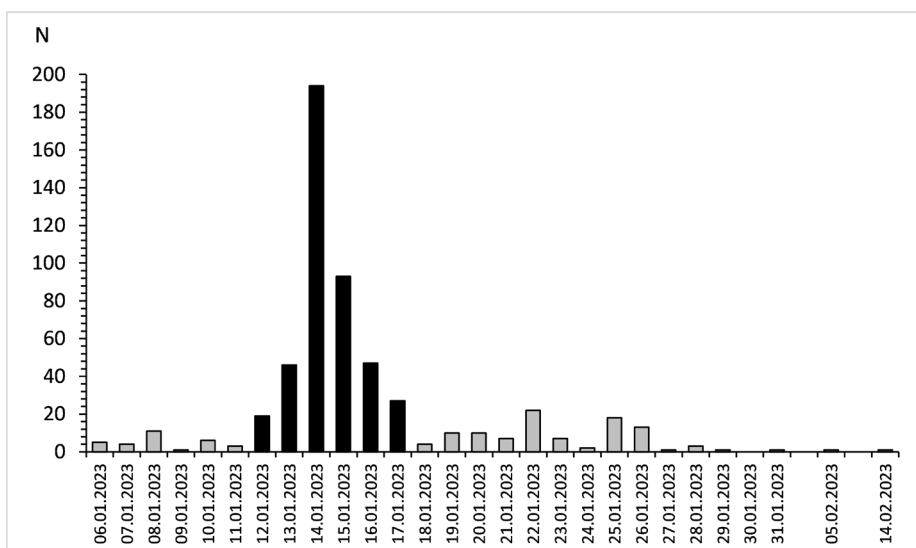


Figure 2. Dates of surveys of individual sites. Black indicates counts carried out at the optimum time.

Table 1. Waterbird numbers found during IWC surveys in 2023 in Poland.

Scientific name	Stationary	In flight	Total	Percentage
<i>Anas platyrhynchos</i>	339,122	2,771	341,893	36%
<i>Anser fabalis sensu lato</i>	74,645	7,778	82,423	9%
<i>Aythya fuligula</i>	80,911	65	80,976	9%
<i>Fulica atra</i>	68,045	4	68,049	7%
<i>Bucephala clangula</i>	42,282	540	42,822	5%
<i>Phalacrocorax carbo</i>	35,975	3,029	39,004	4%
<i>Larus argentatus sensu lato</i>	35,025	2,984	38,009	4%
<i>Chroicocephalus ridibundus</i>	24,454	2,148	26,602	3%
<i>Aythya marila</i>	25,340	14	25,354	3%
<i>Anser anser</i>	20,722	2,524	23,246	2%
<i>Melanitta fusca</i>	17,901	72	17,973	2%
<i>Anas crecca</i>	17,809	155	17,964	2%
<i>Cygnus olor</i>	17,218	615	17,833	2%
<i>Mergus merganser</i>	17,351	174	17,525	2%
<i>Larus canus</i>	16,693	520	17,213	2%
<i>Aythya ferina</i>	14,562		14,562	2%
<i>Clangula hyemalis</i>	12,079	108	12,187	1%
<i>Anser albifrons</i>	11,266	541	11,807	1%
<i>Melanitta nigra</i>	11,161	53	11,214	1%
<i>Cygnus cygnus</i>	8,981	291	9,272	1%
<i>Podiceps cristatus</i>	8,088	6	8,094	1%
<i>Ardea cinerea</i>	3,947	93	4,040	+
<i>Mareca penelope</i>	4,018	21	4,039	+
<i>Mergus albellus</i>	3,288		3,288	+
<i>Ardea alba</i>	2,866	82	2,948	+
<i>Mergus serrator</i>	820	39	859	+
<i>Mareca strepera</i>	742	26	768	+
<i>Tachybaptus ruficollis</i>	742	2	744	+
<i>Cygnus bewickii</i>	568		568	+
<i>Aix galericulata</i>	448		448	+
<i>Gallinula chloropus</i>	431	1	432	+
<i>Larus marinus</i>	394	12	406	+
<i>Branta leucopsis</i>	223	6	229	+
<i>Anas acuta</i>	170	6	176	+
<i>Gavia stellata</i>	66	10	76	+
<i>Alca torda</i>	26	33	59	+
<i>Rallus aquaticus</i>	58		58	+
<i>Alopochen aegyptiaca</i>	43		43	+
<i>Tadorna tadorna</i>	38		38	+
<i>Gavia arctica</i>	24	6	30	+
<i>Somateria mollissima</i>	25		25	+
<i>Branta canadensis</i>	19		19	+
<i>Podiceps nigricollis</i>	16		16	+
<i>Podiceps auritus</i>	13		13	+
<i>Podiceps grisegena</i>	8		8	+

Scientific name	Stationary	In flight	Total	Percentage
<i>Netta rufina</i>	5		5	+
<i>Spatula clypeata</i>	5		5	+
<i>Anser erythropus</i>	4		4	+
<i>Aix sponsa</i>	4		4	+
<i>Larus fuscus</i>	4		4	+
<i>Aytha nyroca</i>	3		3	+
<i>Anser brachyrhynchus</i>	2		2	+
<i>Ichthyaetus melanocephalus</i>	2		2	+
<i>Uria aalge</i>	2		2	+
<i>Radjah radjah</i>	1		1	+
<i>Larus delawarensis</i>	1		1	+
<i>Hydrocoloeus minutus</i>	1		1	+
<i>Gavia adamsii</i>	1		1	+
<i>Ceephus grylle</i>	1		1	+
<i>Aix galericulata</i>	448		448	+
<i>Gallinula chloropus</i>	431	1	432	+
<i>Larus marinus</i>	394	12	406	+
<i>Branta leucopsis</i>	223	6	229	+
<i>Anas acuta</i>	170	6	176	+
<i>Gavia stellata</i>	66	10	76	+
<i>Alca torda</i>	26	33	59	+
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<i>Alopochen aegyptiaca</i>	43		43	+
<i>Tadorna tadorna</i>	38		38	+
<i>Gavia arctica</i>	24	6	30	+
<i>Somateria mollissima</i>	25		25	+
<i>Branta canadensis</i>	19		19	+
<i>Podiceps nigricollis</i>	16		16	+
<i>Podiceps auritus</i>	13		13	+
<i>Podiceps grisegena</i>	8		8	+
<i>Netta rufina</i>	5		5	+
<i>Spatula clypeata</i>	5		5	+
<i>Anser erythropus</i>	4		4	+
<i>Aix sponsa</i>	4		4	+
<i>Larus fuscus</i>	4		4	+
<i>Aytha nyroca</i>	3		3	+
<i>Anser brachyrhynchus</i>	2		2	+
<i>Ichthyaetus melanocephalus</i>	2		2	+
<i>Uria aalge</i>	2		2	+
<i>Radjah radjah</i>	1		1	+
<i>Larus delawarensis</i>	1		1	+
<i>Hydrocoloeus minutus</i>	1		1	+
<i>Gavia adamsii</i>	1		1	+
<i>Ceephus grylle</i>	1		1	+
<b>Total</b>	<b>918,659</b>	<b>24,729</b>	<b>943,388</b>	<b>100%</b>

## 9. Republic of Ireland



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### Results of January 2023 counts of waterbirds in the Republic of Ireland

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An Roinn Tithíochta,  
Rialtais Áitiúil agus Oidhreachta  
Department of Housing,  
Local Government and Heritage



An tSeirbhís Páirceanna Náisiúnta  
agus Fiadhúlra  
National Parks and Wildlife Service

### 1. INTRODUCTION

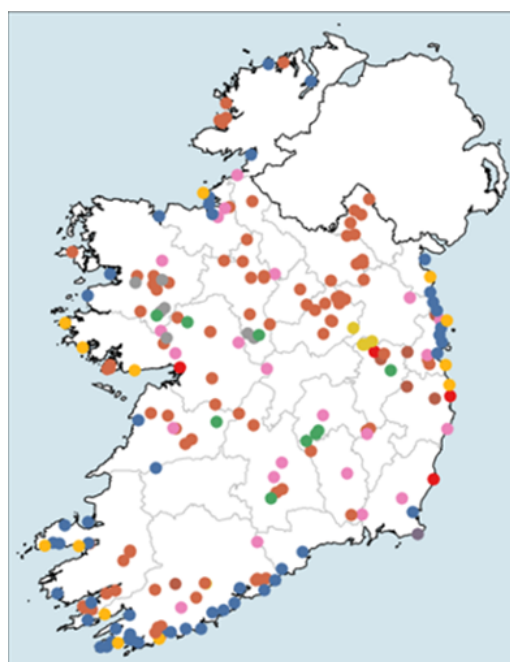
On the western fringe of Europe and strategically placed along the East Atlantic Flyway, Ireland is important for hundreds of thousands of migratory waterbirds that migrate here for winter, or on passage, to join a smaller proportion of resident

waterbird species. The 3,171km long Irish coastline is characterised by many estuaries, coastal bays, lagoons and sandy or cobble beaches, while inland, there is a diversity of wetland habitats from lakes, fens and bogs, to callows (seasonally flooded grassland) and turloughs (seasonal waterbodies found in areas of limestone karst). The temperate maritime climate leads to relatively ice-free feeding conditions for wintering waterbirds, while influxes of waterbirds can occur during cold spells on the continent.

The Irish Wetland Bird Survey (I-WeBS) is one of Ireland's longest running bird monitoring schemes and will celebrate its 30th anniversary during winter 2023/24. Its primary objective is to monitor the numbers and distribution of waterbird populations wintering in the Republic of Ireland. The data collected have been used to provide a basis for site selection and designation of Special Protection Areas (SPAs) under the European Birds Directive (2009/147/EC), and for reporting on the long-term monitoring of wetland sites, including national and site-specific species trends (e.g. Kennedy et al. 2023).

### 2. METHODS

I-WeBS is undertaken by staff of the National Parks & Wildlife Service (NPWS) and BirdWatch Ireland as well as a network of hundreds of skilled volunteer counters across the country. During each winter season, counts are undertaken once per month between September and March inclu-



East Atlantic Flyway Sites, 2023

- Bog/marsh
- Estuary
- Grassland
- Lagoon
- Lake
- Non-estuarine coast
- Quarry/gravel pit
- Reservoir
- River/canal
- Turlough

Figure 1. Sites counted during January IWC Count, also indicating type of wetland – Republic of Ireland.

sive. Count dates are pre-determined in order to maximise coordination of counts across the entire country. Full monthly count coverage is not always achieved so emphasis is put on achieving counts during the mid-winter period November to February when numbers of most waterbirds reach their peak. Counters are especially encouraged to undertake counts in January as these totals contribute to the IWC each year. Counts are undertaken largely from ground-based vantage points. A few sites are counted by boat while a few very large sites are counted via aerial surveys undertaken by the NPWS. All counts from January 2023 were obtained through ground-based surveys. During each monthly survey, counters undertake counts of waterbirds within predetermined subsites (wetland site subdivisions) within a 3–4 hour period starting on a rising or high tide (coastal sites), when waterbirds are pushed closer to shoreline roosts and are easier to count. Large sites require a team of counters who work in a coordinated manner to minimise double counting of birds. Data are largely submitted via an online data entry system, with the use of the more time-consuming paper forms now decreasing year on year.

### 3. RESULTS

A total of 268,510 waterbirds was counted in the Republic of Ireland during January 2023 (Table 1). This represents a 10% decrease compared to the total numbers recorded during January 2020.

Overall estuaries supported the most waterbirds (72% of the total in 2023), followed by lakes and rivers/canals. The total number of waterbirds at estuarine sites counted in both 2020 and 2023 was 10% lower in 2023. The largest species count in January 2023 was for Dunlin (37,306 individuals), followed by Wigeon, Lapwing, Oystercatcher and Golden Plover. Note that gulls are not counted as standard at all sites, so the totals for gull species represent a best lower estimate only. Although Bewick's Swan was not observed during January 2023, up to 16 individuals were recorded at Wexford Wildfowl Reserve during winter 2022/23. This species is expected to cease being a regular wintering species on the island of Ireland in the coming years (Burke et al. 2021).

### 4. DISCUSSION

The January 2023 waterbird count is considered to have had typical I-WeBS count coverage, and better site coverage than in January 2020, but at a total of 211 wetland sites, is substantially lower than the total number of wetland sites listed in the I-WeBS database (1,039 total sites, not including grassland sites used by foraging swans only). That said, the majority of larger wetland sites that support the most waterbirds were counted during January 2023. The major exception is the Shannon and Fergus Estuaries SPA on the western Atlantic coast which in terms of numbers of waterbirds supported, is likely to be the most important site in the Republic of Ireland. Sadly, the count coverage for this challenging 32,261ha site is poor. As ever, we endeavour to recruit, encourage and train new counters to this national monitoring survey, but count coverage is an on-going issue. The general trend for wintering waterbirds in the Republic of Ireland is for declining numbers. Burke et al. (2018) reported a decline in total numbers of 40% over nearly 20 years (up to 2015/16). Recent national trends based on modelling of sites with the best count coverage have shown that 57% of Ireland's wintering waterbirds are in long-term decline (across 23 years), including 64% of wildfowl, 60% of waders and 33% of wildfowl allies (grebes, divers, cormorants, herons and rails) (Kennedy et al. 2023). An even higher proportion is declining in the medium-term 12-year period (66% overall; 57% wildfowl, 87% waders, 33% wildfowl allies)

while 60% have shown declines in the recent 5-year period up to 2019/20.

Lying at the very western edge of Europe, Ireland is likely seeing the effects of climate change upon numbers of wintering waterbirds, with several species perhaps shifting distribution or 'short-stopping' to winter in areas closer to breeding grounds. But pressures and threats affecting Irish wetlands are undoubtedly contributing to the observed declines. Key pressures upon waterbirds in the Republic of Ireland are aquaculture and fisheries, pollution (especially of inland waterbodies), increased urbanisation and development in general, and recreational (and other) disturbance. In particular the effects of disturbance on species over-wintering survival and fitness are poorly researched and quantified during impact assessments here, and the cumulative effects of various sources of disturbance, as well as other factors, has likely taken its toll on the numbers of waterbirds returning to Ireland each autumn. Of current concern are the ongoing outbreaks of Highly Pathogenic Avian Influenza (HPAI). Winter 2021/22 sadly saw an unprecedented number of cases of HPAI ('avian flu') throughout Ireland. Several wintering waterbird species were affected by this fatal virus, as well as gulls and raptors. Particularly badly hit were Barnacle geese in Counties Sligo and Donegal. While cases in waterbirds during winter 2022/23 were low, the virus has since hit Irish breeding seabird colonies so there remains a threat as the virus continues to circulate in wild bird populations.

### Acknowledgements

The Irish Wetland Bird Survey (I-WeBS) is funded by the National Parks and Wildlife Service (Department of Housing, Local Government and Heritage) and is coordinated by BirdWatch Ireland. We are indebted to the staff and volunteer waterbird counters for their hard work and dedication to the Irish Wetland Bird survey over the past 30 years.

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Table 1. Total counts of observed waterbirds during the January IWC count in 2020 and 2023. Also provided are the most recent Republic of Ireland national population estimates (see footnote for references). NA = not available.

Scientific name	Common name (EN)	Count 2020	Count 2023	% Difference	National Population Estimate
<i>Cygnus atratus</i>	Black Swan	3	1	-66.7	NA
<i>Cygnus olor</i>	Mute Swan	2,170	2,364	8.9	7,032 <sup>a</sup>
<i>Cygnus cygnus</i>	Whooper Swan	2,366	3,010	27.2	14,467 <sup>b</sup>
<i>Cygnus columbianus</i>	Bewick's Swan	7	0	NA	12 <sup>b</sup>
<i>Branta bernicla hrota</i>	Light-bellied Brent Goose	17,613	13,108	-25.6	30,295 <sup>c</sup>
<i>Branta bernicla bernicla</i>	Brent Goose (Dark-bellied)	0	2	NA	NA
<i>Branta leucopsis</i>	Barnacle Goose	4,914	3,398	-30.9	16,237 <sup>d</sup>
<i>Branta canadensis</i>	Canada Goose	57	15	-73.7	NA
<i>Anser anser</i>	Greylag Goose	4,250	1,792	-57.8	2,176 <sup>e</sup>
<i>Anser anser</i>	Greylag Goose (domestic)	0	1	NA	NA
<i>Anser brachyrhynchus</i>	Pink-footed Goose	183	3	-98.4	629 <sup>e</sup>
<i>Anser albifrons flavirostris</i>	Greenland White-fronted Goose	8,587	696	-91.9	9,500 <sup>f</sup>
<i>Clangula hyemalis</i>	Long-tailed Duck	48	29	-39.6	NA
<i>Somateria mollissima</i>	Eider	5	184	3580	NA
<i>Melanitta fusca</i>	Velvet Scoter	7	3	-57.1	NA
<i>Melanitta nigra</i>	Common Scoter	1,022	724	-29.2	NA
<i>Bucephala clangula</i>	Goldeneye	302	387	28.1	1,256 <sup>g</sup>
<i>Mergus merganser</i>	Goosander	2	7	250	NA
<i>Mergus serrator</i>	Red-breasted Merganser	868	597	-31.2	1,913 <sup>g</sup>
<i>Alopochen aegyptiaca</i>	Egyptian Goose	0	1	NA	NA
<i>Tadorna tadorna</i>	Shelduck	4,338	4,262	-1.8	6,378 <sup>g</sup>
<i>Aythya ferina</i>	Pochard	34	868	2452.9	4,729 <sup>g</sup>
<i>Aythya collaris</i>	Ring-necked Duck	2	0	NA	NA
<i>Aythya fuligula</i>	Tufted Duck	3,297	4,509	36.8	16,927 <sup>g</sup>
<i>Aythya marila</i>	Scaup	6	0	NA	167 <sup>g</sup>
<i>Spatula clypeata</i>	Shoveler	1,204	2,096	74.1	1,865 <sup>g</sup>
<i>Mareca strepera</i>	Gadwall	155	295	90.3	515 <sup>g</sup>
<i>Mareca penelope</i>	Wigeon	28,074	22,289	-20.6	50,452 <sup>g</sup>
<i>Anas platyrhynchos</i>	Mallard	5,380	5,794	7.7	18,810 <sup>g</sup>
<i>Anas platyrhynchos</i>	Mallard (domestic)	5	496	9820	NA
<i>Anas acuta</i>	Pintail	805	623	-22.6	1,017 <sup>g</sup>
<i>Anas crecca</i>	Teal	17,118	18,237	6.5	27,644 <sup>g</sup>
<i>Anas carolinensis</i>	Green-winged Teal	1	1	0	NA
<i>Tachybaptus ruficollis</i>	Little Grebe	523	762	45.7	1,594 <sup>g</sup>
<i>Podiceps cristatus</i>	Great Crested Grebe	480	964	100.8	1,734 <sup>g</sup>
<i>Podiceps nigricollis</i>	Black-necked Grebe	2	1	-50	NA
<i>Podiceps auritus</i>	Slavonian Grebe	36	6	-83.3	NA
<i>Rallus aquaticus</i>	Water Rail	6	11	83.3	NA
<i>Gallinula chloropus</i>	Moorhen	194	303	56.2	NA
<i>Fulica atra</i>	Coot	513	3,157	515.4	13,303 <sup>g</sup>
<i>Gavia stellata</i>	Red-throated Diver	177	97	-45.2	NA
<i>Gavia arctica</i>	Black-throated Diver	2	2	0	NA
<i>Gavia immer</i>	Great Northern Diver	537	336	-37.4	NA
<i>Ardea cinerea</i>	Grey Heron	562	573	2	1,943 <sup>g</sup>
<i>Egretta garzetta</i>	Little Egret	354	362	2.3	1,274 <sup>g</sup>
<i>Pelecanus onocrotalus</i>	Great White Pelican	0	1	NA	NA
<i>Gulosus aristotelis</i>	Shag	645	704	9.1	NA
<i>Phalacrocorax carbo</i>	Cormorant	1,957	2,447	25	7,967 <sup>g</sup>

Scientific name	Common name (EN)	Count 2020	Count 2023	% Difference	National Population Estimate
<i>Haematopus ostralegus</i>	Oystercatcher	17,507	20,482	17	42,875 <sup>a</sup>
<i>Recurvirostra avosetta</i>	Avocet	0	1	NA	NA
<i>Pluvialis squatarola</i>	Grey Plover	873	971	11.2	2,812 <sup>a</sup>
<i>Pluvialis apricaria</i>	Golden Plover	36,805	18,954	-48.5	80,707 <sup>a</sup>
<i>Charadrius hiaticula</i>	Ringed Plover	1,922	2,153	12	10,545 <sup>a</sup>
<i>Vanellus vanellus</i>	Lapwing	27,980	22,155	-20.8	69,823 <sup>a</sup>
<i>Numenius phaeopus</i>	Whimbrel	65	18	-72.3	NA
<i>Numenius arquata</i>	Curlew	12,840	11,383	-11.3	28,300 <sup>a</sup>
<i>Limosa lapponica</i>	Bar-tailed Godwit	6,538	5,324	-18.6	13,385 <sup>a</sup>
<i>Limosa limosa</i>	Black-tailed Godwit	13,312	10,356	-22.2	17,862 <sup>a</sup>
<i>Arenaria interpres</i>	Turnstone	1,162	1,286	10.7	6,296 <sup>a</sup>
<i>Calidris canutus</i>	Knot	6,543	5,652	-13.6	13,752 <sup>a</sup>
<i>Calidris pugnax</i>	Ruff	11	9	-18.2	NA
<i>Calidris alba</i>	Sanderling	1,529	1,945	27.2	7,572 <sup>a</sup>
<i>Calidris alpina</i>	Dunlin	20,615	37,306	81	37,409 <sup>a</sup>
<i>Calidris maritima</i>	Purple Sandpiper	28	8	-71.4	465 <sup>a</sup>
<i>Limnodromus scolopaceus</i>	Long-billed Dowitcher	1	0	NA	NA
<i>Scolopax rusticola</i>	Woodcock	0	3	NA	NA
<i>Gallinago gallinago</i>	Snipe	429	824	92.1	NA
<i>Lymnocyptes minimus</i>	Jack Snipe	1	14	1300	NA
<i>Actitis hypoleucos</i>	Common Sandpiper	3	7	133.3	NA
<i>Tringa ochropus</i>	Green Sandpiper	4	1	-75	NA
<i>Tringa erythropus</i>	Spotted Redshank	0	1	NA	NA
<i>Tringa nebularia</i>	Greenshank	505	825	63.4	1,208 <sup>a</sup>
<i>Tringa totanus</i>	Redshank	8,996	8,550	-5	16,812 <sup>a</sup>
<i>Charadrii sp</i>	Unidentified wader	60	570	850	NA
<i>Chroicocephalus ridibundus</i>	Black-headed Gull	16,603	13,443	-19	NA
<i>Ichthyaetus melanocephalus</i>	Mediterranean Gull	7	41	485.7	NA
<i>Larus delawarensis</i>	Ring-billed Gull	4	3	-25	NA
<i>Larus canus</i>	Common Gull	7,402	4,533	-38.8	NA
<i>Larus fuscus</i>	Lesser Black-backed Gull	673	461	-31.5	NA
<i>Larus argentatus</i>	Herring Gull	5,175	5,079	-1.9	NA
<i>Larus marinus</i>	Great Black-backed Gull	839	603	-28.1	NA
<i>Larus glaucooides</i>	Iceland Gull	2	3	50	NA
<i>Thalasseus sandvicensis</i>	Sandwich Tern	1	0	NA	NA
<i>Sterna hirundo</i>	Common Tern	1	0	NA	NA
<i>Alcedo atthis</i>	Kingfisher	11	28	154.5	NA
TOTALS		297,258	268,510		

<sup>a</sup>2011/12-2015/16 (Burke et al. 2018), <sup>b</sup> 2020 (Burke et al. 2021), <sup>c</sup>2017 (data from Irish Brent Goose Research Group), <sup>d</sup>2018 (Doyle et al. 2018), <sup>e</sup>2017/18 – 2019/20 (Burke et al. 2021), <sup>f</sup>2017/18 (Fox et al. 2018)



## 10. United Kingdom



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### Results of January 2023 counts of waterbirds in the United Kingdom

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#### 1. INTRODUCTION

The UK is a country with an extensive coastline, a maritime climate and a strategic geographic position on the East Atlantic Flyway. The combination makes it a favoured location for many waterbirds in winter. The Wetland Bird Survey and its predecessors allow us to take a long view of waterbird population change in the UK, with counting at some sites being continuous since 1947. We can calculate population trends from the 1966/67 winter for most wildfowl species, 1974/75 for wader species, and since at least 1993/94 for

other waterbirds. WeBS is a partnership, with the survey run by a national coordination team at BTO and volunteer local coordinators for regions and estuaries.

Results are still being digitised, submitted and checked, but January 2023 counts have been submitted for 4,663 count units at 2,672 sites so far (Figure 1), already a slight increase on the January 2020 survey.

#### 2. METHODS

Almost all the major wetlands (estuaries, freshwater bodies and marshlands) of the UK are counted at least once each year. Most counts are carried out by volunteers, or a mixture of site wardens and volunteers. Coastal sites are counted at high tide when birds are roosting. Most counts are land based, but boats are used for access in some places. Large sites are sub-divided into count units. Many small sites are also counted.

Most sites are counted once a month throughout the year, on count dates set in advance to optimise counting at high tide during daylight for as many coastal sites as possible. The data from the January WeBS counts are submitted to IWC. The reporting year runs from July to June, so the consolidation of count unit data to site totals does not take place until the following winter and results are published after this in the spring. This means that January 2023 UK totals are not yet available, the numbers reported here relate to the years 2018–2022.

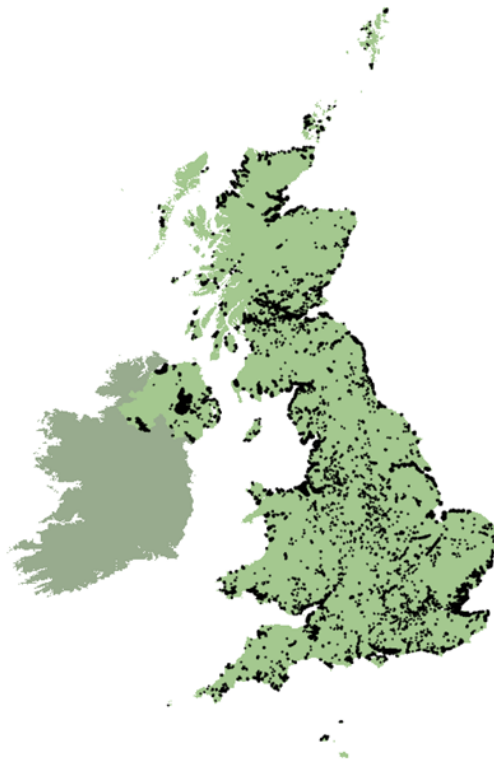


Figure 1. Map of WeBS sites counted in January 2023

### 3. RESULTS

Table 1 gives the average count for January 2018–2022 as January 2023 results are not yet published. January 2021 coverage was severely impacted by COVID-19 pandemic measures and so is excluded from the average.

For producing national population estimates, and depending on the species, modelling is used to extrapolate the counts to uncounted areas. The latest population estimates for Great Britain included a January estimate for some species (as well as peak winter estimates for 98 species or populations) and where available is also given in table 1. Source: Frost et al, 2019.

### 4. DISCUSSION

One important use of WeBS trends is in assessing species' status. In the most recently published Birds of Conservation Concern, Pochard and Ringed Plover were added to the national "Red list" due to declines of over 50% in their 25-year WeBS trends. More positively, UK WeBS trends for colonising species such as Little Egret and Great White Egret or species where there has been conservation effort such as Avocet have increased rapidly.

A key driver in the 1940s for setting up the counts was concern over habitat loss and development pressure. This is still the case today, and the WeBS dataset has been used to inform hundreds of development proposals on wetlands. In some cases this has played a major part in halting a detrimental development proposal. In other cases WeBS counts have informed requirements for compensatory wetland creation as mitigation for the loss of mudflats and other wetland habitats.

Year to year changes in populations are often in response to weather. For example, exceptionally cold weather in Eastern Europe in January 2017 pushed some birds to find refuge further west, in Britain.

### Acknowledgements:

WeBS is a partnership jointly funded by the BTO, RSPB and JNCC with fieldwork conducted by volunteers. We are indebted to the time and skills of the 3,300 WeBS Counters who collected the data and the 140 volunteer Local Organisers who coordinate their efforts.

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Table 1. Average counts for January 2018–2022 excluding 2021 for East Atlantic Flyway focal species in the UK. Also given are Great Britain January estimates based on Frost et al 2019. Great Britain January estimates are not available for all species (NA), and do not include population estimates for Northern Ireland. January 2021 coverage was severely impacted by coronavirus pandemic measures and so is excluded from the average.

Scientific name	Common name (EN)	Average 2018–2020, 2022	GB January Estimate
<i>Branta bernicla</i>	Brent Goose	78,694	98,900
<i>Branta leucopsis</i>	Barnacle Goose	27,897	NA
<i>Anser anser</i>	Greylag Goose	62,662	NA
<i>Somateria mollissima</i>	Common Eider	13,966	NA
<i>Tadorna tadorna</i>	Common Shelduck	46,916	47,000
<i>Spatula clypeata</i>	Northern Shoveler	18,169	19,000
<i>Mareca penelope</i>	Eurasian Wigeon	342,973	440,000
<i>Anas platyrhynchos</i>	Mallard	117,308	620,000
<i>Anas acuta</i>	Northern Pintail	15,775	19,000
<i>Anas crecca</i>	Common Teal	167,443	420,000
<i>Podiceps cristatus</i>	Great Crested Grebe	6,556	12,000
<i>Podiceps auritus</i>	Horned Grebe	160	NA
<i>Podiceps nigricollis</i>	Black-necked Grebe	56	99
<i>Platalea leucorodia</i>	Eurasian Spoonbill	56	NA
<i>Ardea alba</i>	Great White Egret	213	NA
<i>Phalacrocorax carbo</i>	Great Cormorant	23,182	45,000
<i>Haematopus ostralegus</i>	Eurasian Oystercatcher	192,428	260,000
<i>Recurvirostra avosetta</i>	Pied Avocet	8,723	7,800
<i>Pluvialis squatarola</i>	Grey Plover	24,068	29,000
<i>Charadrius hiaticula</i>	Common Ringed Plover	5,966	19,000
<i>Numenius phaeopus</i>	Whimbrel	17	17
<i>Numenius arquata</i>	Eurasian Curlew	58,823	100,000
<i>Limosa lapponica</i>	Bar-tailed Godwit	35,762	42,000
<i>Arenaria interpres</i>	Ruddy Turnstone	10,941	36,000
<i>Calidris canutus</i>	Red Knot	209,915	210,000
<i>Calidris alba</i>	Sanderling	8,250	18,000
<i>Calidris alpina</i>	Dunlin	275,433	320,000
<i>Calidris maritima</i>	Purple Sandpiper	980	8,900
<i>Tringa erythropus</i>	Spotted Redshank	37	49
<i>Tringa nebularia</i>	Common Greenshank	506	640
<i>Tringa totanus</i>	Common Redshank	63,377	77,000
<i>Larus ridibundus</i>	Black-headed Gull	196,600	NA
<i>Larus melanocephalus</i>	Mediterranean Gull	1,025	NA
<i>Larus canus</i>	Mew Gull	46,448	NA
<i>Larus fuscus</i>	Lesser Black-backed Gull	8,070	NA
<i>Larus argentatus</i>	European Herring Gull	79,531	NA
<i>Larus marinus</i>	Great Black-backed Gull	7,358	NA

## 11. Germany



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### Results of January 2023 counts of waterbirds in Germany

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### 1. INTRODUCTION

Coastal and offshore waters in Germany are major stopover and wintering sites for waterbirds migrating along the East Atlantic Flyway. Especially during spring and autumn migration, several million waterbirds can be found around the shallow waters and adjacent offshore areas of the North Sea and southern Baltic Sea (Gerlach et al. 2019). Characterised by tidal mudflats, numerous estuaries (notably Ems, Weser and Elbe rivers)

and shallow lagoons (so-called "Boddengewässer" along the Baltic coast), the German coastal waters stand out as attractive foraging sites for various migrating waterbird species. Particularly the tidal areas of the Wadden Sea feature major waterbird concentrations each year and have been declared UNESCO World Heritage in 2009. Further inland, agriculturally dominated areas in the lowland plains in northern and eastern Germany harbour large concentrations of migratory geese and swans, while river floodplains and pre-alpine lakes support numerous species of dabbling and diving ducks among other waterbirds. The tendency for milder winters has further increased the importance of Germany as a wintering area, as recently documented for the Bewick's Swan (Beekman et al. 2019).

The counting of waterbird populations has a long-standing tradition in Germany and can be traced back to its very beginning in the 1940's. Since the start of the International Waterbird Census (IWC) in 1966/67, systematic synchronous counts have been conducted on a regular basis. Originally organised differently in the former West and East Germany, the two counting schemes were smoothly brought together and are now part of the national waterbird monitoring scheme (MrW). Since 1990, seabird counts from ships and planes are completing the monitoring in the German offshore waters of North and Baltic Sea. The national coordination through the Federation of German Avifaunists (DDA) is supported by the

federal government as part of the national bird monitoring scheme. A large network of coordinators from site to federal state level is connecting with the people in the field.

At present, the German waterbird monitoring covers approx. 2,500 count units monthly from September to April. In January, there is an increased effort to cover as many waterbodies as possible within the framework of the International Waterbird Census (IWC, fig. 1). Moreover, important areas like the Wadden Sea are monitored year-round, with a selection of sites being covered in a bi-weekly scheme to monitor species only present for a short time during migration, such as the Spotted Redshank. These counts are part of the Trilateral Monitoring and Assessment Program (TMAP), a cooperation between the Netherlands, Denmark and Germany in the Wadden Sea. Here, complementary aerial surveys are carried out in specific months to assess numbers of seaducks and moulting Common Shelduck. In addition, agricultural areas in mainly the northern and eastern part of the country are surveyed for geese and swans. This effort is concentrated in September, November, January, March and May, i.e. months with international surveys (some regions covered monthly). For specific species like Common Crane, a network of night-roosts is covered by dedicated surveys.

Most counts are performed by volunteers, locally supported by employees from site-managing agencies or professional counters paid by the administration (often associated with the monitoring of Natura 2000 sites). Currently, over 2 000 people participate in the counts. In the 2022/2023 counting season, most volunteers belonged to the age groups of 50-59 or older with c. 20% female participants. Recently, most newly joining members belonged to the same 50+ age group, however also younger generations are increasingly joining the national waterbird counts. In comparison to 2005, the proportion of female volunteers increased from approx. 10% to 20% with regional differences (Wahl & Sudfeldt 2010). In autumn 2023, an online system showing counting site vacancies was launched, facilitating an easier participation in the census scheme. To expand the census network and its coverage in the midwinter period, we aim to highlight the importance of the Total Flyway Count in January and the International Waterbird Census in general.

## 2. METHODS

In the season 2023, the East Atlantic Flyway total count in Germany was predominantly organised

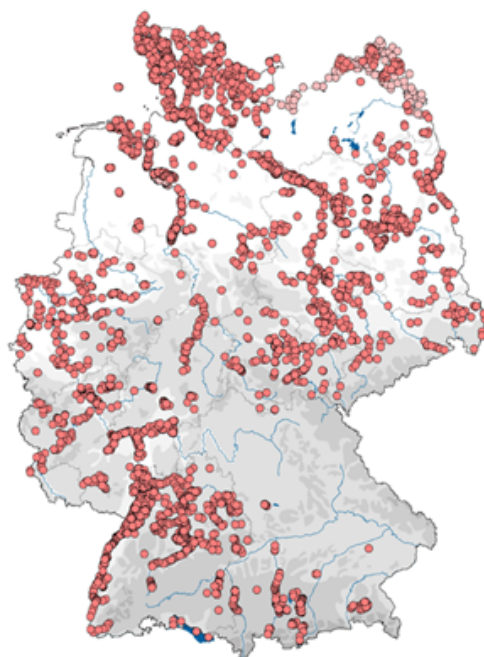


Figure 1. The January 2023 count covered 3 200 count units, for which data was available by Oct. 2023, mostly entered via or-nitho.de or the associated NaturaList app. Count units marked in rosé conducted counts that were not yet digitally available in the national database. At many more sites, IWC counts have been conducted, namely in Lower Saxony (esp. Wadden Sea area), Mecklenburg-Western Pomerania and Bavaria.

around the weekend of January 14/15th but conducted one week later along the Wadden Sea coast due to the tidal cycle. The total count was conducted within the framework of the national waterbird monitoring scheme as well as the regional geese and swan counts. All species listed in African-Eurasian Waterbird Agreement were counted, but observers were encouraged to report an extended species list covering additional wetland-associated passerines and raptors. Goose and swan counts covered a limited set of open habitat waterbird species including species such as Golden Plover and Lapwing. According to the German Meteorological Service (DWD), January weather all over Germany was characterised by temperatures c. 4 °C above the long-term average and usually associated with the situation in early spring in March. In southern Germany, some days even experienced spring-like conditions with nearly 20°C. Hence, the tendency for a mild winter continued, as mild and often wet weather prevailed during most parts of the 2022/23 season. Consequently, ice and snow cover were much lower than usual. The only obvious cold spell occurred in the first half of December, including temporary snow cover in parts of the country.

Table 1. Trend statistics for five model waterbird species in January in Germany (cf. Fig. 3). Population trends:  $\downarrow\downarrow$  – strong decline (>3% per year),  $\downarrow$  – moderate decline (1-3%),  $\searrow$  – slight decline (<1%),  $\rightarrow$  – stable (insignificant trend, no changes),  $\nearrow$  – slight increase (<1%),  $\uparrow$  – moderate increase (1-3%).

Scientific name	Common name (EN)	Annual population change in January (% $\pm$ SE)			
		1968–2023		2014–2023	
<i>Podiceps cristatus</i>	Great Crested Grebe	+2.10 $\pm$ 0.049	$\uparrow$	0.00 $\pm$ 0.46	$\rightarrow$
<i>Fulica atra</i>	Common Coot	-0.53 $\pm$ 0.038	$\searrow$	-1.89 $\pm$ 0.52	$\searrow$
<i>Cygnus olor</i>	Mute Swan	+1.60 $\pm$ 0.044	$\uparrow$	-0.09 $\pm$ 0.40	$\rightarrow$
<i>Anas platyrhynchos</i>	Mallard	-1.06 $\pm$ 0.033	$\downarrow$	-4.19 $\pm$ 0.40	$\downarrow\downarrow$
<i>Aythya fuligula</i>	Tufted Duck	+0.40 $\pm$ 0.054	$\nearrow$	-1.19 $\pm$ 0.66	$\rightarrow$

In the past years, much progress has been made to submit census data online through ornitho.de and the connected Naturalist app for direct entry in the field. These changes in submission of counts and adaptation of regional routines in database management are still work in progress, which means that we cannot present a full account on waterbird numbers present in Germany in January 2023 yet. Based on results that have been submitted so far, data from 3 200 census units (approx. half of all units counted) have been received (Fig. 1). This does not cover all sites counted, as some data still have to be submitted or processed. Based on the newest mid-winter counts, we calculated nationwide population trends for five waterbird species of different systematic positions and ecology (Great-crested Grebe, Common Coot, Mute

Swan, Mallard and Tufted Duck) using R package rtrim 2.1.1 (Bogaart et al., 2020; Table 1). We further present overall trends for the whole season from September to April as well as estimated seasonal abundance changes.

### 3. RESULTS

The preliminary trends based on long-term and recent January data show different developments for the five species (Figure 2, Table 1): Mute Swan and Great-crested Grebe display a moderate increase, whereas Mallard has experienced a moderate decline since the late 1960s. Population changes in Common Coot and Tufted Duck are less pronounced but tend to decline more recently likewise. Common Coot, Mallard and Tufted Duck

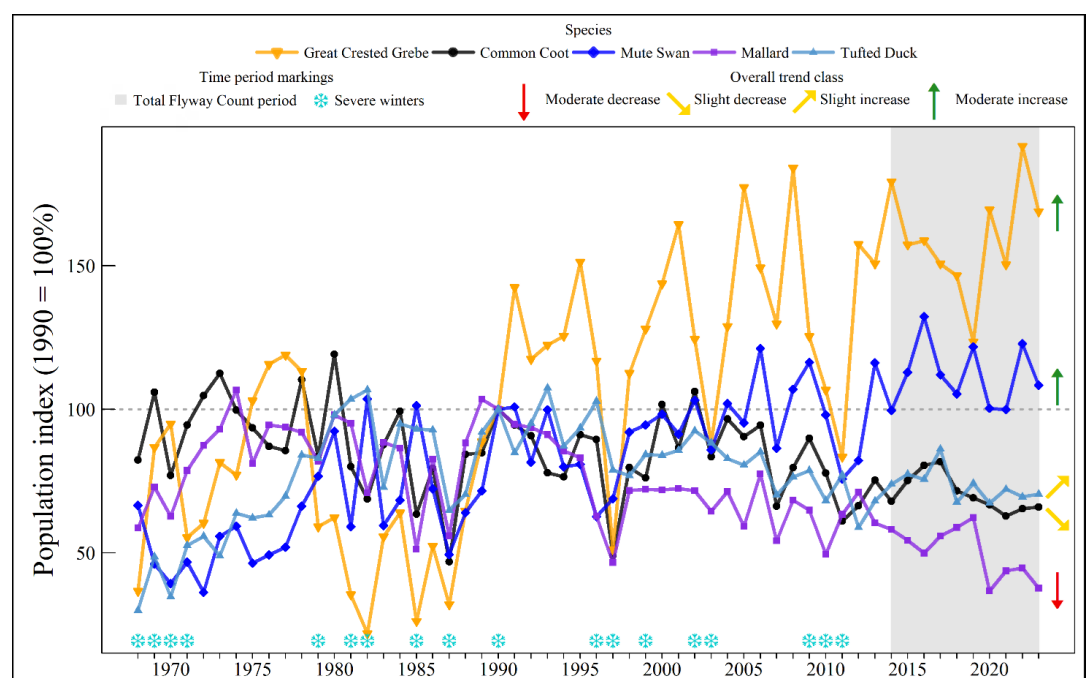


Figure 2. Long-term trends in five model waterbird species in January in Germany relative to 1990 (100%). Harsh winters are marked on the x-axis. Arrows denote trend symbols reflecting the long-term trend from 1968 onwards (cf. tab. 1).

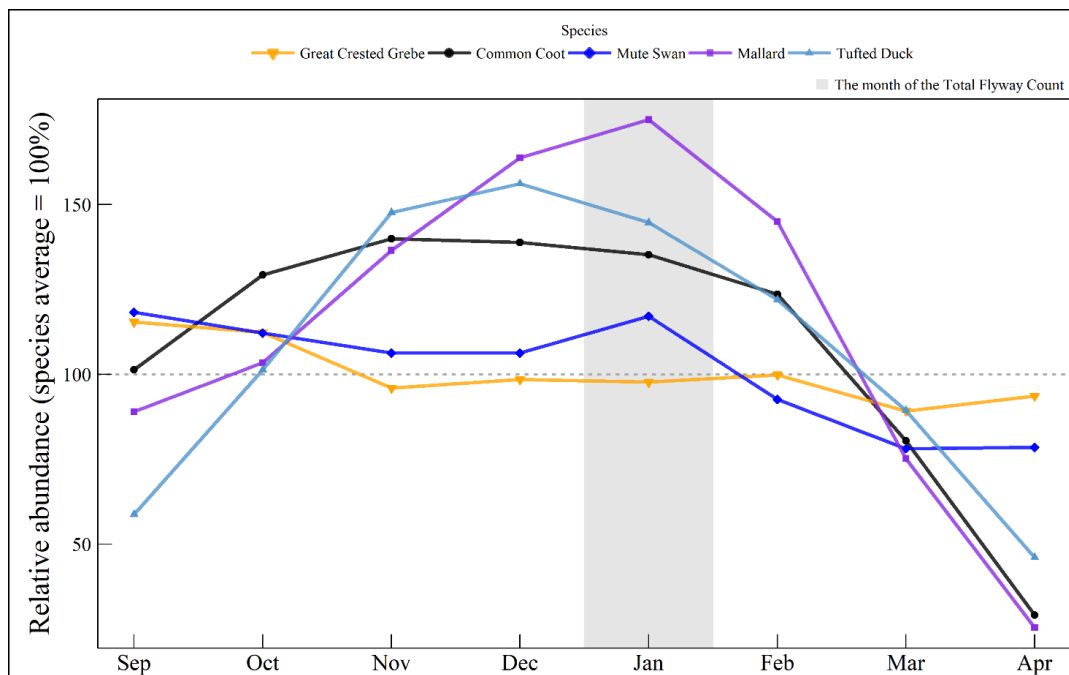


Figure 3. Phenology in five model waterbird species in Germany from 2013/2014 to 2022/2023.

reach their seasonal peak in December while Great-crested Grebe and Mute Swan are stable over the most part of the count season (Figure 3).

#### 4. DISCUSSION

Multiple factors have been identified to affect waterbird numbers in Germany. For the selected species, especially Great-crested Grebe seems to be subject to pronounced decreases in severe winters, resulting in an exodus to offshore waters or southbound movements to avoid winter weather. The large dynamics in this species (especially peak numbers in some years) require further investigation. Earlier flyway assessments have shown stable trends in recent years (van Roomen et al., 2022), while numbers in Germany still suggest an upward trend. Increases in Mute Swan are likely associated with the general increase of herbivorous species in response to the intensification of agriculture and subsequent improvements in feeding opportunities over the past decades. However, this increase seems to ease in recent years. In Mallard, the long-term downward trend has accelerated within the past decade and corresponds well with the overall negative trend observed in the East-Atlantic Flyway. For more than 10 years, no harsh first half of winter occurred, which may have contributed to the accelerating decline due to short-stopping or cessation of migratory behaviour. Trend values based on counts from September to April (not

presented here) show similar results, but much more pronounced recent declines, suggesting that negative tendencies were linked with changes in the beginning or the end of the wintering period. Estimates based on January counts only may be subject to variation due to winter weather (Fig. 3) and thus not always reflect the underlying population trends. On a continental scale, these aspects are less pronounced as the entire flyway population is covered. However on a national or site level, multiple counts over the winter season are necessary to capture changes in waterbird abundances.

Apart from changes in distribution and numbers caused by warmer winters, the rise of renewable energies is an emerging issue. In addition to expanding wind energy areas, the use of floating solar panels in larger waterbodies rapidly increases. This development is still in an early stage, but a national assessment of important waterbodies and wetlands is essential to identify the relevant stopover, wintering and moulting sites for waterbirds to exclude these from the speeding up expansion of renewable energies also outside Special Protection Areas.

#### Acknowledgements

Above all, we would like to thank all observers of the 2023 Total Flyway Count – especially the long-time volunteers, who continuously

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## 12. The Netherlands



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### Results of January 2023 counts of waterbirds in The Netherlands

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#### 1. INTRODUCTION

The Netherlands are a fairly small low lying country in Western Europe bordering the North Sea. Large parts of the country are a big delta of the Rhine, Meuse, Schelde and Eems rivers. Thanks to its water rich character (almost 20% of the area of The Netherlands consists of surface water), relatively mild winters and location on the East

Atlantic migration route, The Netherlands is very attractive for wintering and migrating waterbirds. Waterbird counts in The Netherlands have a long tradition, the IWC counts in the Netherlands are organised from 1967 onwards. Locally some counts already even in 1947. Nowadays the waterbird counts, which are carried out monthly from September to April (and in some important areas year round) are part of a national governmental ecological surveillance scheme ('Netwerk Ecologische Monitoring'). The data is mainly used to inform about species' abundance and their trends, which are estimated at a national scale as well as for specific sites (Natura 2000, other important bird areas and specific goose and swan sites).

#### 2. METHODS

In January 2023 in total c. 2900 counting units were counted covering c 23,000 km<sup>2</sup> which is approximately 55% of the country's surface.

Large-scale and systematic waterbird surveys have been carried out in the Netherlands for decades. The scheme has a fixed set up and is carried out following standardised guidelines and routines (Hornman et al. 2022). Sovon coordinates this scheme in close collaboration with national as well as regional governmental bodies and Statistics Netherlands (trend analyses and quality control). Fieldwork is carried out by c. 2,200 volunteers, while in some larger areas also professional counters are involved (sometimes ship-based or aerial

surveys). Counting effort focuses on all important wetlands and goose and swan staging/wintering sites, including vast farmland areas.

Waterbird counts are carried out monthly in September–April (additional goose counts in May), in some areas year round (e.g. SW Delta area, IJsselmeer and Noord-Holland, Frisian and Groningen Wadden Sea coasts). The highest counting effort is achieved during the International Waterbird Census (IWC) in January. At this time, numerous smaller waterbodies, urban parks and various canals are additionally visited, with focus on the low western part of the country, where the largest concentrations of waterbirds occur. Tidal areas are counted during high tide, whereas the open waters of Lake IJsselmeer, Lake Markermeer, Wadden Sea and North Sea (coastal zone as well as offshore) are covered with aerial surveys (latter only in January and November). For seabirds, the data of aerial surveys are supplemented by systematic seawatch data from coastal viewpoints.

### 3. RESULTS

Unfortunately, the January 2023 count took place under very unfavourable circumstances. Due to stormy weather and heavy rainfall, a number of important areas, especially in the Wadden area in particular some important sandbanks and small islands, could not be reached (by boat) and therefore not counted. The Wadden Sea complete count was therefore far from complete: approximately 1/3 of the birds were not counted there. We have therefore made an imputation (additional estimate) for the uncounted areas in the Wadden area. For most species only a relatively small number of individuals (at most a few percent) have been added to the total number counted. However, for waders, and in particular the species that gather in large groups on those sandbanks and islands (such as Oystercatcher, Knot, Dunlin, Bar-tailed Godwit and Curlew) the imputation made a big difference (up to c. 50% of imputation).

Although the count was incomplete, in total 5.33 million birds (rounded) were counted. With the imputation for the non counted areas total number increased to 5.62 million. Since 2011 total number of counted waterbirds was never below 5 million (average 5.48 million). Greater white-fronted Goose (833,000), Wigeon (656,000) and Barnacle Goose (601,000) were the most numerous bird species, as was the case in most years before, although Greater white-fronted Goose and Wigeon pushed Barnacle Goose from rank 1 to 3. Thanks to the quick submission of counting data (thanks to online portals and apps) the result



Figure 1: Parts of the Netherlands counted for all waterbird species (in blue) and sites counted for geese and swan (in green) in January.

of the January 2023 count is already as good as complete .

### 4. DISCUSSION

After decades of continuous increase, the average number of waterbirds in the Netherlands stabilized already around 2000 and is declining in recent years. The decline is mainly due to lower numbers in some goose and swan species and the group of species that mostly overwinter northeast of our country have been declining here over the past decades, as they winter further north. Species that primarily overwintered southwest of the Netherlands are now showing an increase in the Netherlands because of a range shift caused by milder winters.

Many species qualifying for Natura 2000-sites show a status quo of their long-term trends. Abundance in species with a favorable conservation status usually is still above levels which had been defined as a favorable number. On the other hand, a group of 20 species in an unfavorable conservation status do not show signs of recovery, partly also mirroring developments at flyway level. At site-level there are 27 SPAs for which at least half of the qualifying species occur in numbers above conservation objectives, while in 30 SPAs numbers in at least half of all qualifying species remained below target level. Online, [www.sovon.nl/nl/gebieden](http://www.sovon.nl/nl/gebieden) gives a full overview of all sites, species and trends as well as links to general information about these sites.

## Acknowledgements

In January 2023 about 2200 volunteer counters participated in the IWC census. I would like to thank them all for their time and commitment. Thanks to their enthusiastic and unremitting commitment, the regional coordinators were able to motivate many counters and recruit new ones. Without the professional counts in the Delta area, Lake IJsselmeer and North Sea coast the census wouldn't be complete.

The Dutch Waterbird scheme is part of the Dutch governmental Network of Ecological Monitoring (NEM) and is commissioned by Rijkswa-

terstaat - Central Information Services, and the Ministry of Agriculture, Nature and Food Quality. It is carried out by Sovon Dutch Centre for Field Ornithology and Statistics Netherlands.

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Table 1. Counted numbers (preliminary) of selected species (East Atlantic Flyway focal species) in The Netherlands during the IWC waterbird count in January 2023. Numbers marked with an asterisk (\*) are counted plus imputed numbers, due to unfavorable conditions in the Wadden sea (see text). The total average population estimates in the Netherlands (including estimates for uncounted sites) in 2016/17-2020/21 are given as well (Hornman et al. 2022), NA is not assessed.

Scientific name	Common name (EN)	2023	Total estimate 2017-2021
<i>Branta bernicla</i>	Brent Goose	54,466*	52,100
<i>Branta leucopsis</i>	Barnacle Goose	601,061*	768,000
<i>Anser anser</i>	Greylag Goose	464,457*	554,000
<i>Tadorna tadorna</i>	Common Shelduck	60,573*	46,800
<i>Spatula clypeata</i>	Northern Shoveler	14,278*	19,700
<i>Anas penelope</i>	Eurasian Wigeon	655,862*	863,000
<i>Anas platyrhynchos</i>	Mallard	232,598*	429,000
<i>Anas acuta</i>	Pintail	27,632*	24,600
<i>Anas crecca</i>	Common Teal	89,006*	79,300
<i>Aythya marila</i>	Greater Scaup	90,203	74,600
<i>Somateria mollissima</i>	Common Eider	38,451	63,800
<i>Melanitta nigra</i>	Common Scoter	66,135	45,000
<i>Bucephala clangula</i>	Common Goldeneye	5,103*	6,600
<i>Mergus serrator</i>	Red-breasted Merganser	6,175*	6,800
<i>Podiceps cristatus</i>	Great Crested Grebe	18,257	23,000
<i>Podiceps auritus</i>	Horned Grebe	91	120
<i>Podiceps nigricollis</i>	Black-necked Grebe	636	810
<i>Phoenicopterus roseus</i>	Greater Flamingo	20	NA
<i>Phalacrocorax carbo</i>	Great Cormorant	29,975*	58,400
<i>Platalea leucorodia</i>	Eurasian Spoonbill	126	NA
<i>Bubulcus ibis</i>	Cattle Egret	16	NA
<i>Ardea cinerea</i>	Grey Heron	7,729	15,100
<i>Ardea alba</i>	Great White Egret	6,705	11,500
<i>Egretta garzetta</i>	Little Egret	399	NA
<i>Haematopus ostralegus</i>	Eurasian Oystercatcher	137,689*	167,000
<i>Recurvirostra avosetta</i>	Pied Avocet	5,307*	2,970
<i>Pluvialis squatarola</i>	Grey Plover	28,716*	28,300

Scientific name	Common name (EN)	2023	Total estimate 2017-2021
<i>Charadrius hiaticula</i>	Common Ringed Plover	781*	450
<i>Charadrius alexandrinus</i>	Kentish Plover	0	NA
<i>Numenius phaeopus</i>	Whimbrel	9	NA
<i>Numenius arquata</i>	Eurasian Curlew	119,762*	150,000
<i>Limosa lapponica</i>	Bar-tailed Godwit	45,865*	62,000
<i>Arenaria interpres</i>	Ruddy Turnstone	7,322*	7,300
<i>Calidris canutus</i>	Red Knot	51,642*	52,400
<i>Calidris alba</i>	Sanderling	10,297*	15,700
<i>Calidris alpina</i>	Dunlin	337,332*	249,000
<i>Calidris maritima</i>	Purple Sandpiper	273	NA
<i>Calidris minuta</i>	Little Stint	6	NA
<i>Actitis hypoleucos</i>	Common Sandpiper	10	NA
<i>Tringa totanus</i>	Common Redshank	14,861*	12,300
<i>Tringa erythropus</i>	Spotted Redshank	167*	NA
<i>Tringa nebularia</i>	Common Greenshank	31*	NA
<i>Larus ridibundus</i>	Black-headed Gull	245,264*	349,000
<i>Larus melanocephalus</i>	Mediterranean Gull	26	NA
<i>Larus canus</i>	Mew Gull	249,054*	340,000
<i>Larus marinus</i>	Great Black-backed Gull	4,915*	24,000
<i>Larus argentatus</i>	European Herring Gull	79,254*	161,000
<i>Larus cachinnans</i>	Caspian Gull	462	NA
<i>Larus michahellis</i>	Yellow-legged Gull	82	NA
<i>Larus fuscus</i>	Lesser Black-backed Gull	230	NA
<i>Sterna sandvicensis</i>	Sandwich Tern	35	NA
<i>Sterna hirundo</i>	Common Tern	3	NA

## 13. Belgium



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### Results of January 2023 counts of waterbirds in Belgium

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#### 1. INTRODUCTION

Coastal waterbird numbers in Belgium are rather small. The main reason is that, of all the European countries bordering the sea, Belgium has one of the shortest (65.4 km in length) and most urbanised coastlines with few suitable habitats for waterbirds. Along the coast, narrow sandy beaches prevail, with broader beaches restricted to the west coast near De Panne (c. 3 km long) and at both sides of the Zeebrugge harbour piers (c. 1 km). The tidal range amounts to between 3–5 m. Stony breakwaters – constructed to prevent marine erosion – are a characteristic feature along

the Belgian shoreline. More than half of the entire length of the coast (34 km) is bordered with buildings and boulevards. Intertidal saltmarshes and mudflats are found at two locations: the eastern bank of the Yzer estuary at Nieuwpoort and the tidal inlet of the Zwin area near the Dutch border. The tidal flats and saltmarshes along the river Yzer cover about 33 ha, beside some 25 ha of dune habitats. The Zwin nature reserve at Knokke is part of a transboundary wetland, with around 250 ha in Belgium and 25 ha in The Netherlands. Both these areas are nationally and internationally protected, with tidal habitats recently been restored and expanded by nature restoration projects. Until 10 years ago, also the port of Zeebrugge held important waterbird numbers but most of the suitable feeding areas for waders have been gradually disappearing due to the construction of new container terminals.

#### 2. METHODS

Mid-monthly waterbird counts in Flanders – the northern region of Belgium – are carried out during the period of October to March (Devos et al. 2020) and also cover coastal habitats. Hence, they provide quite complete and reliable information about the numbers and trends of waterbirds that occur along the Belgian coast. These counts are organised by the Flemish Research Institute for Nature and Forest (INBO), while most of the field-

work is done by skilled volunteers (with support of the NGO Natuurpunt).

For the East Atlantic Flyway survey 2023, almost all counts took place on 22/23 January and included all waterbird species, with exception of gulls. Waders along the coast were counted during high tide, when they gather on high tide roosts. Traditional roost places are well known and their coverage during the 2023 count can be regarded as quite complete. In order to minimise the effects of bird movements, the majority of the roosts were counted more or less simultaneously (by 10 counters).

### 3. RESULTS

The results of the East Atlantic Flyway count along the Belgian coast in January 2023 are summarized in Table 1 and compared to total species numbers in Belgium and numbers in 2020. The most numerous species were Dunlin, Eurasian Oystercatcher and Northern Lapwing. The distribution of typical coastal species as Sanderling, Dunlin and Ruddy Turnstone is largely restricted to the Belgian coastline, so their numbers are very close to the total Belgian population number. In contrast, some wader species such as Northern Lapwing, Golden Plover and Eurasian Curlew mainly occur at inland sites, especially on agricultural grasslands and arable fields. Their numbers in coastal areas only represent a small proportion of the Belgian population.

### 4. DISCUSSION

Placed in an international context, numbers of coastal waders wintering in Belgium are rather small and do not represent a large proportion of total flyway populations (< 1%). For most species, numbers counted in January 2023 were slightly higher than in 2020. This is mainly due to the positive response of several species to the large nature restoration project in the Zwin area near Knokke, by which 120 ha of new tidal habitat was created on formerly arable land. The largest increase was recorded in the numbers of Pied Avocet, with 324 birds (only 47 in 2020). The only coastal species that showed a significant decrease compared to 2020 was Ruddy Turnstone (665 vs 1,197). It is however not yet clear if this fits within a negative trend on the longer term or is rather a short-term fluctuation.

### Acknowledgements

Many thanks go to the dedicated volunteers that were involved in the counts along the Belgian coast: Paul Lingier, Serge Allein, Geert Jonckheere, Jean Pieters, Roland François, Bart Put, Wouter Faveyts, Leo Declercq, Luc Maertens, Guido Rappé, Georges De Putter, Frank De Scheemaeker and Marc De Ceuninck.

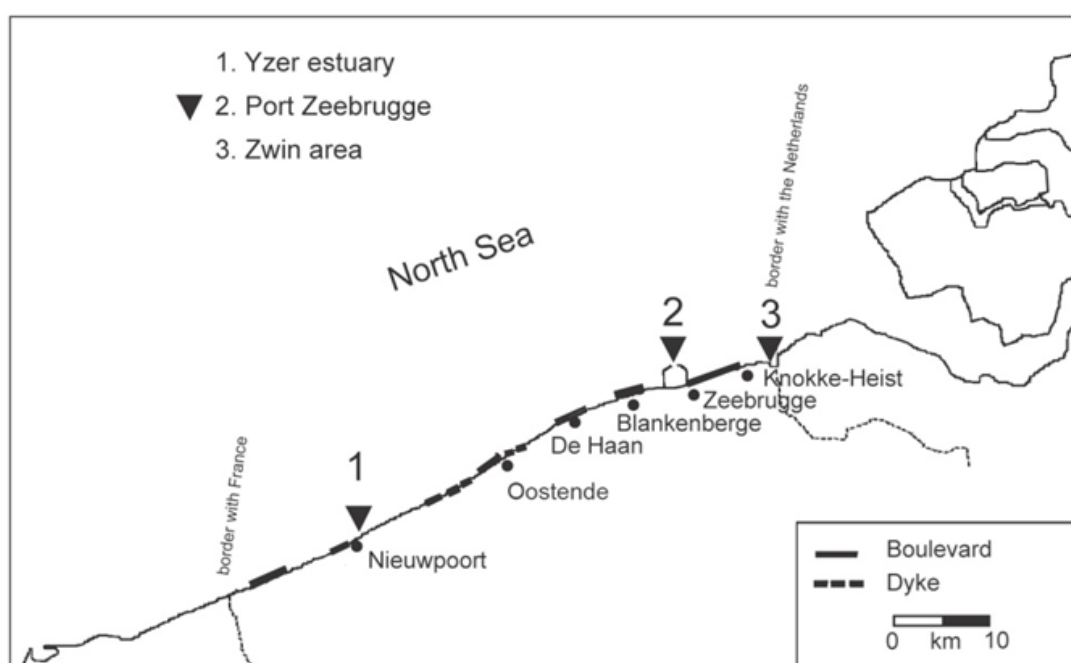


Figure 1. Map with the Belgian shoreline and indication of the main wintering areas of coastal waterbirds.

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Table 1. Species totals of coastal waterbirds along the Belgian coast and for the whole of Belgium during the mid-January count 2023, compared with count results of 2020.

Scientific name	Common name (EN)	Coast 2023	Total Belgium 2023	Coast 2020	Total Belgium 2020
<i>Branta bernicla</i>	Brent Goose	32	48	24	27
<i>Branta leucopsis</i>	Barnacle Goose	7	11,631	8	13,220
<i>Somateria mollissima</i>	Common Eider	0	0	1	1
<i>Tadorna tadorna</i>	Common Shelduck	376	3,209	368	3,207
<i>Spatula clypeata</i>	Northern Shoveler	2	4,632	4	3,698
<i>Mareca penelope</i>	Eurasian Wigeon	320	40,229	233	30,537
<i>Anas platyrhynchos</i>	Mallard	389	45,767	400	45,291
<i>Anas acuta</i>	Northern Pintail	54	920	25	442
<i>Anas crecca</i>	Common Teal	27	16,455	23	9870
<i>Podiceps cristatus</i>	Great Crested Grebe	43	1,865	27	2,111
<i>Platalea leucorodia</i>	Eurasian Spoonbill	3	14	1	13
<i>Phalacrocorax carbo</i>	Great Cormorant	64	5,316	78	6,233
<i>Haematopus ostralegus</i>	Eurasian Oystercatcher	1,965	2,317	1,654	1,959
<i>Recurvirostra avosetta</i>	Pied Avocet	324	416	47	262
<i>Pluvialis squatarola</i>	Grey Plover	276	276	187	187
<i>Pluvialis apricaria</i>	Golden Plover	1	4,180	0	4,437
<i>Charadrius hiaticula</i>	Common Ringed Plover	84	96	82	82
<i>Vanellus vanellus</i>	Northern Lapwing	1,025	35,401	779	35,448
<i>Numenius phaeopus</i>	Whimbrel	0	0	1	1
<i>Numenius arquata</i>	Eurasian Curlew	364	7,682	339	9,076
<i>Limosa limosa</i>	Black-tailed Godwit	11	11	2	11
<i>Limosa lapponica</i>	Bar-tailed Godwit	2	2	0	0
<i>Arenaria interpres</i>	Ruddy Turnstone	665	657	1,197	1,199
<i>Calidris canutus</i>	Red Knot	2	2	7	7
<i>Calidris alba</i>	Sanderling	345	345	251	251
<i>Calidris alpina</i>	Dunlin	2,207	2,285	1,847	1,858
<i>Calidris maritima</i>	Purple Sandpiper	36	36	38	38
<i>Tringa erythropus</i>	Spotted Redshank	11	16	11	11
<i>Tringa totanus</i>	Common Redshank	534	713	302	356
<b>Total number</b>		<b>9,169</b>	<b>184,521</b>	<b>7,936</b>	<b>169,833</b>

## 14. France



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## Results of January 2023 counts of waterbirds in France/ Comptage des Oiseaux d'eau à la janvier 2023 en France

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### 1. INTRODUCTION

At the crossroad between the Black Sea-Mediterranean and the East Atlantic flyways, France is an attractive country for many overwintering waterbird species thanks to the number and diversity of its wetlands and its network of protected areas. Most waterbirds are found along the North

Sea and the Channel Sea, the Bay of Biscay, and the Mediterranean Sea, totalling 5,165 km of coastline. They frequent large estuarine bays and intertidal flats, coastal marshes, mediterranean lagoons, linear rocky and sandy shorelines. Inland wetlands are also of great importance, including some large wetlands areas such as the Rhine Valley, the region of Champagne and lakes and ponds of the Brenne and the Dombes areas. Each year over 2.7 million waterbirds are counted by a growing network of volunteer & professional birdwatchers and protected area managers, making the IWC one of the largest and longest running citizen science programmes in France.

### 2. METHODS

The IWC in France relies mainly on the network of some 70 local coordinators deployed at the scale of administrative Counties and Regions. They coordinate participants, organise the cover and date of the census and oversee data reporting to the national coordination. Relaying the official date of the IWC in Europe and Africa (fixed to the 14th-15th January in 2023) a 7-days windows is allowed to account for local constraints such as tidal cycle or bad weather. Since 2016, the process for reporting census data goes through an online reporting module developed by Germany on the Biologvision Sàrl database and dedicated to IWC. This new system of reporting was only possible thanks to the hard work done by the local coor-

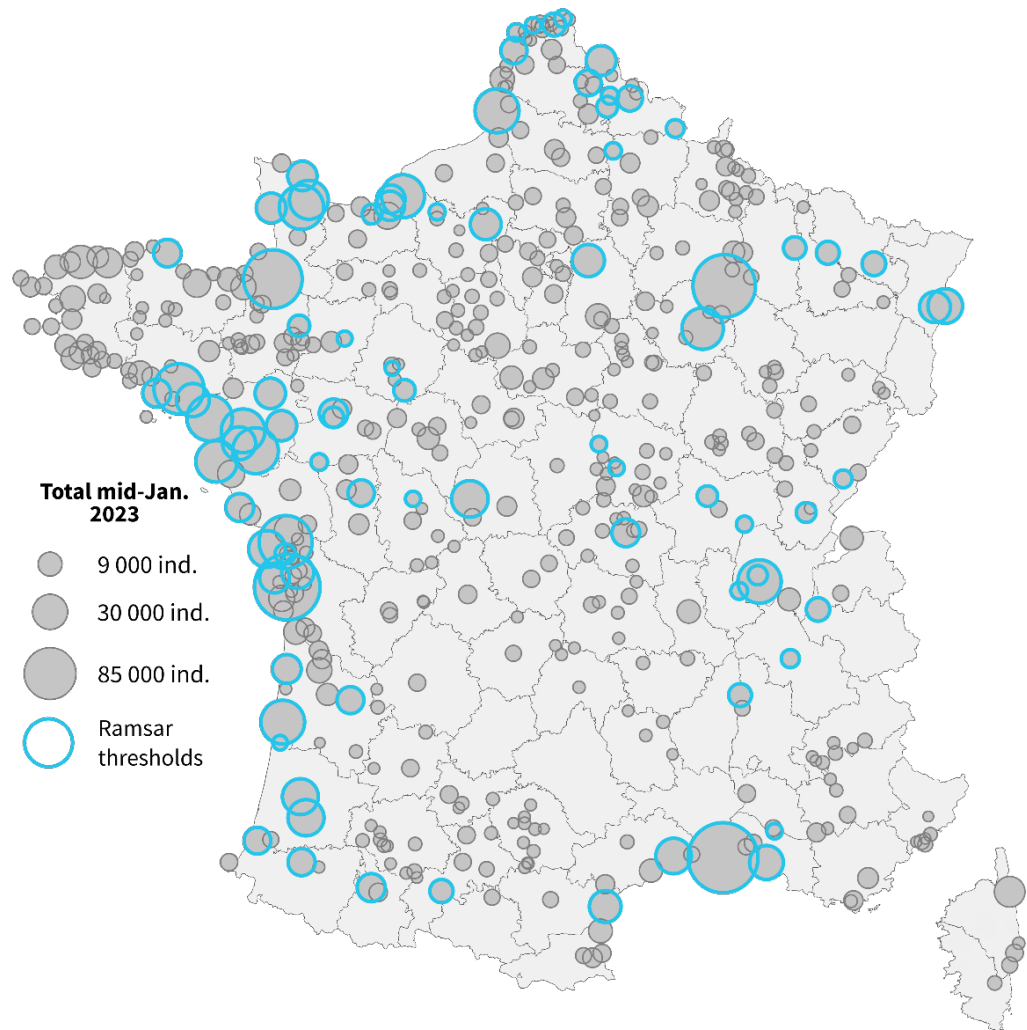


Figure 1. Cover of the 2023 IWC in France. Total number of waterbirds counted during the 2023 mid-January census in France and location of sites meeting criteria for international importance (blue circles) are given as well.

dinators to digitize more than 10,000 counting units inside some 500 functional sites. Using this system, observers can now report their observations directly in the field using the smartphone app NaturaList. Most sites are visited on foot, but boats are also used to visit islands and some lakes. Due to its extent and inherent accessibility problems, only the Camargue is surveyed each year by plane. In 2023, 488 sites were counted (Figure 1, i.e. a good cover of 94% of active sites) for a total of 2,746,882 waterbirds. More than 1,500 birdwatchers – mainly volunteers but also professional from Nature Conservation NGOs, public agencies, protected areas etc. – were involved in the census. Each year, an annual report describing the key figures and conditions of the counts is published, along with an appendix describing numbers, distributions and trends of some 70 regular species. These documents can be found here: <https://www.lpo.fr/la-lpo-en->

[actions/connaissance-des-especes-sauvages/suivis-ornithologiques/oiseaux-d-eau/wetlands-international/telechargez-les-bilans-wetlands](https://www.lpo.fr/la-lpo-en-actions/connaissance-des-especes-sauvages/suivis-ornithologiques/oiseaux-d-eau/wetlands-international/telechargez-les-bilans-wetlands).

### 3. RESULTS

The results of the 2023 International Waterbird Census in France are presented in table 1.

### 4. DISCUSSION

The winter 2022/23 in France was very mild until the beginning of January, the second half of the month was cooler after the break of several storms and depressions, with snowy spells in lowlands and high winds through several parts of the country. These events have locally disturbed counts due to low visibility and frost, but most of sites (>90%) have reported good conditions. At 2,754,378 individuals, total counts were within



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the average, except of for Ducks, Goose, Grebes, and Common Coot, whose counts were below average. The fall in Anatidae numbers is further exacerbated by low counts reported for the Camargue (-37% versus 5yrs mean), the primary site for this group. The aerial census of the site had to be postponed to the first half of February due to mistral for weeks at a time. Several species reached new lows, including Common Goldeneye, Greater Scaup, Common Pochard and Tufted Duck. On the other hand, and probably because of the cold spell, with 163,198 birds, the count was the second highest for Common Teal. In a context of long-term increase, numbers of Crane and Ardeidae were above average. Waders' counts were also higher than average, mainly because of the influx of Eurasian Lapwing (with an occurrence record on sites), while the Golden Plover recorded its highest count ever with 57,492 individuals. Coastal numbers of Pied Avocet, Ringed Plover, and Red Knot were below average. For instance, Red Knot numbers were down 30% vs. 2022, corresponding to the same levels observed in January 2018 and 2019 following poor breeding seasons. Numbers of Dunlins, Grey Plover or Eurasian Curlew were higher relative to 2022. Counts of Laridae were within the average. Their national winter census (on roosting sites) is planned for winter 2023/24. Due to high wind events, coastal numbers of Mediterranean Gull reached a new high this year, with some individuals also reported in inland sites, such as in the Rhône Valley. 669 individuals were reported for the rarer Little Gull, representing the third highest count and the first for occurrence with 44 sites reporting the species. Unusual high numbers of Grey Phalarope (highest record of 40 ind.) are also significant.

### Acknowledgements

This work would have been impossible without the participation of field ornithologists, mostly volunteers, counting birds for a large number of ornithological associations and organizations.

Table 1. Total numbers of EAF assessment focal species recorded in France in mid-January 2023. Numbers are given according to each Wetland International regions (North-West Europe, North-West Mediterranean and Central Europe)

EAF assesment Focal Species			Nb. ind. mid-january 2023			
			per WI regions & total			
Scientific name	Common name (EN)	Nom vernaculaire (FR)	NW Europe	NW Med	C Europe	Total France
<i>Branta bernicla</i>	Brent Goose	Bernache cravant	92,537			92,537
<i>Branta leucopsis</i>	Barnacle Goose	Bernache nonnette	429		2	431
<i>Anser anser</i>	Greylag Goose	Oie cendrée	10,831	99	424	11,354
<i>Somateria mollissima</i>	Common Eider	Eider à duvet	224			224
<i>Tadorna tadorna</i>	Common Shelduck	Tadorne de Belon	46,553	6,694	13	53,260
<i>Spatula clypeata</i>	Northern Shoveler	Canard souchet	32,103	7,291	62	39,456
<i>Mareca penelope</i>	Eurasian Wigeon	Canard siffleur	28,317	3,473	540	32,330
<i>Anas platyrhynchos</i>	Mallard	Canard colvert	194,190	25,795	8,826	228,811
<i>Anas acuta</i>	Northern Pintail	Canard pilet	14,093	1,276	142	15,511
<i>Anas crecca</i>	Common Teal	Sarcelle d'hiver	137,780	24,192	1,228	163,200
<i>Podiceps cristatus</i>	Great Crested Grebe	Grèbe huppé	23,869	3,234	797	27,900
<i>Podiceps auritus</i>	Horned Grebe	Grèbe esclavon	169	1		170
<i>Podiceps nigricollis</i>	Black-necked Grebe	Grèbe à cou noir	2,753	2,252		5,005
<i>Phoenicopterus roseus</i>	Greater Flamingo	Flamant rose		49,014		49,014
<i>Platalea leucorodia</i>	Eurasian Spoonbill	Spatule blanche	1,906	250		2,156
<i>Ardea alba</i>	Great White Egret	Grande Aigrette	7,793	601	232	8,626
<i>Pelecanus rufescens</i>	Pink-backed Pelican	Pélican gris		7		7
<i>Phalacrocorax carbo</i>	Great Cormorant	Grand Cormoran	62,420	10,661	2,285	75,366
<i>Haematopus ostralegus</i>	Eurasian Oystercatcher	Huîtrier pie	43,902	11		43,913
<i>Recurvirostra avosetta</i>	Pied Avocet	Avocette élégante	14,124	1,626		15,750
<i>Pluvialis squatarola</i>	Grey Plover	Pluvier argenté	36,021	1,644		37,665
<i>Charadrius hiaticula</i>	Common Ringed Plover	Pluvier grand-gravelot	10,297	184		10,481
<i>Charadrius alexandrinus</i>	Kentish Plover	Gravelot à collier interrompu	130	443		573
<i>Numenius phaeopus</i>	Whimbrel	Courlis corlieu	62	1		63
<i>Numenius arquata</i>	Eurasian Curlew	Courlis cendré	30,147	413	7	30,567
<i>Limosa lapponica</i>	Bar-tailed Godwit	Barge rousse	7,657	1		7,658
<i>Arenaria interpres</i>	Ruddy Turnstone	Tournepiere à collier	22,839	141		22,980
<i>Calidris canutus</i>	Red Knot	Bécasseau maubèche	31,085	32		31,117
<i>Calidris alba</i>	Sanderling	Bécasseau sanderling	23,374	90		23,464
<i>Calidris alpina</i>	Dunlin	Bécasseau variable	308,018	22,601	1	330,620
<i>Calidris maritima</i>	Purple Sandpiper	Bécasseau violet	925			925
<i>Calidris minuta</i>	Little Stint	Bécasseau minute	37	1,413		1,450
<i>Tringa erythropus</i>	Spotted Redshank	Chevalier arlequin	302	2		304
<i>Tringa nebularia</i>	Common Greenshank	Chevalier aboyeur	620	85		705
<i>Tringa totanus</i>	Common Redshank	Chevalier gambette	5,728	455		6,183
<i>Chroicocephalus genei</i>	Slender-billed Gull	Goéland railleur	1	437		438
<i>Chroicocephalus ridibundus</i>	Black-headed Gull	Mouette rieuse	230,282	23,889	3,102	257,273
<i>Ichthyaetus melanocephalus</i>	Mediterranean Gull	Mouette mélanocéphale	10,610	2,780		13,390
<i>Ichthyaetus audouinii</i>	Audouin's Gull	Goéland d'Audouin		4		4
<i>Larus canus</i>	Mew Gull	Goéland cendré	15,895	1		15,896
<i>Larus fuscus</i>	Lesser Black-backed Gull	Goéland brun	10,147	6		10,153
<i>Larus argentatus</i>	European Herring Gull	Goéland argenté	62,900		1	62,901
<i>Larus marinus</i>	Great Black-backed Gull	Goéland marin	8,698			8,698
<i>Thalasseus sandvicensis</i>	Sandwich Tern	Sterne caugek	346	526		872

## 15. Spain



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### Results of January 2023 counts of waterbirds in Spain

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#### 1. INTRODUCTION

Spain is a very important region to spend the winter and as a key stop on the migratory route of a significant number of waterfowl. Winter censuses of these species have been carried out since the 1980s and each year they improve in coverage and quality. The reports from the International Waterbird Census (IWC) represent the longest-running coordinated monitoring program in Spain.

SEO/BirdLife began coordinating, conducting, and collecting survey data through volunteers in the 1960s. Since then, monitoring has grown in participation and commitment; to the point that there are now autonomous communities that systematically carry out surveys every year.

For some years now, it has been up to the Ministry of the Environment to coordinate this work at the national level, and to the autonomous communities that carry out censuses within their territories. It is SEO/BirdLife who annually compiles all the information in a database, where data from censuses carried out by volunteers and local groups in some provinces and autonomous communities are also added.

SEO/BirdLife also acts as international coordinator, to ensure that all data is included in the World Wintering Waterbird Compilation; within the framework of Wetlands International.

On average, in Spain there are more than 1,000 waterbird sites counted (figure 1), although annual coverage depends on the resources available to the autonomous communities that control them. In recent years, some of these regions have not been surveyed for several winters. In the Canary Islands, censuses have begun to be carried out a few years ago.

#### 2. METHODS

The autonomous communities provided information on winter waterfowl censuses for the national

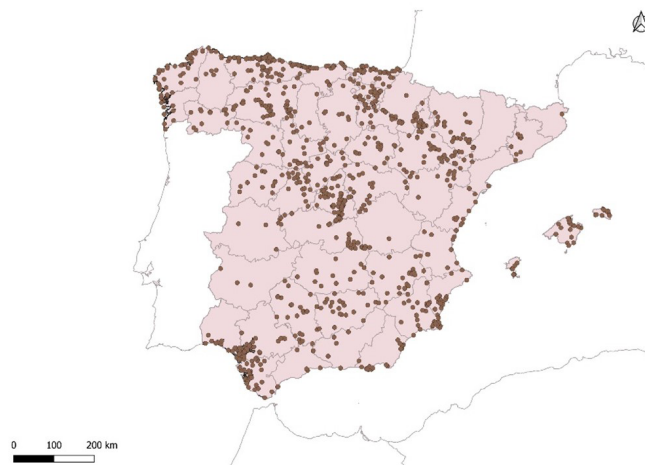


Figure 1. Cover of waterbird sites for the period 2009-2016 in Spain

compilation carried out by SEO/BirdLife for the Ministry of the Environment. Additionally, for some communities and provinces, information from censuses conducted by local groups or other organizations is included. The counts are carried out mainly from points located on the edge of the wetlands. In some rivers the census is divided into different sections and for some coastal areas sections that are also repeated each winter are also used.

In the Doñana Natural Area, the terrestrial census is corrected with an aerial census and the census points depend largely on the level of flooding of the marsh.

All species of waterbirds are counted: grebes (*Podicepsiformes*); cormorants (*Phalacrocoracidae*); Herons, Storks, Ibis and Spoonbills (*Ciconiiformes*); Flamingos (*Phoenicopteriformes*); Ducks and geese (*Anseriformes*); Moorhen and coots (*Gruiformes*); Waders and Terns (*Charadriiformes*) and Gulls (*Laridae*).

### 3. RESULTS

Unfortunately, data for winter 2023 were not available yet, as work is currently being done to update the information from 2017 to 2023. For this reason, no results can be shown. However, the number of wintering waterbirds in Spain each winter depends on the flood situation of the main wetlands. The average is around 1,900,000 individuals (1,982,481 during 2009-2016, and 1,828,422 during 2014-2016).

### 4. DISCUSSION

Despite not having updated data, very general information can be indicated on the trend of wintering waterfowl. The number of individuals

in winter is highly variable every year, probably reflecting movements made that depend on changes in habitat availability, as well as movements towards North Africa after reproduction and depends quite a bit on the level of flooding of the wetlands. Monitoring of waterfowl species in winter points to a general positive trend, although with fluctuations that appear to be closely linked to water levels in each period. In general, a general increase or stability has been detected in the most common aquatic birds, however very scarce species such as the Marbled Teal, Crested Coot and White-headed duck remain in a critical situation, despite the efforts made to conserve them. The Glossy Ibis has gone from being a rare species in some wetlands, such as the Ebro Delta, to becoming one of the most abundant birds in rice fields, and reaches high numbers in the Guadalquivir marshes, the wetland that houses the largest population.

Other species pending evaluation with recent censuses are the Greylag Goose, which showed negative trends, as well as the Common Pochard, the Tufted Pochard and the European Wigeon. Others, such as the Common Shelduck, continue to show a very positive trend.

### Acknowledgements

The list of collaborators, volunteers and local groups would be very long as there are more than 2,300 people who have participated in these censuses, but we would like to mention are: EBD-CSIC (Doñana's Singular Scientific-Technical); Parc Natural del Delta de l'Ebre and Parque Natural de L'Albufera, as well as all the Autonomous Communities that carry out these censuses and the local SEO/BirdLife groups. Apologies to those whose names do not appear on this paragraph.

## 16. Mauritania



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### Comptage des oiseaux d'eau à la janvier 2023 en Mauritanie

Parc National du Banc d'Arguin  
(PNBA), Réserve de Biosphère  
Transfrontalière du Bas Delta du  
fleuve Sénégal, rive droite (RBT-RIM)  
et Lac d'Aleg et Lac de Mâl

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National du Banc d'Arguin, <sup>2</sup> Parc  
National du Diawling, <sup>3</sup> Nature  
Mauritanie



### 1. INTRODUCTION

La Mauritanie possède plusieurs types d'écosystèmes qui constituent des réservoirs de biodiversité floristique et faunistique très diversifié, notamment pour l'avifaune migratrice. Au total 302 zones humides sont répertoriées en Mauritanie, dont 4 sites Ramsar. Les sites décomptés lors du DIOE de 2023 sont le Parc national Banc d'Arguin, la Réserve de Biosphère Transfrontalière du Bas Delta du fleuve Sénégal (RBT-RIM) et les lacs d'Aleg et de Mâl.

Créé en 1976 par le Gouvernement Mauritanien par décret présidentiel n° 76-147 du 24 Juin 1976, le Parc National du Banc d'Arguin (PNBA) est la plus grande Aire Protégée en Afrique de l'Ouest avec une superficie de 12 000 km<sup>2</sup> dont 6 300 km<sup>2</sup> en zone maritime et 5 700 km<sup>2</sup> en zone terrestre. Il est classé site Ramsar en 1982, puis Patrimoine mondial de l'Humanité par l'Unesco en 1989 et don à la terre en 2001 par WWF. Cette vaste zone se compose plus d'une quinzaine d'îles et îlots, des baies, des lagunes qui abritent un nombre important d'oiseaux d'eau.

La RBTDS couvre une superficie totale de 641 768 ha dont 186 908 ha du côté du bas delta mauritanien. Elle est constituée de 4 régions écologiques subdivisées en plusieurs unités écologiques de caractéristiques différentes qui sont aussi des sites potentiels d'oiseaux. Le Parc National du Diawling (Site Ramsar) avec ses trois bassins (Diawling-Tichilitt, le Bell et le Gambar) couvre une superficie de 16 000 ha et est inclus dans une entité écologique duquel il ne peut être dissocié compte tenu de

l'étroite complémentarité des différents écosystèmes du bas delta.

Les deux zones humides couverts lors du dénombrement international des oiseaux d'eau (lac de Mâl et lac d'Aleg) se situent au Sud-Ouest du pays dans la région du Brakna. Ce sont des espaces de transition entre le milieu sahélienne et proche du fleuve Sénégal et les marges du Sahara. Ce sont des lacs alimentés chaque année pendant « l'hivernage », ou saison des pluies, de juillet à septembre. Du point de vue bioclimatique, le lac de Mâl est permanent alors que le lac d'Aleg est semi permanent. Le lac d'Aleg est de 6 040 ha à sa plus grande superficie la plus fréquente (MDRE, 1998), se situe à l'extrémité orientale du bassin sénégalo-mauritanien. Quant au lac de Mâl, plus petit, est localisé sur la chaîne des Mauritanides arasée. Il occupe également une dépression inter dunaire endoréique alimentée par un bassin versant de taille plus réduite (1 200 km<sup>2</sup>).

Ce comptage a pour objectif d'évaluer la taille et la tendance des oiseaux d'eau du PNBA, de la RBT-RIM et des lacs d'Aleg et de Mâl.

Cette année le dénombrement est particulier avec un comptage global de 78 unités de comptage pour le PNBA, de 6 sites principaux constitués de 11 circuits au RBT-RIM et 2 lacs (Aleg et Mâl) (voir Fig.1, Fig.2 et Fig.3).

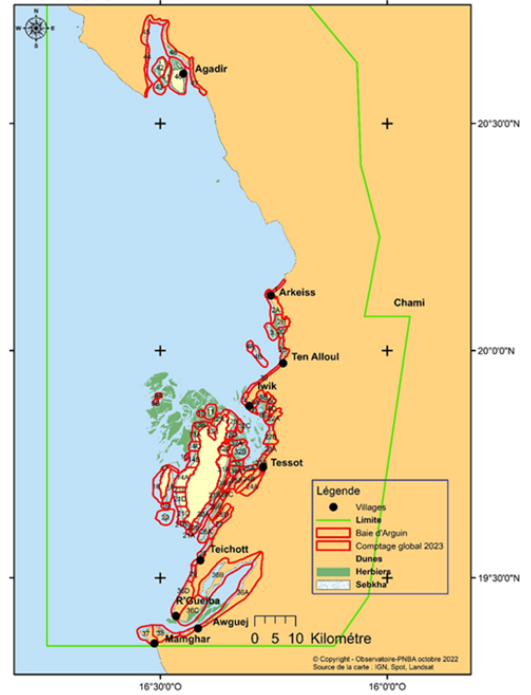


Figure 1. Banc d'Arguin

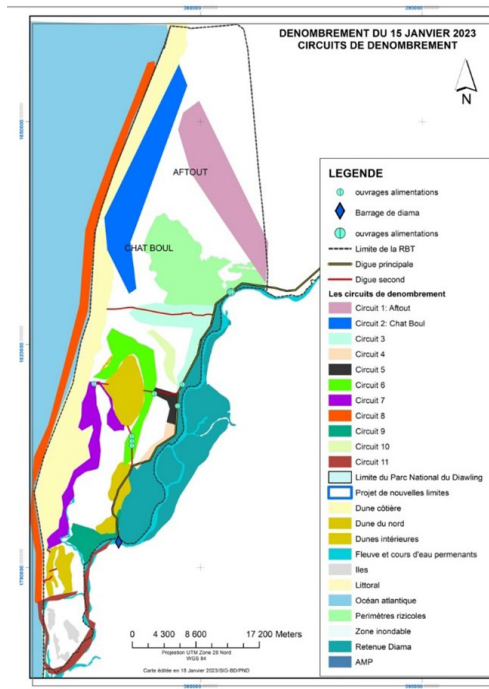


Figure 2. Parc National du Diawling et périphérie

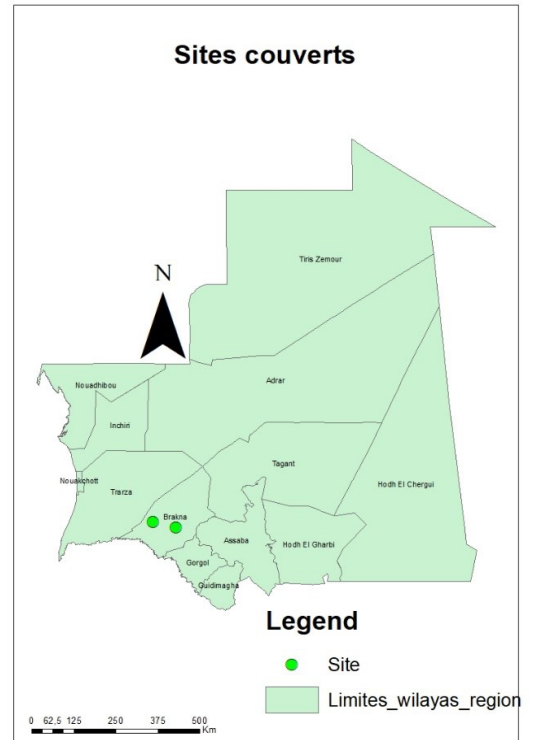


Figure 3. Lac de Mâl et lac d'Aleg

## 2. METHODOLOGIE DU TRAVAIL

La période des grandes marées a été choisie pour le comptage du PNDB, qui a nécessité une division des sites complexes ou de grandes dimensions en sous-sites qui constituent des unités de comptage séparées. Les équipes de comptage ont profité de ces instants de forte concentration en haute marée pour effectuer les identifications et comptages des différents groupes d'oiseaux hivernants et sédentaires. Les oiseaux restent sur les îles au minimum quatre heures. C'est dans cet intervalle de temps que les équipes procèdent à l'identification des espèces et le comptage des différents groupes. Il a été constaté qu'en la période de grandes marées (au-delà de 1,42 m) au Banc d'Arguin toutes les vasières sont submergées. Le comptage a duré 9 jours et a mobilisé 46 personnes.

Le dénombrement de janvier 2023 s'est déroulé sur deux jours, et a concerné l'ensemble des entités écologiques (11 circuits) de la RBTDS : les trois bassins du Parc National du Diawling, le ChatTboul, l'Aftout et la zone périphérique du parc (Annexes).

Pour le comptage des lacs Aleg et Mâl, les équipes sont constitués de deux observateurs et 02 rapporteurs.

## 3. RESULTAT

### Parc National Banc d'Arguin (PNBA)

Les résultats obtenus durant les 9 journées du comptage se répartissent comme suit: au total 1 285 949 individus dont 1 182 392 individus de limicoles qui représentent 92% de l'effectif total, suivi du groupe d'échassiers avec 82 029 individus et représentent 6%, les laridés représentent 2% avec un effectif de 21 258 individus, en suite les rapaces avec 246 individus et autres avec 21 individus.

Le groupe le plus représenté est les Limicoles avec 1 182 392 individus comptés. Les nicheurs représentent 97% des effectifs d'échassiers décomptés, le total d'échassiers est de 82 029 individus. Les laridés sont représenté par 13 espèces dont 7 espèces qui nichent au PNBA, l'effectif total des laridés dénombré est de 21 258 individus.

Les rapaces sont représentés par 5 espèces avec 246 individus, le Balbuzard pêcheur (*Pandion haliaetus*) est le plus représentatif avec 60% de l'effectif des rapaces.

Tableau 1. Récapitulatif des du dénombrement des oiseaux d'eau au PNBA

Nom scientifique	Effectif
<i>Actitis hypoleucos</i>	1
<i>Ardea cinerea</i>	3 441
<i>Arenaria interpres</i>	9 944
<i>Bubulcus ibis</i>	5
<i>Calidris alba</i>	26 978
<i>Calidris alpina</i>	613 803
<i>Calidris canutus</i>	129 832
<i>Calidris ferruginea</i>	45 603
<i>Calidris minuta</i>	8 055
<i>Casmerodius albus</i>	1
<i>Charadrius alexandrinus</i>	3 380
<i>Charadrius hiaticula</i>	34 211
<i>Circus aeruginosus</i>	30
<i>Circus macrourus</i>	2
<i>Egretta garzetta</i>	1 950
<i>Egretta gularis</i>	2 414
<i>Falco peregrinus</i>	9
<i>Falco tinnunculus</i>	57
<i>Gelochelidon nilotica</i>	893
<i>Haematopus ostralegus</i>	9 516
<i>Larus audouinii</i>	100
<i>Larus cirrocephalus</i>	137
<i>Larus dominicanus</i>	11
<i>Larus fuscus</i>	5 507
<i>Larus genei</i>	6 136
<i>Larus ridibundus</i>	84
<i>Limosa lapponica</i>	196 623
<i>Numenius arquata</i>	1 865
<i>Numenius phaeopus</i>	22 564
<i>Pandion haliaetus</i>	151
<i>Pelecanus onocrotalus</i>	4 571
<i>Phalacrocorax africanus</i>	11 738
<i>Phalacrocorax carbo</i>	18 766
<i>Phoenicopterus minor</i>	160
<i>Phoenicopterus roseus</i>	30 281
<i>Platalea leucorodia</i>	8 702
<i>Pluvialis squatarola</i>	17 304
<i>Sterna albifrons</i>	559
<i>Sterna bengalensis</i>	15
<i>Sterna caspia</i>	5 231
<i>Sterna hirundo</i>	63
<i>Sterna maxima</i>	1 335
<i>Sterna sandvicensis</i>	1 187
<i>Sula bassana</i>	21
<i>Tringa erythropus</i>	1
<i>Tringa nebularia</i>	2 962
<i>Tringa totanus</i>	59 749
<i>Xenus cinereus</i>	1
Total général	1 285 949

## Réserve de Biosphère Transfrontalière du Bas Delta du fleuve Sénégal, rive droite (RBT-RIM)

Le dénombrement international des oiseaux d'eau du 15 janvier 2023 effectué dans toute la RBTDS: PND, Aftout Es Saheli, Chat TBoul et Annexes (N'Tiallakh+ Lac de N'Ter et le littoral) a donné un effectif global de 115 245 individus représentant 110 espèces contre 251 957 individus représentant 116 espèces en 2022 et 88 964 individus représentant 106 espèces en 2021.

Tableau 2. Récapitulatif du dénombrement des oiseaux d'eau au PND et sa zone périphérique

Nom scientifique	Nom vernaculaire	TOTAL
<i>Haliaeetus vocifer</i>	Aigle pêcheur	6
<i>Egretta gularis</i>	Aigrette à gorge blanche	118
<i>Egretta ardesiaca</i>	Aigrette ardoisé	55
<i>Egretta garzetta</i>	Aigrette garzette	2 509
<i>Mesophyx intermedia</i>	Aigrette intermédiaire	176
<i>Ceryle rudis</i>	Alcyon pie	104
<i>Anhinga rufa</i>	Anhinga d'afrique	65
<i>Recurvirostra avosetta</i>	Avocette élégante	394
<i>Pandion haliaetus</i>	Balbusard pêcheur	45
<i>Limosa limosa</i>	Barge à queue noire	168
<i>Limosa lapponica</i>	Barge rousse	6
<i>Calidris ferruginea</i>	Bécasseau cocorli	714
<i>Calidris canutus</i>	Bécasseau maubèche	29
<i>Calidris minuta</i>	Bécasseau minute	6 612
<i>Calidris alba</i>	Bécasseau sanderling	2 381
<i>Calidris alpina</i>	Bécasseau variable	2 392
<i>Gallinago gallinago</i>	Bécassine des marais	10
<i>Lymnocyptes minimus</i>	Bécassine sourde	4
<i>Nycticorax nycticorax</i>	Bihoreau gris	143
<i>Circus aeruginosus</i>	Busard des roseaux	64
<i>Sarkidiornis melanotos</i>	Canard à bosse	417
<i>Anas acuta</i>	Canard pilet	8 430
<i>Anas clypeata</i>	Canard souchet	4 208
<i>Tringa nebularia</i>	Chevalier aboyeur	370
<i>Tringa erythropus</i>	Chevalier arlequin	124
<i>Tringa ochropus</i>	Chevalier culblanc	31
<i>Tringa totanus</i>	Chevalier gambette	888
<i>Tringa hypoleucos</i>	Chevalier guignette	84
<i>Tringa stagnatilis</i>	Chevalier stagnatille	151
<i>Tringa glareola</i>	Chevalier sylvain	76
<i>Ciconia nigra</i>	Cigogne noire	4
<i>Philomachus pugnax</i>	Combattant varié	1 255
<i>Phalacrocorax africanus</i>	Cormoran africain	1 317

Nom scientifique	Nom vernaculaire	TOTAL
<i>Numenius phaeopus</i>	Courlis corlieu	6
<i>Dendrocygna bicolor</i>	Dendrocygne fauve	83
<i>Dendrocygna viduata</i>	Dendrocygne veuf	8 431
<i>Himantopus himantopus</i>	Echasse blanche	929
<i>Phoenicopterus minor</i>	Flamant nain	3 862
<i>Phoenicopterus roseus</i>	Flamant rose	14 795
<i>Glareola pratincola</i>	Glaréole à collier	1 316
<i>Larus fuscus</i>	Goéland brun	809
<i>Larus genei</i>	Goéland railleur	1 664
<i>Phalacrocorax carbo</i>	Grand Cormoran	8 053
<i>Charadrius hiaticula</i>	Grand Gravelot	2 022
<i>Casmerodius albus</i>	Grande aigrette	1 121
<i>Char. Alexandrinus</i>	Gravelot à collier interrompu	515
<i>Charadrius pecuarius</i>	Gravelot pâtre	27
<i>Tachybaptus ruficollis</i>	Grèbe castagneux	48
<i>Balearica pavonina</i>	Grue couronnée	24
<i>Chlidonias leucopterus</i>	Guifette leucoptère	14
<i>Chlidonias hybridus</i>	Guifette moustac	74
<i>Chlidonias niger</i>	Guifette noire	167
<i>Ardea cinerea</i>	Héron cendré	1 043
<i>Ardeola ralloides</i>	Héron crabier	1 639
<i>Bubulcus ibis</i>	Héron gardeboeuf	2 577
<i>Adeola melanocephala</i>	Héron Melanocéphale	3
<i>Ardea purpurea</i>	Héron pourpré	68
<i>Butorides striatus</i>	Héron vert	1
<i>Plegadis falcinellus</i>	Ibis falcinelle	937
<i>Threskiornis aethiopicus</i>	Ibis sacré	67
<i>Actophilornis africana</i>	Jacana à poitrine dorée	518
<i>Corythornis cristatus</i>	Martin pêcheur Hyppé	2
<i>Ispidina picta</i>	Martin-pêcheur pygmée	90
<i>Larus cirrocephalus</i>	Mouette à tête grise	976
<i>Larus ridibundus</i>	Mouette rieuse	169
<i>Burhinus senegalensis</i>	Oedicnème du Sénégal	44
<i>Plectropterus gambensis</i>	Oie de Gambie	1 015
<i>Alopochen aegyptiaca</i>	Oie d'Egypte	285
<i>Pelecanus onocrotalus</i>	Pélican blanc	4 891
<i>Pelecanus rufescens</i>	Pélican gris	7
<i>Charadrius dubius</i>	Petit Gravelot	214
<i>Pluvialis squatarola</i>	Pluvier argenté	175
<i>Charadrius tricollaris</i>	Pluvier patre	484
<i>Gallinula chloropus</i>	Poule d'eau	71
<i>Gallinula angulata</i>	Poule d'eau africaine (Petite)	4



Nom scientifique	Nom vernaculaire	TOTAL
<i>Porphyrio porphyrio</i>	Poule sultane	71
<i>Amaurornis flavirostra</i>	Râle noir	192
<i>Nettapus auritus</i>	Sarcelle à oreillons	82
<i>Anas querquedula</i>	Sarcelle d'été	9 039
<i>Platalea leucorodia</i>	Spatule blanche	7 039
<i>Platalea alba</i>	Spatule d'Afrique	10
<i>Sterna caspia</i>	Sterne caspienne	2 283
<i>Sterna sandvicensis</i>	Sterne caugek	220
<i>Gelochelidon nilotica</i>	Sterne hansel	485
<i>Sterna albifrons</i>	Sterne nain	264
<i>Sterna maxima</i>	Sterne royale	122
<i>Mycteria ibis</i>	Tantale ibis	152
<i>Vanellus armatus</i>	Vanneau armé	1 648
<i>Vanellus spinosus</i>	Vanneau éperonné	78
<i>Vanellus armatus</i>	Vanneau armé	1 648
<i>Vanellus spinosus</i>	Vanneau éperonné	78
	Total général	115 245

### Lacs Aleg et Mâl

Au total 46 680 individus, repartis en 42 espèces ont été dénombrés au lac Mâl. Les canards dominent avec 38 013 individus.

Le lac d'Aleg est un peu complexe par rapport au lac de Mâl en termes de volume d'eau et accessibilité. Aussi, en tenant compte de la complexité

Tableau 3. Récapitulatif du dénombrement des oiseaux d'eau dans les lacs Aleg et Mâl

Nom scientifique	Nom vernaculaire	Lac Aleg	Lac Mâl
<i>Microparra capensis</i>	Jacana nain	0	1
<i>Nettapus auritus</i>	Anserelle naine	0	6
<i>Ardea purpurea</i>	Héron pourpré	1	0
<i>Ardea cinerea</i>	Héron cendré	770	200
<i>Gallinago gallinago</i>	Becassine de marais	1 027	19
<i>Bubulcus ibis</i>	Héron garde bœuf	515	158
<i>Ardeola ralloides</i>	Crabier chevelu	58	110
<i>Egretta alba</i>	Grande aigrette	202	95
<i>Egretta garzetta</i>	Aigrette garzette	0	5
<i>Plegadis falcinellus</i>	Ibis falcinelle	3 995	0
<i>Threskiornis aethiopia</i>	Ibis sacré	150	0
<i>Platalea alba</i>	Spatule d'Afrique	30	0
<i>Butorides striatus</i>	Héron strié	0	45
<i>Dendrocygna viduata</i>	Dendrocygne veuf	12 410	21 000

Nom scientifique	Nom vernaculaire	Lac Aleg	Lac Mâl
<i>Dendrocygna bicolor</i>	Dendrocygne fauve	2 317	9 500
<i>Sarkidiornis melanotos</i>	Canard casqué	25	142
<i>Anas acuta</i>	Canard pilet	0	6
<i>Alopochen aegyptiacus</i>	Oie d'égypte	120	0
<i>Plectropterus gambensis</i>	Oie de gambie	23	55
<i>Anas querquedula</i>	Sarcelle d'été	7 007	7 513
<i>Porphyrio porphyrio</i>	Poule sultane	4 555	523
<i>Gallinula chloropus</i>	Poule d'eau	2 225	4 881
<i>Fulica atra</i>	Foulque macroule	55	63
<i>Himantopus himantopus</i>	Échasse blanche	4 304	249
<i>Vanellus spinosus</i>	Vanneau armée	634	300
<i>Actophilornis africana</i>	Jacana à poitrine dorée	25	910
<i>Tachybaptus ruficollis</i>	Grèbe castagneux	0	23
<i>Amaurornis flavirostris</i>	Rale noir	0	160
<i>Philomachus pugnax</i>	Combattant varié	35	12
<i>Tringa nebularia</i>	Chevalier aboyeur	45	10
<i>Tringa totanus</i>	Chevalier gambette	52	16
<i>Tringa stagnatilis</i>	Chevalier stagnatille	15	0
<i>Actitis hypoleucos</i>	Chevalier guignette	2 250	52
<i>Tringa glareola</i>	Chevalier sylvain	580	13
<i>Tringa ochropus</i>	Chevalier cul-blanc	0	26
<i>Calidris alba</i>	Bécasseau sandering	85	75
<i>Nycticorax nycticorax</i>	Bihoreau gris	0	1
<i>Circus aeruginosus</i>	Busard des roseaux	0	2
<i>Calidris alpina</i>	Bécasseau variable	140	45
<i>Calidris minuta</i>	Bécasseau munite	550	56
<i>Glareola prat-incola</i>	Glareole à collier	335	135
<i>Charadrius hiaticula</i>	Grand gravelot	100	23
<i>Gelochelidon nilotica</i>	Sterne hansel	10	0
<i>Chlidonias niger</i>	Guifette noire	60	0
<i>Pandion haliaetus</i>	Balbuzard pêcheur	0	13
Total général		44 881	46 680

du site et pour ne pas avoir des données tronquées, ce lac a été décompté en mis mars, ceci pour a permis de couvrir le maximum du site et d'avoir un résultat fiable. Au total 44 881 individus repartis en 38 espèces ont été dénombrés.

#### 4. DISCUSSION

Il y'a une forte diminution des oiseaux de 25% du comptage de 2020 par rapport en 2023, en 2020 il y a 1 707 178 individus et en 2023 se sont 1 285 949 individus qui sont dénombrés au niveau du PNBA.

Au RBTDS, les sites regroupant le plus d'individus sont l'Aftout, le bassin de Diawling et le bassin de Bell, représentant à eux seuls plus des 3/4 de l'effectif total. Les bassins de Bell et du Diawling ont enregistré les effectifs les moins élevés depuis 2016. Pour le site de l'Aftout, l'effectif dénombré en 2023 est le plus important depuis le décompte de 2018. Le nombre d'individus et d'espèces ont diminués cette année comparativement à janvier 2022 surtout les anatidés. Au niveau de Chat TBoul le nombre d'individus et d'espèces dénombré cette année est plus important qu'en janvier 2023.

Malgré l'écart important entre le nombre d'individus dénombrés entre janvier 2023 et janvier 2022, le nombre d'espèce dénombré est resté invariable au niveau du bassin de Diawling-Tichilitt.

L'analyse de ces résultats a montré que seuls les oies et canards n'ont pas été observés lors du décompte de janvier 2023 avec un gap de 168 765 individus par rapport à 2022.

Ces résultats ont aussi montré le changement d'habitat pour certaines espèces qui ont trouvé des cuvettes de la réserve de Chat Boul, l'Aftout Es Sahli des lieux de repos et de nidification. Ce changement supposé d'habitat concerne principalement les espèces suivantes : le Canard pilet, le Canard souchet, le Grand Cormoran, le Pélican blanc, la Sarcelle d'été, la Dendrocygne veuf, la Spatule blanche.

Au lac Mâl, l'espèce dominante est le Dendrocygne veuf avec 21 000 individus suivi de Dendrocygne fauve avec 9 500 individus. Au lac Aleg, l'espèce dominante est le Dendrocygne veuf avec un effectif total de 12 410 individus suivi de la Sarcelle d'été qui est de 7 001 individus, ensuite de la Poule sultane qui occupe la troisième place avec 4 555 individus

#### Remerciements

Nos remerciements à nos partenaires financiers d'avoir financé cette activité à travers Wetlands International, BirdLife international et PRCM ainsi

qu'aux communautés locales pour avoir facilité la réalisation de cette mission; mais aussi aux partenaires techniques Wadden Sea Flyway Initiative, PND, l'Institut Mauritanien de Recherche Océanographique et des Pêches, les ONG locales Nature Mauritanie, NAFORE, AMISO, sans oublier l'équipe du PNBA.

#### ANNEXE

##### Liste des participants

**PNDB:** Amadou KIDE, Yacouba Diakhité, Mohamed Camara, Ahmed Boubout, Abdoulaye Soumaré, Zeine Abidine, Diop Ibrahim, Ahmed Amarejeyat, Niang Alioune, Mohamed Ndiaye, Marc van Roomen, Albert de Jong, Klaus Guenther, Hans Schekkerman, Morten Bentzon Hansen, Jan van Dijk, Nathalie Gibau, Mohamed Abdel Haye Sidi Boubacar, Ahmedou Mohameden, Mohamed Salem Mohameden Yebe, Sid'Ahmed Guewad, Nagi Heybety, Sedoum Bahah, Hamady Rassoul.

**RBT-RIM:** Abou Gueye, Geoffroy Citegetse, Fodé Diawara, Zeine El Abidine Sidaty, Frederick Marret, Oumar Adama Ba, Djibril Diallo, Moctar Daddah, Md Avelwat / El Bakaye, Aminata Sall, Saer Khaer Diagne, Amadou Ba, Plus une vingtaine d'autres compteurs.

**Lacs Aleg et Mâl:** Amady Ndiaye, Sidi Diawara, Ibrahim Traore, Souleymane Ould Seny.

## 17. Senegal



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## Comptage des oiseaux d'eau à la janvier 2023 en Sénégal

Abdoulaye Ndiaye



### 1. INTRODUCTION

Le Sénégal est un pays sahélien qui couvre une superficie d'environ 196 722 km<sup>2</sup>.

Le pays présente une côte de plus de 700 km, dispose d'une diversité d'écosystèmes favorables à la fréquentation des oiseaux d'eau. On distingue ainsi:

Les écosystèmes fluviaux, lacustres, marins et côtiers qui se caractérisent par une grande diversité d'habitats et les écosystèmes dits particuliers (les Niayes et la dépression du Djoudj).

La Direction des Parcs Nationaux (DPN), point focal RAMSAR et AEWA coordonne le DIOE avec la

participation de plusieurs partenaires techniques et financiers comme la Direction des Aires Marines Communautaires Protégées (DAMCP), la Direction des Eaux et Forêts Chasse et Conservation des Sols (DEFCCS), Wetlands International, BirdLife International, le PRCM, la Fondation MAVA, l'Association Nature Communautaires Développement (NCD), les universitaires, les éco-guides et éco-gardes, etc.

Les objectifs principaux de l'activité annuelle de comptage sont de: (i) estimer la taille des populations des espèces d'oiseaux d'eau observées au Sénégal; (ii) établir les tendances évolutives des différentes populations d'espèces d'oiseaux d'eau observées au Sénégal; (iii) aider à la prise de décisions relatives à la gestion des zones humides; (iv) identifier les menaces qui pèsent sur les oiseaux d'eau et leurs habitats.

### 2. METHODES

Pour une meilleure organisation, le territoire national a été divisé en six (06) grandes zones de comptage subdivisées en 35 secteurs et environs 219 sites.

Le dénombrement se déroule suivant un dispositif conçu habituellement par la DPN. S'agissant de la collecte, les méthodes adoptées sont celles du comptage direct, à pied, en véhicule et/ou en pirogue et en point fixe. Le décompte démarre très tôt le matin et prend fin généralement en fin de journée pour la plupart des secteurs de décompte. Certaines zones font des jours supplémentaires

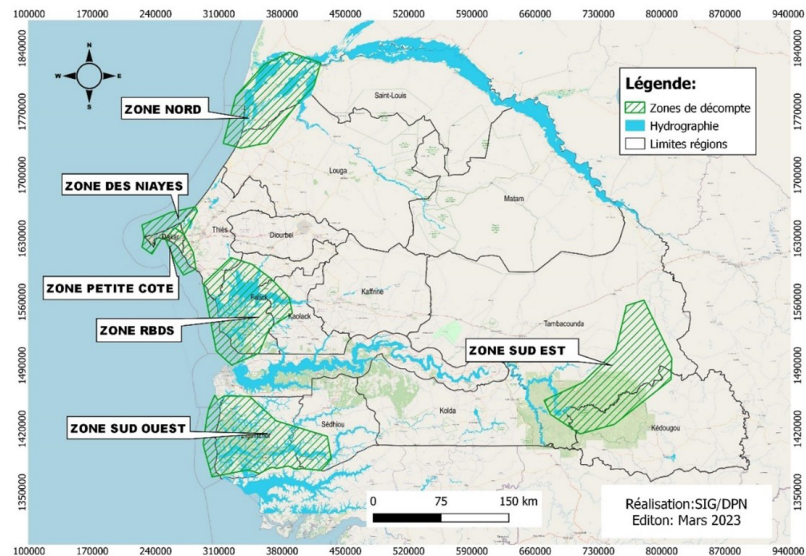


Figure 1. Répartition des zones de dénombrement au Sénégal

comme le Parc National du Delta du Saloum pour des raisons liées aux phénomènes de marées.

Le DIOE du 15 janvier 2023 s'est déroulé sur l'ensemble du territoire avec comme priorités sur les zones humides les plus importantes du pays, avec la participation de 401 personnes.

### 3. RESULTATS

Au niveau national, un total de 555 581 individus a été dénombré composés de 137 espèces. Celles-ci sont constituées de 14 Ordres réparties en 38 Familles répartie dans 22 Groupes.

Les résultats du DIOE montrent que les Den-

drocygnes veuf et les Canards Pilet qui atteignent respectivement 112 024 et 105 734 sont les oiseaux d'eau les plus présents au niveau national et représentent 39% des effectifs (Tableau 1). Ils s'ensuivent les Flamants roses (30 374 ; 5,47%), les Bihoreaux gris (30 027 ; 5,41%), les Grands cormorans (21 072 ; 3,80%), les Pélicans Blanc (17 960 ; 3,24%) et les Sarcelles d'été (13 704 ; 2,47%). Les espèces les moins rencontrées durant ce décompte sont les Martins chasseur du Sénégal, les Rallidés, les Sarcelles d'hiver, les Sternes voyageuse etc. elles représentent moins de 1% de l'effectif total.

La carte 2 montre la répartition des effectifs d'oiseaux d'eau par zone au niveau national. La

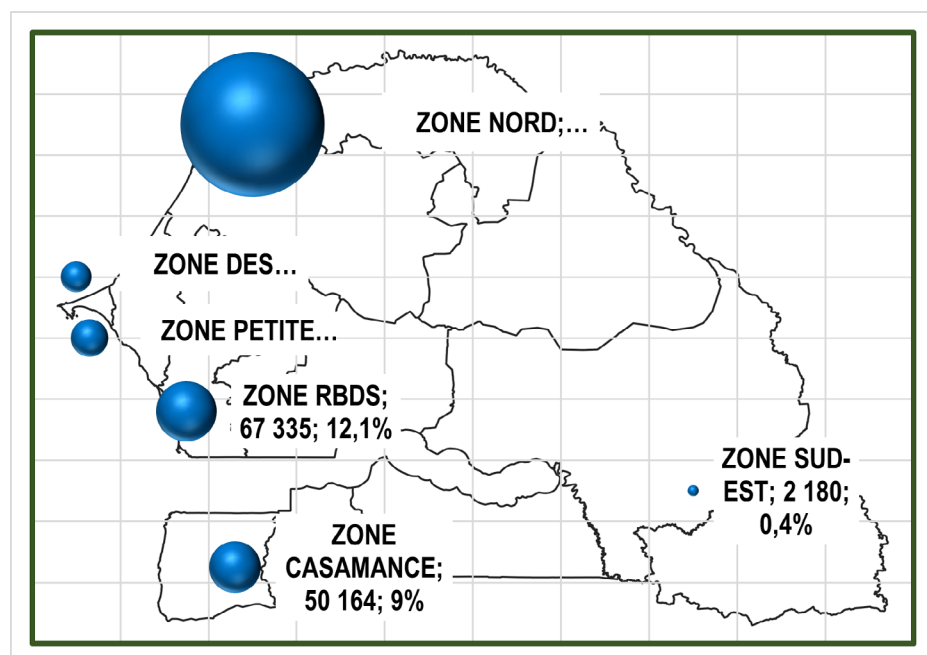


Figure 2. Répartition des effectifs d'oiseaux d'eau par zone au niveau national

zone nord, à l'image des années précédentes concentre le plus grand nombre d'oiseaux avec 392 137 individus soit près de 71% du total des individus décomptés. La RBDS vient en deuxième position avec 67 335 individus soit 12% des effectifs dénombrés. La zone de la Casamance s'ensuit avec un effectif de 50 164 soit 9%, puis s'en suit la Petite Côte avec un nombre d'individu de 26 107 soit 5% et celle des Niayes pour 17 177 soit 3%. La zone sud-est est la zone la moins riche avec seulement 2 180 individus soit moins de 1% de l'effectif national des oiseaux d'eau.

#### 4. DISCUSSION

Le DIOE 2023 a permis de visiter 157 sites humides fréquentés par les oiseaux d'eau regroupés en 5 zones de décompte à travers le Sénégal et d'estimer le nombre qui a fréquenté le pays durant cette campagne de 2023.

##### Principales menaces sur les sites

- La multiplication des espèces envahissantes susceptible de perturber les équilibres écologiques naturels ou la modification des écosystèmes;
- Les activités illégales telles que le braconnage, la pêche illégale, la coupe de bois non autorisée etc. constituent également des menaces sur la biodiversité des aires protégées;
- Les futures exploitations pétrolières et gazières en face des aires protégées dans la zone nord et au Delta du Saloum sont susceptibles de causer des dommages graves sur les aires protégées et compromettre durablement leur biodiversité.

##### Perspectives et points d'amélioration

- Faire un plaidoyer pour le classement des sites fréquentés par les oiseaux d'eau et sans statut de protection comme les lacs côtiers de Thiourour, Warouwaye, Ouye, Mbeubeuss, lac Rose etc.
- Cartographier les plans d'eau qui doivent faire l'objet de décompte et aménager des circuits pour le suivi écologique;
- Explorer de nouveaux sites de décompte vers la zone Est du pays et le Ferlo;
- Renforcer les équipes de compteurs dans certaines zones pour que les activités puissent se dérouler au même moment afin d'éviter le double comptage des individus ou d'ignorer d'autres sites fréquentés par les oiseaux d'eau;
- Renforcer le matériel de terrain (les jumelles,

les télescopes, les guides en quantité et en qualité, les appareils photos);

- Développer une approche plus participative associant les acteurs locaux (collectivités territoriales, OCB et OSC sensibles à l'environnement, occupants du site, privés ayant un intérêt pour le site) et les sensibiliser sur l'importance de conserver les oiseaux d'eau et leurs habitats;
- Renforcer la formation des agents et éco-guides qui participent régulièrement aux activités de décompte;
- Nettoyer les cours d'eau des plantes envahissantes dans les aires protégées de la zone nord.

##### Remerciements

Au terme de ce travail, il me paraît important d'adresser ces quelques mots de remerciement, à l'endroit des autorités et institutions qui sans leurs appuis déterminants, ce travail n'aurait certainement pas abouti. Il s'agit:

- Des partenaires privilégiés de la Direction des Parcs Nationaux pour leur contribution financière et technique, la Direction des Aires Marines Communautaires Protégées, Wetlands International, Wadden Sea Flyway Initiative, Bird Life international, NCD, la Fondation MAVA, PRCM etc.;
- Des Communautés locales périphériques des sites, représentées par les associations d'éco gardes, pour leur participation effective;
- Des agents sur le terrain pour leur professionnalisme notamment les agents de la DPN, DEFCCS des Parcs, Réserves et AMP;
- Enfin, tous ceux qui ont participé à la réussite de cette activité.

Tableau 1. Résultat des DIOE de janvier 2023 au Sénégal

Nom scientifique	Nom vernaculaire (FR)	Total 2023
<i>Dendrocygna viduata</i>	Dendrocygne veuf	112 024
<i>Dendrocygna bicolor</i>	Dendrocygne fauve	2 456
<i>Anser anser</i>	Oie cendrée	20
<i>Alopochen aegyptiaca</i>	Ouette d'Égypte	622
<i>Plectropterus gambensis</i>	Oie-armée de Gambie	1 869
<i>Sarkidiornis melanotos</i>	Canard à bosse	1 815
<i>Nettapus auritus</i>	Anserelle naine	194
<i>Marmaronetta angustirostris</i>	Marmaronette marbrée	7
<i>Spatula querquedula</i>	Sarcelle d'été	13 715

Nom scientifique	Nom vernaculaire	Total 2023
<i>Spatula clypeata</i>	Canard souchet	3 195
<i>Mareca penelope</i>	Canard siffleur	1
<i>Anas acuta</i>	Canard pilet	105 734
<i>Anas crecca</i>	Sarcelle d'hiver	1
<i>Tachybaptus ruficollis</i>	Grèbe castagneux	417
<i>Phoenicopterus roseus</i>	Flamant rose	30 295
<i>Phoeniconaias minor</i>	Flamant nain	5 441
<i>Zapornia flavirostra</i>	Marouette à bec jaune	243
<i>Porphyrio porphyrio</i>	Talève sultane	376
<i>Gallinula chloropus</i>	Gallinule poule-d'eau	245
<i>Paragallinula angulata</i>	Gallinule africaine	73
<i>Balearica pavonina</i>	Grue couronnée	265
<i>Mycteria ibis</i>	Tantale ibis	7 164
<i>Ciconia ciconia</i>	Cigogne blanche	64
<i>Platalea alba</i>	Spatule d'Afrique	837
<i>Platalea leucorodia</i>	Spatule blanche	3 216
<i>Threskiornis aethiopicus</i>	Ibis sacré	589
<i>Plegadis falcinellus</i>	Ibis falcinelle	625
<i>Nycticorax nycticorax</i>	Bihoreau gris	30 027
<i>Butorides striata</i>	Héron strié	19
<i>Ardeola ralloides</i>	Crabier chevelu	738
<i>Bubulcus ibis</i>	Héron garde-boeufs	11 575
<i>Ardea cinerea</i>	Héron cendré	1 903
<i>Ardea melanocephala</i>	Héron mélanocéphale	45
<i>Ardea goliath</i>	Héron goliath	178
<i>Ardea purpurea</i>	Héron pourpré	430
<i>Ardea alba</i>	Grande Aigrette	2 866
<i>Ardea brachyrhyncha</i>	Héron a bec jaune	518
<i>Egretta ardesiaca</i>	Aigrette ardoisée	271
<i>Egretta garzetta</i>	Aigrette garzette	2 129
<i>Egretta gularis</i>	Aigrette à gorge blanche	4 845
<i>Scopus umbretta</i>	Ombrette africaine	197
<i>Pelecanus rufescens</i>	Pélican gris	4 117
<i>Pelecanus onocrotalus</i>	Pélican blanc	17 960
<i>Microcarbo africanus</i>	Cormoran africain	7 989
<i>Phalacrocorax carbo</i>	Grand Cormoran	21 071
<i>Anhinga rufa</i>	Anhinga d'Afrique	1 280
<i>Haematopus ostralegus</i>	Huitrier pie	1 425
<i>Recurvirostra avosetta</i>	Avocette élégante	3 915
<i>Himantopus himantopus</i>	Échasse blanche	7 293
<i>Pluvialis squatarola</i>	Pluvier argenté	2 422
<i>Charadrius hiaticula</i>	Pluvier grand-gravelot	10 706

Nom scientifique	Nom vernaculaire	Total 2023
<i>Charadrius dubius</i>	Pluvier petit-gravelot	3 512
<i>Charadrius pecuarius</i>	Pluvier pâtre	116
<i>Charadrius marginatus</i>	Pluvier à front blanc	10
<i>Charadrius alexandrinus</i>	Pluvier à collier interrompu	1 853
<i>Vanellus spinosus</i>	Vanneau à éperons	3 347
<i>Vanellus senegallus</i>	Vanneau du Sénégal	395
<i>Actophilornis africanus</i>	Jacana à poitrine dorée	822
<i>Numenius phaeopus</i>	Courlis corlieu	7 367
<i>Numenius arquata</i>	Courlis cendré	714
<i>Limosa lapponica</i>	Barge rousse	3 145
<i>Limosa limosa</i>	Barge à queue noire	3 870
<i>Arenaria interpres</i>	Tournepie à collier	860
<i>Calidris canutus</i>	Bécasseau maubèche	407
<i>Calidris pugnax</i>	Combattant varié	4 546
<i>Calidris ferruginea</i>	Bécasseau cocorli	5 875
<i>Calidris alba</i>	Bécasseau sanderling	2 270
<i>Calidris alpina</i>	Bécasseau variable	1 087
<i>Calidris minuta</i>	Bécasseau minute	10 892
<i>Gallinago gallinago</i>	Bécassine des marais	16
<i>Actitis hypoleucos</i>	Chevalier guignette	823
<i>Tringa ochropus</i>	Chevalier cul-blanc	122
<i>Tringa erythropus</i>	Chevalier arlequin	326
<i>Tringa nebularia</i>	Chevalier aboyeur	4 518
<i>Tringa totanus</i>	Chevalier gambette	1 498
<i>Tringa glareola</i>	Chevalier sylvain	180
<i>Tringa stagnatilis</i>	Chevalier stagnatile	76
<i>Glareola pratincola</i>	Glaréole à collier	161
<i>Larus genei</i>	Goéland railleur	7 903
<i>Larus ridibundus</i>	Mouette rieuse	1 138
<i>Larus cirrocephalus</i>	Mouette à tête grise	12 356
<i>Larus audouinii</i>	Goéland d'Audouin	230
<i>Larus canus</i>	Goéland cendré	3
<i>Larus dominicanus</i>	Goéland dominicain	9
<i>Larus fuscus</i>	Goéland brun	12 060
<i>Larus argentatus</i>	Goéland argenté	10
<i>Larus michahellis</i>	Goéland leucophée	52
<i>Sternula albifrons</i>	Sterne naine	607
<i>Gelochelidon nilotica</i>	Sterne hansel	4 368
<i>Hydroprogne caspia</i>	Sterne caspienne	12 744
<i>Chlidonias niger</i>	Guifette noire	88
<i>Sterna hirundo</i>	Sterne pierregarin	103
<i>Thalasseus bengalensis</i>	Sterne voyageuse	1
<i>Thalasseus sandvicensis</i>	Sterne caugek	2 762
<i>Thalasseus maximus</i>	Sterne royale	4 141

## 18. The Gambia



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### Results of January 2023 counts of waterbirds in The Gambia

Sainabou Jallow, Nuha Jammeh & Abdoulie Sawo, Department of Parks and Wildlife Management, The Gambia.



#### 1. INTRODUCTION

The wetlands of the country cover almost 20 percent of the total land area. This includes mangrove forests (6.4%), uncultivated swamps (7.8%) and cultivated swamps (3.2%). They are increasingly being used for rice cultivation and for dry season vegetable gardening as well as grazing for livestock. The Gambia is a signatory to various regional and international agreements and processes which are related to, or affect biodiversity such as the Convention on Biological Diversity, Convention on Climate Change, and

the Convention on Desertification among others. The International Waterbird Census is a national inventorying and monitoring of waterbirds and their habitats for the past 22 years. International Waterbird Census 2023 was carried out during the period of 13th to 19th January 2023. The study covers main sites and subsites, comprising both marine and freshwater areas.

The Gambia is located in the Sahelian Upwelling Marine Ecoregion, where the nutrient-rich upwelling water enables a prevailing fisheries diversity and abundance. The mighty River Gambia has a freshwater with a gallery forest that supports a good diversity of freshwater birds. The mangrove-vegetated marine water system inhabits or supports more than one hundred and twenty waterbird species that are resident or winters in Gambia or use the country as a stopover. The influence of the upwelling system combined with the prevailing mangrove stands, mudflats, laterite reefs, and other components of our ecological system support annual wintering and over-wintering waterbirds from Europe.

#### 2. METHODS

The census was carried through traveling across the country with two vehicles to various counting sites (Figure 1). The group is divided into two sub-groups making it possible to count two sites or sub-site concurrently. Each team shares the task by assigning individuals to record, cite, identify, GPS coordinate taking, count, site description, etc

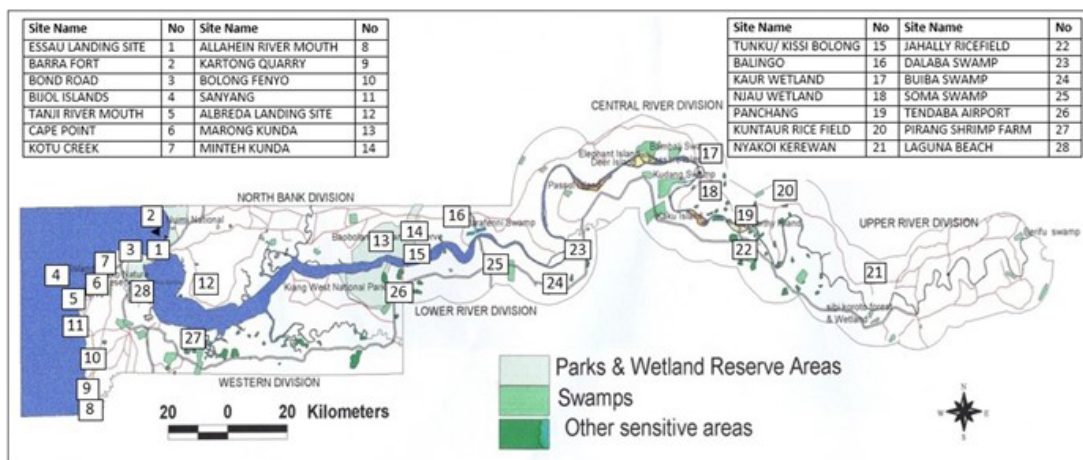


Figure 1. Sites counted and their regions

based on expertise. The counting method includes walking and in-boat counting.

### 3. RESULTS

See Table 1.

### 4. DISCUSSION

The following factors will have effected the quality of the counts:

- Access (poor roads) to some sites in the rice fields were difficult and resulted in low coverage.
- Weather condition was poor during some counts in particular at Bao bolong Wetland Reserve.

Many pressures are effecting the wetlands in the Gambia. In general the loss and fragmentation of the natural habitat due to deforestation, wetland drainage and unregulated infrastructural development, overgrazing, and bush fires having large effects. Other more specific effects are:

- Invasive species have colonized most of the wetlands,
- Some sites have dried up
- Salinization and acidification are a major challenge for the majority of the rice fields.

However, the Department will endeavour with other institutions to design projects and programs to deal with the invasive species problem affecting rice fields. Furthermore, the Department is designing a wetland policy that will support the management of the national wetland system.

### Acknowledgements

The Department of Parks and Wildlife Management wishes to thank the West African Bird Study Association, Sahel Wetlands Concern, Park rangers, and local community members who contributed in one way or the other in making this year count a success. Also, thanks go to Wetlands International Dakar Office, BirdLife International and the Wadden Sea Flyway Initiative for their coordination and support. Special thanks go to The National Park Wadden Sea Niedersachsen in Germany for the financial, technical, and material support being provided within our cooperation over the years. This is very important not only for the water bird count but for the effective management of our national protected areas system. Finally, we wish to thank the team members for their valuable contributions throughout the count.

### ANNEX

List of observers and their Institutions:

Sainabou Jallow (DPWM HQ), Nuha Jammeh (DPWM HQ), Jerreh Njie (DPWM TBR), Sarjo NN Manneh (DPWM NNP), Omar Jarjue (DPWM KWNP), Kalilu Kolley (Driver) (DPWM HQ), Fagimba Camara (WABSA), Amadou Darboe (Driver) (DPWM HQ), Abdoulie Sawo (DPWM HQ), Peter Sudbeck (NP WADDEN SEA NIEDERSACHSEN), Rune Michaelis Peter (NP WADDEN SEA NIEDERSACHSEN).



Table 1. Individual species counted and their total populations

Scientific name	Common name (EN)	Total 2023	Scientific name	Common name (EN)	Total 2023
<i>Dendrocygna viduata</i>	White-faced Whistling-duck	4,536	<i>Charadrius hiaticula</i>	Common Ringed Plover	1,185
<i>Plectropterus gambensis</i>	Spur-winged Goose	731	<i>Charadrius dubius</i>	Little Ringed Plover	2
<i>Nettapus auritus</i>	African Pygmy-goose	50	<i>Charadrius pecuarius</i>	Kittlitz's Plover	3
<i>Spatula clypeata</i>	Northern Shoveler	200	<i>Charadrius alexandrinus</i>	Kentish Plover	23
<i>Anas acuta</i>	Northern Pintail	135	<i>Vanellus spinosus</i>	Spur-winged Lapwing	925
<i>Tachybaptus ruficollis</i>	Little Grebe	16	<i>Vanellus senegallus</i>	Wattled Lapwing	157
<i>Phoenicopterus roseus</i>	Greater Flamingo	17	<i>Actophilornis africanus</i>	African Jacana	2,575
<i>Zapornia flavirostra</i>	Black Crake	23	<i>Numenius phaeopus</i>	Whimbrel	316
<i>Porphyrio porphyrio</i>	Purple Swamphen	2	<i>Numenius arquata</i>	Eurasian Curlew	4
<i>Gallinula chloropus</i>	Common Moorhen	19	<i>Limosa lapponica</i>	Bar-tailed Godwit	45
<i>Balearica pavonina</i>	Black Crowned-crane	7	<i>Limosa limosa</i>	Black-tailed Godwit	216
<i>Mycteria ibis</i>	Yellow-billed Stork	50	<i>Arenaria interpres</i>	Ruddy Turnstone	125
<i>Platalea alba</i>	African Spoonbill	443	<i>Calidris canutus</i>	Red Knot	2
<i>Platalea leucorodia</i>	Eurasian Spoonbill	38	<i>Calidris pugnax</i>	Ruff	102
<i>Threskiornis aethiopicus</i>	African Sacred Ibis	30	<i>Calidris ferruginea</i>	Curlew Sandpiper	671
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron	7	<i>Calidris alba</i>	Sanderling	867
<i>Butorides striata</i>	Green-backed Heron	9	<i>Calidris alpina</i>	Dunlin	144
<i>Ardeola ralloides</i>	Squacco Heron	147	<i>Calidris minuta</i>	Little Stint	447
<i>Bubulcus ibis</i>	Cattle Egret	2,522	<i>Gallinago gallinago</i>	Common Snipe	9
<i>Ardea cinerea</i>	Grey Heron	129	<i>Actitis hypoleucos</i>	Common Sandpiper	70
<i>Ardea melanocephala</i>	Black-headed Heron	146	<i>Tringa nebularia</i>	Common Greenshank	194
<i>Ardea goliath</i>	Goliath Heron	14	<i>Tringa totanus</i>	Common Redshank	70
<i>Ardea purpurea</i>	Purple Heron	25	<i>Tringa glareola</i>	Wood Sandpiper	156
<i>Ardea alba</i>	Great White Egret	314	<i>Glareola pratincola</i>	Collared Pratincole	1,043
<i>Ardea brachyrhyncha</i>	Yellow-billed Egret	185	<i>Larus genei</i>	Slender-billed Gull	2,067
<i>Egretta garzetta</i>	Little Egret	64	<i>Larus cirrocephalus</i>	Grey-headed Gull	4,580
<i>Egretta gularis</i>	Western Reef-egret	343	<i>Larus audouinii</i>	Audouin's Gull	90
<i>Scopus umbretta</i>	Hamerkop	36	<i>Larus dominicanus</i>	Kelp Gull	2
<i>Pelecanus rufescens</i>	Pink-backed Pelican	225	<i>Larus fuscus</i>	Lesser Black-backed Gull	2,008
<i>Pelecanus onocrotalus</i>	Great White Pelican	20	<i>Sternula albifrons</i>	Little Tern	34
<i>Microcarbo africanus</i>	Long-tailed Cormorant	487	<i>Gelochelidon nilotica</i>	Common Gull-billed Tern	127
<i>Phalacrocorax carbo</i>	Great Cormorant	1,260	<i>Hydroprogne caspia</i>	Caspian Tern	1,557
<i>Anhinga rufa</i>	African Darter	142	<i>Sterna dougallii</i>	Roseate Tern	8
<i>Haematopus ostralegus</i>	Eurasian Oystercatcher	29	<i>Sterna hirundo</i>	Common Tern	46
<i>Recurvirostra avosetta</i>	Pied Avocet	24	<i>Thalasseus bengalensis</i>	Lesser Crested Tern	5
<i>Himantopus himantopus</i>	Black-winged Stilt	457	<i>Thalasseus sandvicensis</i>	Sandwich Tern	879
<i>Pluvialis squatarola</i>	Grey Plover	168	<i>Thalasseus maximus</i>	Royal Tern	948

## 19. Guinée-Bissau



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### Comptage des oiseaux d'eau à la janvier 2023 en Guinée-Bissau

Joaozinho SA<sup>1</sup> et Aissa REGALLA DE BARROS<sup>2</sup>.

<sup>1</sup>Coordinateur National, GPC and Wetlands International Guinea Bissau,

<sup>2</sup> Coordonnatrice d'Archipel Bijagos, IBAP



#### 1. INTRODUCTION

Dénombrement mondiale d'oiseaux d'eau est un exercice reconnu pour estimer la population des oiseaux d'eau le long de la voie migratoire. La Guinée-Bissau a rejoint ce réseau des experts, et participe d'une forme active dans ces événements de caractère global.

C'est dans ce contexte que le pays a bénéficié d'appui technique et financière des partenaires bilatéraux et multilatéraux, comme: Wetlands International, Fondation MAVA, Secrétariat

Trilatéral de la Mer de Wadden (WSFI). A niveau interne la synergie du Bureau de la Planification Côtière (GPC), de l'Institut de la Biodiversité et des Aires Protégées (IBAP) et de l'Organisation pour la Défense et Développement des Zones Humides a permis d'organiser la campagne dans les grands deux sites (Littoral et Archipel Bijagos).

A côté de tous les pays comme Parties de la Convention de Ramsar, le mois de janvier de cette année, a servi à la réalisation de dénombrement comme un exercice de recyclage pour le réseau national des compteurs nationaux d'oiseau d'eau, leur permettant d'être en contact avec le terrain, d'exercer les pratiques de comptage et d'estimation des oiseaux. En Guinée-Bissau, cette activité de l'échelle restreinte aux certaines sites clés, a eu lieu du 15 au 22 du mois de janvier 2023.

Cette année l'objectif principal est d'effectuer un comptage global des oiseaux d'eau, mais aussi de continuer pour tester le niveau de connaissance des éléments du réseau et de renforcer leurs capacités surtout sur la nouvelle méthode de comptage des limicoles et autres espèces des oiseaux d'eau.

- Compter quelques sites principaux au littoral et Archipel Bijagos;
- Rappporter séparément d'une unité de comptage à une autre les données des unités de comptage.

La République de Guinée-Bissau est un petit pays situé en Afrique de l'Ouest. Possède une superficie de 36 125 Km<sup>2</sup>, avec une population

un peu plus de 1 600 000 habitantes, dont 80% vivent dans la zone côtière. Il est limité au nord par le Sénégal, à l'est et au sud par la Guinée-Conakry et à l'ouest par l'Océan Atlantique. Elle est formée d'une partie continentale, entaillée par plusieurs fleuves et des lagunes (permanentes, ex : Lac Cufada, site RAMSAR et temporaires) et une partie insulaire, l'Archipel des Bijagos.

## 2. METHODOLOGIE

Les méthodes utilisées dans les deux grandes zones humides (zone littorale et Archipel des Bijagos, Figure 1) sont celles du dénombrement direct des oiseaux d'eau. Le groupe est divisé en deux sous-groupes permettant de compter simultanément deux zones. Chaque équipe partage la tâche en affectant des individus pour enregistrer, citer, identifier, prendre les coordonnées GPS, compter, décrire le site, etc. en fonction de leur expertise. La méthode de comptage comprend le comptage à pied et en bateau.

## 3. RESULTATS

Dans toutes les deux grande zone géographique: Littorale (Nord, Centre et Sud) et Archipel Bijagos, les résultats de cette campagne sont positifs, bien

qu'on a continué à travailler avec méthode de comptage avec deux grands groupes des espèces des oiseaux d'eau: groupe des limicoles et le reste des espèces d'oiseau d'eau. Pendant le comptage mondiale 2023, en Guinée-Bissau on a réussi à recenser un total de 88 969 individus des oiseaux d'eau sur un total de 86 espèces. Seulement au Archipel Bijagos sont comptés 44 037 (51%) du total des individus comptés), un peu plus que les individus totaux enregistrés dans toute les trois zones du littoral. Juste pour signaler que le littoral centre a comptabilisé les nombres des individus du Parc Naturel de Cufada.

Le groupe prédominant d'espèces d'oiseaux d'eau pendant le comptage mondial 2023 en Guinée-Bissau était pratiquement les limicoles, bien que seulement 21 espèces aient été enregistrées, mais le nombre d'individus correspondait à 40 257, ce qui équivaut à 45% du total de 86 espèces enregistrées.

Les dix espèces plus abondantes enregistrés en 2023, que corresponde à 48% du total comptés. *Cadris ferruginea* continue dans la première place comme les années précédentes et les *Calidris canutus* continue à diminuer progressivement au rapport les dénombrements précédentes.

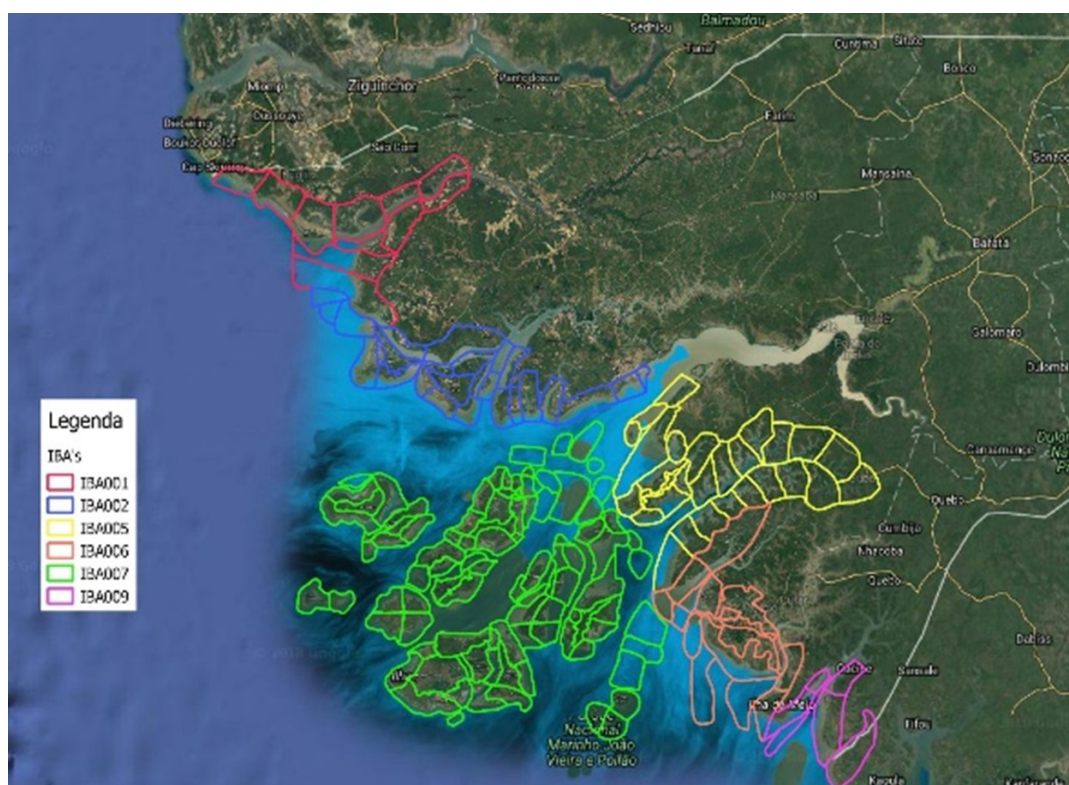


Figure 1. Les différents sites principaux (IBA's) et les unités de comptage

Tableau 1. Nombre de comptages par espèce sur la côte en Guinée-Bissau, janvier 2023

Nom scientifique	Nom vernaculaire	Total 2023
<i>Phoenicopus roseus</i>	Flamant rose	729
<i>Mycteria ibis</i>	Tantale ibis	201
<i>Platalea alba</i>	Spatule d'Afrique	1 189
<i>Threskiornis aethiopicus</i>	Ibis sacré	808
<i>Butorides striata</i>	Héron strié	2
<i>Bubulcus ibis</i>	Héron garde-boeufs	101
<i>Ardea cinerea</i>	Héron cendré	397
<i>Ardea goliath</i>	Héron goliath	137
<i>Ardea alba</i>	Grande Aigrette	581
<i>Ardea brachyrhyncha</i>	Héron a bec jaune	19
<i>Egretta ardesiaca</i>	Aigrette ardoisée	197
<i>Egretta garzetta</i>	Aigrette garzetta	123
<i>Egretta gularis</i>	Aigrette à gorge blanche	1 174
<i>Pelecanus rufescens</i>	Pélican gris	2 531
<i>Pelecanus onocrotalus</i>	Pélican blanc	46
<i>Microcarbo africanus</i>	Cormoran africain	131
<i>Phalacrocorax carbo</i>	Grand Cormoran	371
<i>Anhinga rufa</i>	Anhinga d'Afrique	203
<i>Haematopus ostralegus</i>	Huîtrier pie	1 223
<i>Recurvirostra avosetta</i>	Avocette élégante	19
<i>Pluvialis squatarola</i>	Pluvier argenté	1 496
<i>Charadrius hiaticula</i>	Pluvier grand-gravelot	5 393
<i>Charadrius marginatus</i>	Pluvier à front blanc	89
<i>Charadrius alexandrinus</i>	Pluvier à collier interrompu	163
<i>Vanellus spinosus</i>	Vanneau à éperons	40
<i>Numenius phaeopus</i>	Courlis corlieu	5 432
<i>Numenius arquata</i>	Courlis cendré	392
<i>Limosa lapponica</i>	Barge rousse	6 249
<i>Arenaria interpres</i>	Tournepie à collier	312
<i>Calidris canutus</i>	Bécasseau maubèche	2 864
<i>Calidris ferruginea</i>	Bécasseau cocorli	7 650
<i>Calidris alba</i>	Bécasseau sanderling	5 179
<i>Calidris alpina</i>	Bécasseau variable	23
<i>Calidris minuta</i>	Bécasseau minute	102
<i>Actitis hypoleucos</i>	Chevalier guignette	2 204
<i>Tringa ochropus</i>	Chevalier cul-blanc	1
<i>Tringa erythropus</i>	Chevalier arlequin	1
<i>Tringa nebularia</i>	Chevalier aboyeur	411
<i>Tringa totanus</i>	Chevalier gambette	2 040
<i>Larus genei</i>	Goéland railleur	133
<i>Larus cirrocephalus</i>	Mouette à tête grise	1 218
<i>Larus dominicanus</i>	Goéland dominicain	7
<i>Larus fuscus</i>	Goéland brun	5
<i>Sterna albifrons</i>	Sterne naine	2 670
<i>Gelochelidon nilotica</i>	Sterne hansel	6 438
<i>Hydroprogne caspia</i>	Sterne caspienne	11 542
<i>Chlidonias niger</i>	Guifette noire	527
<i>Sterna hirundo</i>	Sterne pierregarin	2 797
<i>Thalasseus bengalensis</i>	Sterne voyageuse	408
<i>Thalasseus sandvicensis</i>	Sterne caugek	4 671
<i>Thalasseus maximus</i>	Sterne royale	5 723

#### 4. DISCUSION

Les principaux menaces spécifiques aux sites

- Les effets de changements climatiques, liés aux érosion et inondations, sont des facteurs majeurs pour les modifications des habitats d'oiseaux d'eau;
- À propos des conflits existant entre ces espèces et l'homme, été très facile de constater chez les pêcheurs et les femmes que récolte les mollusques, que partagent les mêmes endroits, et parfois ils font la ramasse des œufs dans les colonies de nichoirs;

Difficultés rencontrées, qualité e couverture du dénombrement

- D'une manière globale les dénombrements se sont bien déroulés. Les équipes constituent par nationaux et expatriés ont bien travaillé en ambiance de groupe et ont obtenu de bons résultats;
- Les plus grandes difficultés étaient liées aux questions logistiques légères (quelques problèmes avec les embarcations, insuffisance des ressources financières pour couvrir tous les polygones);
- Il existe aussi toute une nécessité de redéfinir certains polygones, qui sont inaccessibles étant donné leur localisation;
- Un autre aspect est lié à la marée, les sites sont très éloignés les uns des autres et avec la marée, au début d'après-midi, a permis de couvrir très peu les sites avant que la nuit tombe.

Points d'amélioration et d'apprentissage pour le futur / avenir

- Améliorer la connaissance du terrain, systématiser les comptages dans les mêmes polygones et les mêmes tracés;
- Renforcer tous les coordonnateurs des sites, avec interprétations de la cartographie des polygones à travers des différents équipements disponibles (GPS, Tablet, Cellulaire, etc.).
- Dans toutes les zones de comptage on ne pas couvert tous les sites planifiés, surtout dans les îles de Bijagos et littoral sud, raison par laquelle on a enregistré le nombre des individus moins que le dénombrement mondiale précédente ;
- Pour connaître l'occurrence des oiseaux dans les tous sites potentiels, est recommandé de promouvoir les dénombrements mensuels dans les sites clés;

- Pour le renforcement des capacités le réseau de compteurs nationaux il faut équiper les membres avec les moyens et instruments nécessaires pour le dénombrement des oiseaux.

### Remerciements

Cette campagne de dénombrement des oiseaux d'eau a été appuyé financièrement par Fondation MAVA, donc c'est une occasion de remercier cette institution pour le rôle joué dans la domaine de la conservation des oiseaux d'eau. Wetlands International Africa et BirdLife International (WIACO), Bureau de la Planification Côtière, Institut de la Biodiversité et des Aires Protégées (IBAP) et l'Organisation pour le Défense et Développement des Zones Humides, dont nous remercions.

Spéciaux remerciements sont adressés à WIACO et à IBAP qui a mis à disposition co-financement monétaire et logistique dans le processus de dénombrement.

### ANNEX

#### Listes de compteurs/observateurs

Fernando Tamizo<sup>1</sup>, Joãozinho Sácheffe d'équipe<sup>2</sup>, Luis Gomes<sup>3</sup>, Willian Intepe<sup>3</sup>, Ramalho Da Silva<sup>4</sup>, Merjan da Silva<sup>4</sup>, Hamilton Monteiro<sup>5</sup>, Menno Hornman<sup>6</sup>, Agostinho Infanda<sup>7</sup>, Nelson Antonio Cabral<sup>7</sup>, Benicio Nanque Co<sup>8</sup>, Tomé Mereck<sup>9</sup>, Josh Nightingale<sup>10</sup>, Zeca Djú<sup>11</sup>, Armando João Nancassa<sup>12</sup>, Braima Sedja<sup>11</sup>, Úmaro Bari<sup>11</sup>, Mamadú Djaló<sup>11</sup>, Aissa Regalla de Barros<sup>9</sup>, Antonio Pires<sup>5</sup>, Carlitos Francisco Sedja, Peter de Boer<sup>6</sup>, Fernando Preto<sup>3</sup>, Junior Domingos Alves<sup>13</sup>, Marcelino Fernandes<sup>13</sup>, Quintino Tchantchalam<sup>14</sup>, Ramalho Sá<sup>7</sup>, Santinho Joaquim da Silva<sup>5</sup>, Tomé Bandeira, Afonso Rocha<sup>10</sup>, Floor Arts<sup>15</sup>

<sup>1</sup>Djotchetchenglar/ODZH, <sup>2</sup>GPC/WIA, <sup>3</sup>PNTC/IBAP, <sup>4</sup>DJOTCHETCHENGLAR, <sup>5</sup>PNMJVP/IBAP, <sup>6</sup>SOVON/WSFI, <sup>7</sup>ODZH, <sup>8</sup>WIACO-GB, <sup>9</sup>IBAP, <sup>10</sup>WSFI, <sup>11</sup>PNC/IBAP, <sup>12</sup>PND/IBAP, <sup>13</sup>PNO/IBAP, <sup>14</sup>RBBB/IBAP, <sup>15</sup>DMP/WSFI

## 20. Guinea



L'équipe de comptage de la gauche vers la droite: Colonel Namory Keita, Kadiatou Soumah, Fatou Conte, Djenabou Doubouya, Marc van Roomen, N'valy Sanoh, Djenaba Diallo, N'Goné Diop, Roger Doré et Aissatou Yvette Diallo. © Aissatou Yvette Diallo

### Comptage des oiseaux d'eau à la février 2023 en République de Guinée

Kadiatou Soumay, Direction Parc  
Nationaux et Réserve de Faune  
(OGPNRF), Guinée-Conacry



#### 1. INTRODUCTION

Chaque année au mois de janvier ou février, les zones humides font l'objet de dénombrement partiel ou global des oiseaux d'eau.

En Guinée, c'est la deuxième fois que nous effectuons le dénombrement global des oiseaux d'eau. Cette activité, coordonnée par le Ministère

de l'environnement et du Développement Durable (MEDD) à travers la Direction Générale du Corps des conservateurs de la Nature (DNCCN). Pour cette année 2023, le dénombrement a été réalisé par les agents de ladite Direction, de l'Office Guinéenne des Parc Nationaux et Réserve de Faune (OGPNRF), de l'ONG Guinée Ecologie avec une assistance technique de BirdLife International et de WSFI.

Le présent rapport du dénombrement international des oiseaux d'eau 2023 comporte les résultats de décompte pour (5) sites du pays qui sont : îles de Tristao, Rio de Kapatchez, Rio de Konkouré, l'estuaire de Melakoré et Toguiron.

#### 2. ZONES ET SITES INVENTORIÉS

Les activités du dénombrement des oiseaux d'eau ont couvert l'ensemble de la côte Guinéenne qui s'étend environ 300 km de Boké à Forécariah avec un focus sur les sites les plus importants pour les oiseaux d'eau. Ainsi, 7 sites mère et subdivisés en des unités de comptage ont fait l'objet de comptages (voir carte 1).

#### 3. MÉTHODOLOGIE ET MATÉRIEL DE COMPTAGE

Avant les activités de terrain, un mini-atelier regroupant les agents compteurs nationaux et

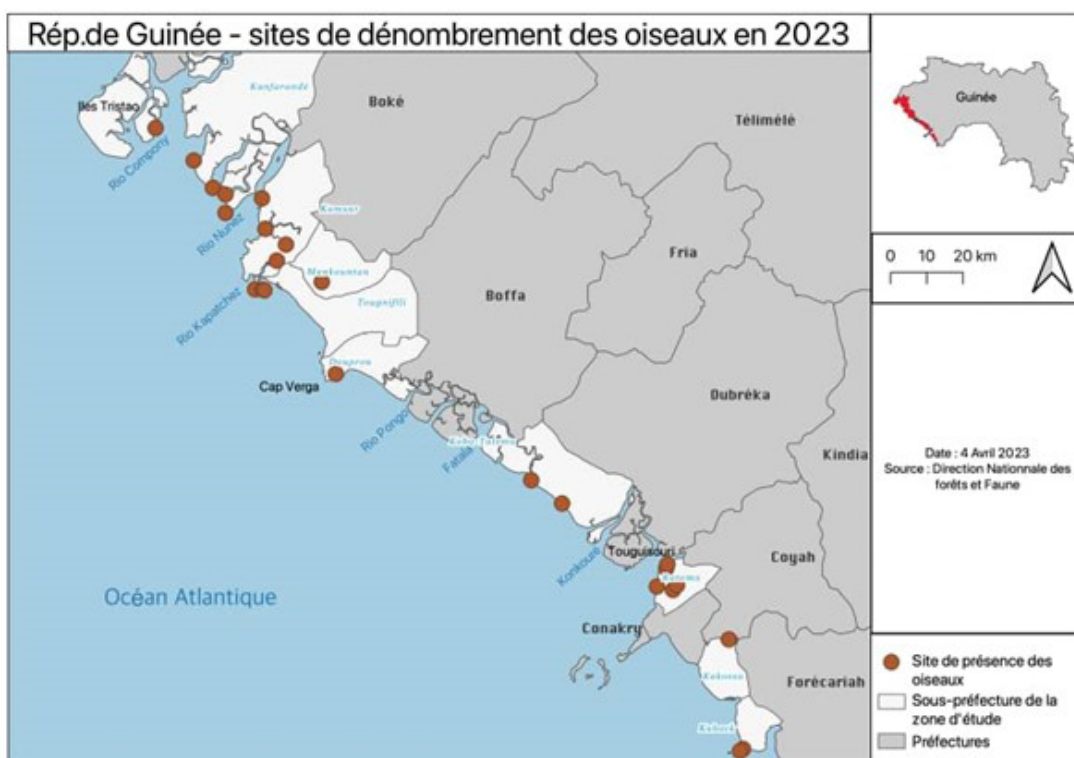
experts internationaux a été tenu dans une salle de réunion à Conakry. Cette réunion a consisté à planifier le comptage et à s'approprier des méthodes et outils de comptage des Oiseaux d'eau. A l'issue de cette réunion, deux équipes ont été constituées pour couvrir l'ensemble des sites définis. Ces équipes composées d'experts nationaux et internationaux ont commencé les décomptes du Nord vers le Sud de la côte guinéenne.

Elle a été celle du comptage direct à pied, en véhicule et ou /en pirogue. La technique a consisté d'abord à l'identification de l'espèce ensuite, au comptage réel ou estimatif selon la taille du groupe. La plupart des observations ont été effectuées dans les vasières au niveau des chenaux, des mares, des plages, dans la plaine rizicole et le long de la mangrove. Les activités de décompte ont tenu compte des habitats et du programme de la marée. Ainsi, les marées basses descentes ont été réservées pour les vasières et les plaines rizicoles. Par contre, les hautes marées et marées montantes ont été utilisées pour la mangrove et les chenaux.

Le matériel utilisé pour faciliter le comptage comprennent un compteur, GPS, des jumelles, un registre, des fiches techniques, un crayon, un guide, un bateau, des véhicules, des cartes, un télescope, un appareil photo numérique, matériel de camping, etc.

#### 4. RÉSULTAT ET ANALYSE DES DONNÉES

Le dénombrement global des oiseaux d'eau réalisé en 2023, a permis de trouver un effectif de 27 736 individus pour 76 espèces, par rapport à l'année 2020 qui fait un effectif de 52 277 individus. Cela montre qu'au bout de trois ans, le nombre d'individus a chuté de 24 541 d'individus. Cela pourrait être est due à la dégradation poussée de certains habitats, à la diminution des disponibilités alimentaires associé aux effets du changement climatique.



Carte 1. localisation des différents sites du dénombrement

Tableau 1. liste des espèces répertoriées

Nom scientifique	Nom vernaculaire (FR)	Total 2023
<i>Dendrocygna viduata</i>	Dendrocygne veuf	482
<i>Phoenicopterus roseus</i>	Flamant rose	2 100
<i>Phoeniconaias minor</i>	Flamant nain	4 500
<i>Zapornia flavirostra</i>	Marouette à bec jaune	4
<i>Mycteria ibis</i>	Tantale ibis	32
<i>Platalea alba</i>	Spatule d'Afrique	42
<i>Threskiornis aethiopicus</i>	Ibis sacré	152
<i>Butorides striata</i>	Héron strié	8
<i>Ardeola ralloides</i>	Crabier chevelu	19
<i>Bubulcus ibis</i>	Héron garde-boeufs	679
<i>Ardea cinerea</i>	Héron cendré	388
<i>Ardea melanocephala</i>	Héron mélanocéphale	82
<i>Ardea goliath</i>	Héron goliath	8
<i>Ardea purpurea</i>	Héron pourpré	7
<i>Ardea alba</i>	Grande Aigrette	723
<i>Ardea brachyrhyncha</i>	Héron a bec jaune	93
<i>Egretta ardesiaca</i>	Aigrette ardoisée	527
<i>Egretta garzetta</i>	Aigrette garzette	369
<i>Egretta gularis</i>	Aigrette à gorge blanche	307
<i>Scopus umbretta</i>	Ombrette africaine	14
<i>Pelecanus rufescens</i>	Pélican gris	366
<i>Pelecanus onocrotalus</i>	Pélican blanc	22
<i>Microcarbo africanus</i>	Cormoran africain	237
<i>Anhinga rufa</i>	Anhinga d'Afrique	2
<i>Haematopus ostralegus</i>	Huïtrier pie	29
<i>Recurvirostra avosetta</i>	Avocette élégante	1 626
<i>Himantopus himantopus</i>	Échasse blanche	88
<i>Pluvialis squatarola</i>	Pluvier argenté	597
<i>Charadrius hiaticula</i>	Pluvier grand-gravelot	3 052
<i>Charadrius marginatus</i>	Pluvier à front blanc	7
<i>Vanellus spinosus</i>	Vanneau à éperons	51
<i>Vanellus senegallus</i>	Vanneau du Sénégal	14
<i>Actophilornis africanus</i>	Jacana à poitrine dorée	91
<i>Numenius phaeopus</i>	Courlis corlieu	2 262
<i>Numenius arquata</i>	Courlis cendré	63
<i>Limosa lapponica</i>	Barge rousse	1 184
<i>Arenaria interpres</i>	Tournepierre à collier	13
<i>Calidris canutus</i>	Bécasseau maubèche	325
<i>Calidris ferruginea</i>	Bécasseau cocorli	2 777
<i>Calidris alba</i>	Bécasseau sanderling	228
<i>Calidris minuta</i>	Bécasseau minute	123
<i>Actitis hypoleucos</i>	Chevalier guignette	255
<i>Tringa ochropus</i>	Chevalier cul-blanc	4
<i>Tringa nebularia</i>	Chevalier aboyeur	875
<i>Tringa totanus</i>	Chevalier gambette	2 111
<i>Tringa glareola</i>	Chevalier sylvain	82
<i>Glareola pratincola</i>	Glaréole à collier	29
<i>Larus genei</i>	Goéland railleur	74
<i>Larus cirrocephalus</i>	Mouette à tête grise	254
<i>Sternula albifrons</i>	Sterne naine	273
<i>Gelochelidon nilotica</i>	Sterne hansel	802
<i>Hydroprogne caspia</i>	Sterne caspienne	126
<i>Thalasseus bengalensis</i>	Sterne voyageuse	16
<i>Thalasseus sandvicensis</i>	Sterne caugek	679
<i>Thalasseus maximus</i>	Sterne royale	1 071

#### 4. DISCUSSION

Au terme des travaux de comptage allant de la période du 03 au 10 février 2023, nous avons dénombré 74 espèces d'oiseaux sur un total de nombre d'individus de 27 736 répartis sur 8 grands sites de comptage. Le site Soty dans-Kapatchez s'est révélé être très riche en effectif de certaines espèces, dont – *Phoeniconaias minor* 4 500 individus suivi de *Calidris ferruginea* avec 2 837 individus et *Charadrius hiaticula* avec 2 829 individus et les espèces les plus faibles en effectif sont : *Limosa limosa*, *Anhinga rufa* et *Sula capensis* respectivement 3,2,1 individus. Lors du dénombrement, l'équipe de comptage a répertorié quelques menaces sur les sites. Il s'agit: L'abandon des résidus du filet monofilament, la coupe abusive des bois de mangrove, le défrichement des nouvelles surfaces de mangrove pour les fins de rizicultures, l'agriculture extensive constitue aussi une grande menace sur ces habitats, l'abattage de certains oiseaux, les pélicans par exemple.

#### Remerciements

Nous remercions le Ministère de l'environnement et du Développement Durable (MEDD) à travers la Direction Générale du Corps des conservateurs de la Nature (DNCCN) les agents de la Direction, de l'Office Guinéenne des Parc Nationaux et Réserve de Faune (OGPNRF), de l'ONG Guinée Ecologie, Wetlands International, avec une assistance technique de BirdLife International et de Wadden Sea Flyway Initiative (WSFI)

#### ANNEX

##### Liste des compteurs

Marc Van Roomen, Assatou Yvette Diallo, N'Gone Diop, Kadiatou Soumah, Roger Doré, Djenabou Doumbouya, Djeinabou Diallo, N'Valy Sanoh, Alphonse Sonomy, Mohamed Soumaoro, Fatou Conté.



## 21. Sierra Leone



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### Results of February 2023 counts of waterbirds in Sierra Leone

Abdulai Dauda, Conservation Society of Sierra Leone



#### 1. INTRODUCTION

Sierra Leone has an extensive coastline, of which a large part can be characterized as coastal wetlands. The coastal wetlands of Sierra Leone are very diverse in types of habitats ranging from rivers and their estuaries to shallow mangroves and lagoons along the entire coast. In total, the entire coastline wetlands of Sierra Leone cover about 4,840 km<sup>2</sup> including intertidal mudflats, sandbanks, mangrove forests, coastal swamps, cultivated wetlands (rice fields), flood plains and lakes. The coastal zone has four main estuary systems. These are, from North to South: the Scarcies

Estuary, Sierra Leone River Estuary, Yawri Bay, and Sherbro Island Estuary (including Turtle Island) with a total of 578,600 hectares of mangroves around 1985 and 17,750 hectares of intertidal mudflats (Altenburg 1987, and Bah 1994).

The first bird counts of some parts (less than 10% of the total area) of these wetlands were carried out in the period 1982 – 1984. The first comprehensive total count of waterbirds of the coast of Sierra Leone was carried out in 2005 (van der Winden et al. 2008). The results were indicating a high proportion of international flyways- numbers of species like Ringed Plover, Curlew Sandpiper and Redshank. From that census to date, several efforts have been made to conduct waterbird censuses in different parts across the coastal wetlands. From 2018 to 2022, there has been a tremendous effort by the Conservation Society of Sierra Leone to carry out the counting of waterbirds in two of the major Estuaries (Yawri Bay and Sierra Leone River Estuary). However, the counting did not cover the entire coastal wetlands.

The aim of the 2023 census is to:

- Determine birds' abundance at all sites (the Scarcies Estuary, Sierra Leone River Estuary, Yawri Bay, and Sherbro Island Estuary (including Turtle Island));
- investigate threats associated with the sites;
- raise the profile of the wetlands through awareness-raising and education programs.

## 2. METHODS

Sites counted (Yawri Bay, Sherbro, Scarcies, Turtle Island and Sierra Leone River Estuary, see figure 1) were visited using small boats with outboard engines and waders were counted during low tides when they were present on the mudflats. For every day of counting, counting ended before high tide when the birds started flying to roost in the mangroves or on the inland plains. Counting was effective when birds were counted from the boat as it was driven along the shores of the mudflats (see also van der Winden et al. 2008, Trolliet & Fouquet 2004, Tye & Tye 1987). Large mudflats areas that could not be accessed by boat were counted by leaving the boat and walking along the shore. Important mudflat areas and large sandbanks were always visited during low tide.

In Yawri Bay, an alternative counting method was used as large parts of this extensive area consist of extremely soft mud, which makes it extremely difficult for observers to walk with telescopes, even over a short distance. In some parts of the areas, counting was started two hours before high tide and the strategy was to approach the shore with the boat and drop off the observers in shallow water. This way birds were counted when already concentrating near the mangroves, but before they flew to roost. Nevertheless, the observers found it difficult to keep in a stable position for counting because of sinking into the soft mud. Creeks in the mangroves were counted from the boat and in such cases, only the banks were covered, not the forest interior.

## 3. RESULTS

A total of 44,083 individuals belonging to 63 species including unidentified terns and waders were recorded during the survey across the sites. Based on the IUCN Red List categorization, 10 species of conservation importance were recorded. Most important species and numbers are summarized in table 1. Figure 1 shows the abundance of birds counted across different sites during the survey. Yawri Bay and Sherbro river are most important in terms of bird numbers but direct comparison with the other sites is not really possible because the other sites were not completely counted.

## 4. DISCUSSION

Composition varies across sites. However, bird composition was higher for Sherbro River Estuary which indicated that 51 (26%) species were recorded while the least records were obtained for

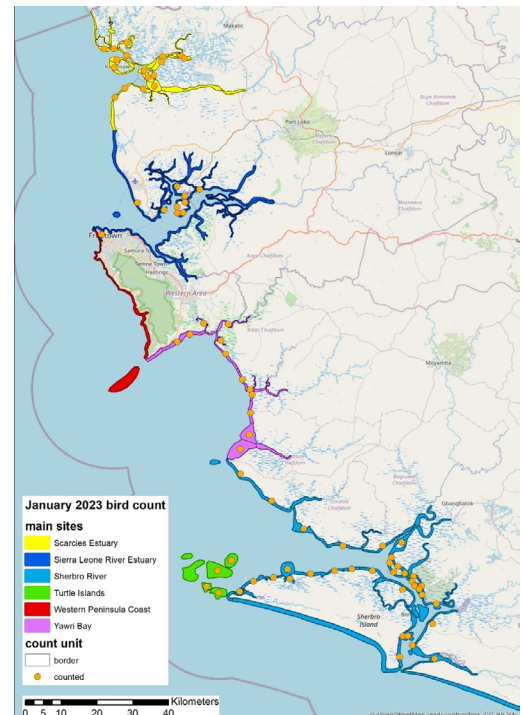


Figure 1. Overview of main sites, counting units and count coverage in 2023

Sierra Leone River Estuary with a total of 28 (14%) species recorded. Further records of 44 (23%), 41 (21%) and 30 (16%) species were recorded for Yawri Bay, Scarcies River Estuary and Turtle Island respectively.

Of the total 63 species recorded across the sites during the assessment, 10 species of conservation interest were recorded. Of the 5 species that are of conservation importance, Eurasian Oystercatcher, Bar-tailed Godwit, Black-tailed Godwit, Curlew Sandpiper, Eurasian Curlew and Red Knot are listed as Near Threatened. The occurrence of these birds in Yawri Bay is therefore evidence of the importance of Yawri Bay for its maintenance and conservation and underscores the potential of this site to be designated as a Ramsar site.

Several cases of mangrove harvesting sold for cash and the use of inappropriate fishing tools such as the monofilament were observed during this survey. Also, fishing activity in these communities was observed to be inherited from parents as children age between the ages of 12 to 15 were noticeably observed going out in the sea to fish with their parents. Mangrove harvesting was not observed to be frequent at the edge of the shoreline but was predominantly observed occurring in the interior of the mangroves. Furthermore, the collection of cockles and clams by women is maybe a significant threat to the bird populations.

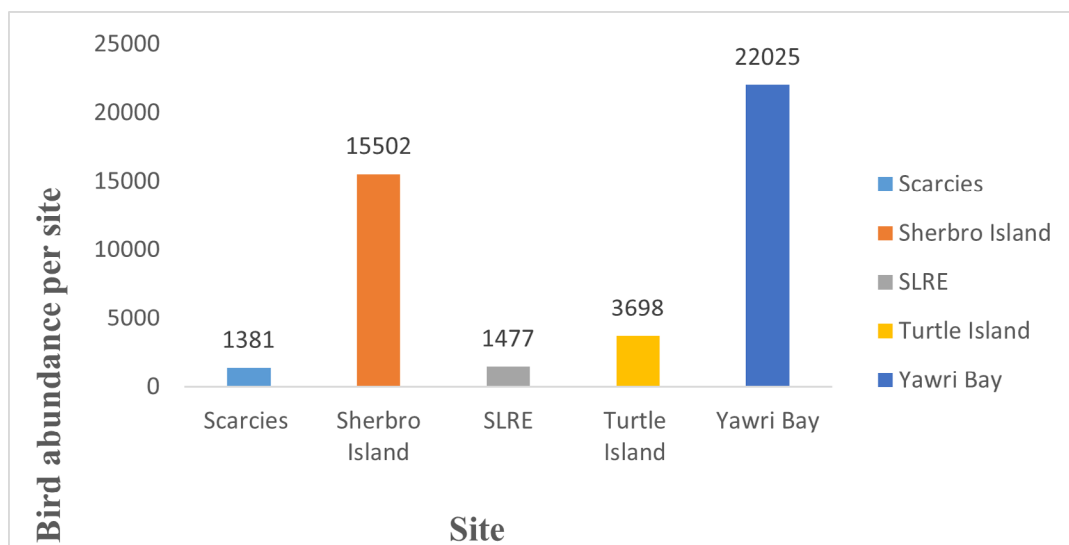


Figure 2. Differences in bird abundance across sites

However, despite the intense pressure posed on the mangroves in the study area, some areas still appear to be intact. The reported cases of shoreline erosion also appeared to be having considerable effects on the environment of Yawri Bay as some parts of the environment is undergoing alteration.

The increasing pressure on resources across the sites might be because residents along the coastal communities are dependent on the sites for their food and as a result of their activities the resources are faced with tremendous pressure which in turn is contributing to habitat alteration in this area. Also, the lack of awareness among edge communities might be a contributing factor as the majority of the communities do not know about the conservation importance of Yawri Bay and other wetland sites. The management strategy put in place, especially by the Ministry of Fisheries and Marine Resources, is not effective as most of the vegetation seems to be undergoing rapid deterioration. These areas must be managed and protected from the increasing pressure for unsustainable exploitation of its wetland resources that looks likely to increase as the population continues to grow. Continued and sustained engagement and awareness programs with the surrounding host community. Additionally, investment in the protection of these sites and the restoration of other currently degraded habitats are therefore recommended as a measure to mitigate this potentially increasing pressure. It is also important that an ornithological (and biodiversity) monitoring program has to be put in place to provide long-term

data which is often needed to determine the effectiveness of management interventions.

## ANNEX

### List of participants

Abdulai Dauda, Papanie Bai-Sesay, Jessy Kanu, Kathrine Prinzing, Tina Schulze, Momoh Bai-Sesay, Andrea Haffner, Moses Luseni, Santigie Sesay, Joost van Bruggen, Rinse van der Vlietn

Table 1. Total numbers of waterbirds counted at the coast of Sierra Leone in February 2023

Scientific name	Common name (EN)	Total 2023
<i>Dendrocygna viduata</i>	White-faced Whistling-duck	502
<i>Mycteria ibis</i>	Yellow-billed Stork	60
<i>Platalea alba</i>	African Spoonbill	686
<i>Platalea leucorodia</i>	Eurasian Spoonbill	5
<i>Threskiornis aethiopicus</i>	African Sacred Ibis	151
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron	1
<i>Butorides striata</i>	Green-backed Heron	81
<i>Bubulcus ibis</i>	Cattle Egret	268
<i>Ardea cinerea</i>	Grey Heron	352
<i>Ardea goliath</i>	Goliath Heron	2
<i>Ardea alba</i>	Great White Egret	1,074
<i>Ardea brachyrhyncha</i>	Yellow-billed Egret	55
<i>Egretta ardesiaca</i>	Black Heron	93
<i>Egretta garzetta</i>	Little Egret	371
<i>Egretta gularis</i>	Western Reef-egret	936
<i>Scopus umbretta</i>	Hamerkop	7
<i>Pelecanus rufescens</i>	Pink-backed Pelican	561
<i>Pelecanus onocrotalus</i>	Great White Pelican	84
<i>Microcarbo africanus</i>	Long-tailed Cormorant	666
<i>Haematopus ostralegus</i>	Eurasian Oystercatcher	77
<i>Recurvirostra avosetta</i>	Pied Avocet	204
<i>Pluvialis squatarola</i>	Grey Plover	2,723
<i>Charadrius hiaticula</i>	Common Ringed Plover	4,869
<i>Charadrius dubius</i>	Little Ringed Plover	68
<i>Numenius phaeopus</i>	Whimbrel	2,413
<i>Numenius arquata</i>	Eurasian Curlew	101
<i>Limosa lapponica</i>	Bar-tailed Godwit	4,234
<i>Limosa limosa</i>	Black-tailed Godwit	263
<i>Arenaria interpres</i>	Ruddy Turnstone	167
<i>Calidris canutus</i>	Red Knot	82
<i>Calidris ferruginea</i>	Curlew Sandpiper	6,825
<i>Calidris alba</i>	Sanderling	693
<i>Calidris alpina</i>	Dunlin	14
<i>Calidris minuta</i>	Little Stint	8
<i>Actitis hypoleucos</i>	Common Sandpiper	373
<i>Tringa nebularia</i>	Common Greenshank	524
<i>Tringa totanus</i>	Common Redshank	2,100
<i>Rynchops flavirostris</i>	African Skimmer	317
<i>Larus cirrocephalus</i>	Grey-headed Gull	26
<i>Larus fuscus</i>	Lesser Black-backed Gull	220
<i>Sternula albifrons</i>	Little Tern	1,989
<i>Gelochelidon nilotica</i>	Common Gull-billed Tern	460
<i>Hydroprogne caspia</i>	Caspian Tern	87
<i>Chlidonias niger</i>	Black Tern	17
<i>Sterna hirundo</i>	Common Tern	816
<i>Thalasseus bengalensis</i>	Lesser Crested Tern	37
<i>Thalasseus sandvicensis</i>	Sandwich Tern	1,418
<i>Thalasseus maximus</i>	Royal Tern	6,318

## 22. Liberia



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### Results of January 2023 counts of waterbirds in Liberia

Emmanuel M. Loqueh—Research  
Officer—SCNL,  
Society for the Conservation of  
Nature in Liberia



#### 1. INTRODUCTION

Many African and European nations, including Liberia's neighbors Sierra Leone, Guinea, and Ivory Coast, have been participating in the international water bird census along the African-Eurasian flyway as a national initiative. The census of water birds has only been occasionally and in a few locations in Liberia. Although Liberia has created the national strategy for the water bird census, she has chosen some RAMSAR sites for counting operations based on the existence of water birds.

Since 2014, SCNL has been conducting a waterbird count at some locations that Wetlands International and the national coordinator had identified. In particular, the newly discovered site in Grand Bassa County in Edina is crucial for the water bird count because it is where three other rivers—the Benson, ST. John, and Melclin rivers—meet and flow into the ocean. We appreciate Wetlands International and Wadden Sea Flyway Initiative for helping to make the international waterbird census in Liberia possible.

For this year, the count ran from January 13 to February 4 of 2023, and five coastal zones in Liberia were monitored during the International Waterbird Census. In addition to the Lake Piso site in Grand Cape Mount County, the Lofa River Mouth in Bomi County, the Monrovia Coastal Lagoon and the Mesurado site in Montserrado County, the Marshall wetland in Margibi County, and the Edina wetland in Grand Bassa County are among these coastal zones. Due to the significance of the total count for this year, all sites including the new site in Grand Bassa County were visited. The total count was performed by a team of ten people. The team was led by a research officer from SCNL, a research technician from the same organization, a volunteer from Robertsport, a member of the Site Support Group (Piso Conservation Forum (PCF), and two employees of the Forestry Development Authority from the Lake Piso Multiple Use Reserve. The aim of the census was to keep track of the waterbird population density along the coast



Figure 1. Map of the sites in white and names in red

and the relevant site environmental variables. This year's overall bird count included 56 different bird species and 1,685 unique birds. In areas where there were water bodies, the count was carried out on foot and with the use of a boat.

### Objective

The International Waterbirds Census is a global initiative that has been running in many countries since the 60s including Liberia. The initiative works through partnerships with organizations and professional groups. Every January, the Society for Conservation of Nature of Liberia (SCNL) conducts the International Waterbird Census every year, with support from Wetland International, BirdLife International and the Wadden Sea Flyway Initiative.

One of the main objectives of the 2023 total count is to generate a data-set on Liberia's water birds and other migratory birds along the coast and wetlands. In addition to this objective, it also aims to have waterbird data in the world Bird Data Base (WBDB) and as well as capacitate and equip Liberians in water birds identification, counting, and field survey techniques and to assess the threats at various IBAs and feed Wetland International with these data-sets annually.

### Overview of the country and the covered zones/sites

The Census was conducted in the wetlands along the coast of Liberia. These Wetlands were identified in the past by wetland International and the Country coordinator (see figure 1).

## 2. METHODOLOGY

This year was a total count, so all the sites that were identified by Wetland International and the Country coordinator were counted for the total count, this year waterbird count was comprised of SCNL staff, Site support Group Forestry Development Authority (FDA), and FDA volunteer/Eco guard at the Lake Piso along with RSPB staff. Before the start of the count, the head of the team conducted a refresher training for the team in the area of bird identification and how to fill in the environmental monitoring form and count form, the waterbird census lasted for 19 out of the 21 days from January 13 to February 4 2023 due to the institution retreat that was held during the time of the count which members of the team needed to be a part of.

## 3. RESULTS

There are 1,685 individual birds that were counted in this year's total count, which was conducted at seven parent sites and included 56 different bird species, came from seven different sites. Due to its size, Lake Piso in Robertsport has four sub-counting units. These are RSPO-1, RSPO-2, RSPO-3, and RSPO4. This site is one of the larger ones that we always count first during the waterbird census because it is the main flyway of waterbirds in Liberia.

A total of 595 birds were counted at the Lake Piso parent site belonging to 31 bird species in Grand Cape Mount County while at the Mafa River mouth in Grand Cape Mount County, a total of 200 individuals birds were counted belonging to

24 bird species at the parent site of Mafa River Mouth. After the team completed Grand Cape Mount County, the team proceeded to the Lofa River Mouth in Bomi County, where a total of 70 individual birds were counted belonging to 15 bird species. At the Monrovia coastal Lagoon which has two count units MON-1 and MON-2, a total of 419 individual birds were counted belonging to 32 bird species, and a total of 109 individual birds were counted on the Mesurado wetland belonging to 18 bird species.

Table 1. List of waterbird species and their numbers recorded

Scientific name	Common name (EN)	Total 2023
<i>Dendrocygna viduata</i>	White-faced Whistling-duck	34
<i>Zapornia flavirostra</i>	Black Crake	2
<i>Gallinula chloropus</i>	Common Moorhen	25
<i>Paragallinula angulata</i>	Lesser Moorhen	1
<i>Butorides striata</i>	Green-backed Heron	17
<i>Ardeola ralloides</i>	Squacco Heron	7
<i>Bubulcus ibis</i>	Cattle Egret	118
<i>Ardea cinerea</i>	Grey Heron	15
<i>Ardea purpurea</i>	Purple Heron	3
<i>Ardea alba</i>	Great White Egret	7
<i>Ardea brachyrhyncha</i>	Yellow-billed Egret	34
<i>Egretta ardesiaca</i>	Black Heron	93
<i>Egretta garzetta</i>	Little Egret	71
<i>Egretta gularis</i>	Western Reef-egret	118
<i>Microcarbo africanus</i>	Long-tailed Cormorant	203
<i>Himantopus himantopus</i>	Black-winged Stilt	2
<i>Pluvialis squatarola</i>	Grey Plover	30
<i>Charadrius hiaticula</i>	Common Ringed Plover	1
<i>Charadrius dubius</i>	Little Ringed Plover	9
<i>Actophilornis africanus</i>	African Jacana	18
<i>Numenius phaeopus</i>	Whimbrel	20
<i>Numenius arquata</i>	Eurasian Curlew	3
<i>Arenaria interpres</i>	Ruddy Turnstone	4
<i>Calidris pugnax</i>	Ruff	1
<i>Calidris ferruginea</i>	Curlew Sandpiper	8
<i>Calidris alba</i>	Sanderling	30
<i>Calidris minuta</i>	Little Stint	48
<i>Actitis hypoleucos</i>	Common Sandpiper	105
<i>Tringa ochropus</i>	Green Sandpiper	5
<i>Tringa nebularia</i>	Common Greenshank	30
<i>Tringa totanus</i>	Common Redshank	18
<i>Tringa glareola</i>	Wood Sandpiper	2
<i>Tringa stagnatilis</i>	Marsh Sandpiper	2
<i>Sternula albifrons</i>	Little Tern	53
<i>Gelochelidon nilotica</i>	Common Gull-billed Tern	1
<i>Chlidonias niger</i>	Black Tern	83
<i>Thalasseus sandvicensis</i>	Sandwich Tern	120
<i>Thalasseus maximus</i>	Royal Tern	135

Marshall wetland has two counting units: MSH-1 and MSH-2; a total of 143 individual birds were counted in Marshall wetland belonging to 28 bird species, at Edina wetland, a total of 149 individual birds were counted belonging to 27 bird species at the Edina wetland.

## 4. DISCUSSION

### Specific threats to the sites

The threats to these sites vary from area to area, but in general, fishing, sand mining, and encroachment on wetlands due to overfishing at these sites pose the greatest threats. Additionally, there are pressures on the forest along the coast due to the cutting down of the forest for firewood for the drying of fish. There are enormous piles of woods all around the site in Robertsport Grand Cape Mount County, which is home to one of the major fishing communities. Encroachment, creating wetlands for habitation, and removing mangroves to make more space for settlements in the wetlands are the three main threats to the two sites in Monrovia. At the Marshall wetlands, sand mining and settlement expansion are the major threats that are facing the site; additional threat to the Marshall wetland is the construction of a 2.0km road in the wetland by East International the the drying and in Grand Bassa County the major threats are charcoal production and sand mining.

Table 2. Most important pressures/threats to wetlands per sites

Lake Piso	Fishing and cutting firewood
Mafa River Mouth	Fire Woodcutting
Lofa River Mouth	Farming and fishing
Monrovia Coastal Lagoon	Encroachment in wetlands
Mesurado Wetland	Encroachment in wetlands
Marshall Wetland	Sand mining and fishing
Edina Wetland	Charcoal production

### Difficulties encountered, quality and coverage of the count

Many previously accessible locations were now blocked by buildings during this year's waterbird census, making it challenging to see the birds at a distance. The researchers had trouble observing species that were flying past the binocular's field

of view. The majority of the locations where we once stood to watch birds have been encroached upon, and even locations that were once easily accessible require you to take a longer path. Due to the difficulty in getting to the other sites, the team members who come from Robertsport Lake Piso during the break in the water bird count for the SCNL retreat that took place during the Waterbird census, the Robertsport team had to take a taxi to Monrovia to continue the International Waterbird census.

By comparing the results of this year's census, which show a total of 1,685 birds belonging to 56 bird species, with the results of last year's annual count, which shows a total of 1,298 birds belonging to 44 bird species, it can be concluded that the total number of water birds in 2023 will be higher than in the previous year.

### Improvements and learning points for the future

SCNL needs to train more Site Support Group in the field of bird identification at these sites especially in Lake Piso and Marshall city in Margibi County so that during the International Water bird count we will not take monitors from Robertsport to Monrovia. At the office level, most SCNL research technicians need to create more interest in water bird monitoring so that SCNL can identify training for staff for future monitoring of the International Water bird Census.

### Acknowledgement

This year's total count for the International Waterbirds Census would have not been possible without funding from Wetlands International and the Warden Flyway Initiative.

We also recognized the collaboration of the Forestry Development Authority (FDA) role played by ensuring the use of the patrol boat in Lake Piso and the contribution of their staff during the total count; a big thank you to the RSPB Liberia staff for their effort by joining the team in Monrovia, Marshall and Edina (Tarik Bodasing, Alade Adeleke and Bunmie Jegede) and PAPFor regional Coordinator (Marc Languy) and for his beautiful bird's photos taken during the count. We appreciate the dedicated efforts of all the SCNL staff that participated in the International Waterbird Census in 2023.

## ANNEX

List of the observers involved during the 2023 IWC: Emmanuel M. Loqueh, Abraham B. Flomo, Hussein Pusah, Prince Momo, Momo Sambolleh, Rebecca Wleeh, Tarik Bodasing, Alade Adeleke, Bunmie Jegede, Marc Languy



## 23. Côte d'Ivoire



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### Comptage des oiseaux d'eau à la janvier 2023 en Côte d'Ivoire

KOUAME Kouassi Firmin, UASSA  
Kouassi Félix



#### 1. INTRODUCTION

La Côte d'Ivoire est située en Afrique de l'Ouest et s'étend sur 322 462 km<sup>2</sup>. Le pays fait frontière avec le Mali et le Burkina Faso au nord, la Guinée et le Libéria à l'ouest, le Ghana à l'Est et au sud par l'océan Atlantique dans la partie occidentale du golfe de Guinée. Le pays dispose d'un bassin littoral de 500 km et quatre grands bassins flu-

viaux qui couvrent 265 000 km<sup>2</sup>. A ces principaux fleuves et ce bassin littoral, s'ajoutent plusieurs affluents. Ceux-ci forment plusieurs zones humides qui hébergent des oiseaux d'eau migrateurs et résidents. Cette année, un nouveau site a été visité à l'ouest de la Côte d'Ivoire: le Parc National du Mont Sangbé.

Le DIOE de janvier 2023 a porté sur vingt-un (21) sites, dont huit (08) sites côtiers et treize (13) sites non côtiers.

L'objectif du DIOE est de calculer les tendances et décrire la distribution des espèces; d'estimer la taille des populations d'espèces d'oiseaux d'eau; d'évaluer les facteurs environnementaux et les menaces qui pèsent sur les zones humides et les oiseaux d'eau qui y vivent.

#### 2. METHODOLOGIE

Le DIOE a débuté par la mobilisation du personnel, la constitution des équipes de terrain et le rappel des objectifs de comptage. Au total, treize (13) équipes de cinquante-neuf (59) personnes (agents forestiers, Ornithologues, membres d'ONGs, volontaires et agents de parcs nationaux) ont été constituées. Ensuite, les équipes ont été mises en mission du 15 au 20 janvier 2023 pour réaliser le comptage des oiseaux d'eau.

Les équipes ont visités au total 21 sites avec des véhicules. Sur le terrain, les équipes ont fait le comptage par la méthode directe à pied, en véhicule et à bord de bateau ou de pirogue motorisée.

### 3. RESULTATS

Le DIOE de 2023 a montré une hausse des effectifs avec 24 747 individus de 79 espèces et 20 familles recensées contre 17 672 individus en 2022. Cette hausse du nombre d'individus pourrait s'expliquer par le plus grand nombre de sites visités cette année. Soit 21 sites cette année 2023 contre 15 en 2022. Aussi, faut-il signaler, une forte population des espèces *Dendrocygna viduata* (11 460), *Bubulcus ibis* (4 636) et *Actophilornis africanus* (1 191) qui représente respectivement 46%, 19% et 5% de l'effectif total des oiseaux dénombrés.

Le Lac de Buyo s'est montrée plus abondant en termes d'individus d'oiseaux et en diversité spécifique. 6330 oiseaux de 32 espèces ont été recensés. Ensuite, vient la zone humide de Guessabo, puis Abidjan et le barrage de soubré ayant respectivement des effectifs de 2 809, 2 759 et 2 460 oiseaux. Les plus faibles effectifs ont été observés dans les barrages de Korhogo et Ferkéssédougou avec 55 et 166 individus d'oiseaux respectivement (Figure 2). Depuis 2020, les plus faibles effectifs d'oiseaux ont été observés dans ces mêmes sites.

### 4. DISCUSSION

#### Difficultés

Parmi les difficultés rencontrées nous pouvons citer l'insuffisance de matériel, car toutes les équipes ne disposent pas toutes des appareils photos pour les prises de vue. Aussi, le besoin de formation : le DIOE a montré un besoin continu de former les nouveaux compteurs qui ont rejoint le réseau des compteurs en Côte d'Ivoire. La Côte d'Ivoire dispose des Ornithologues professionnels venus des universités et des techniciens issus des ministères et qui sont capables d'assurer la formation des nouveaux compteurs. Il est nécessaire de soutenir financièrement cette formation.

#### Acquis

Le DIOE 2023 a permis de visiter un (01) nouveau site à oiseaux d'eau (Parc National du Mont Sangbé); de voir la participation des nouvelles ONGs (Afrique verte environnement, SOS Forêts) et d'autres volontaires ; de visiter un site de pépinière de palétuvier mis en place par l'ONG Afrique verte environnement dans la zone humide de Sassandra Dagbeho ; de renforcer le réseau national des compteurs des oiseaux d'eau en Côte d'Ivoire.

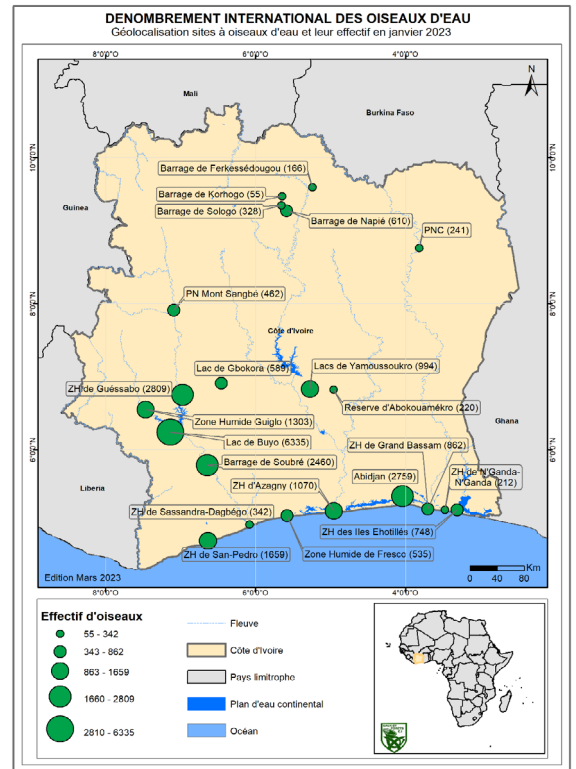


Figure 1. Situation Géographique des sites visités pendant le DIOE de 2023 et le numéro d'oiseaux d'eau

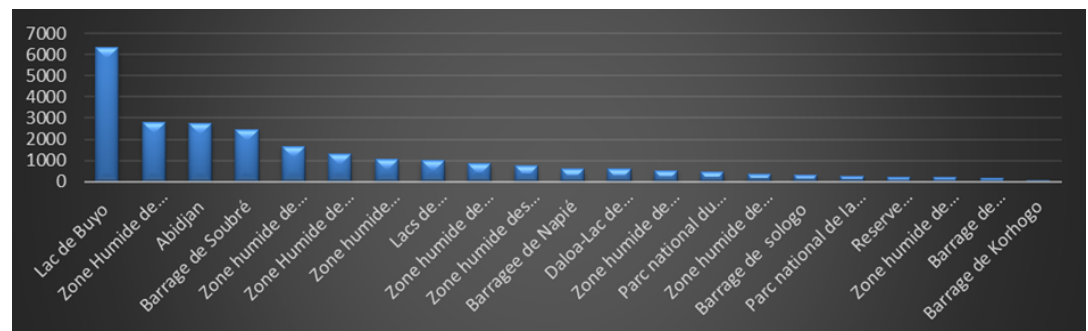


Figure 2. Repartition spatiale des espèces par site

Tableau 1. Liste des espèces observées pendant le DIOE de janvier 2023

Nom scientifique	Nom vernaculaire (FR)	Total 2023
<i>Dendrocygna viduata</i>	Dendrocygne veuf	11 460
<i>Plectropterus gambensis</i>	Oie-armée de Gambie	20
<i>Nettapus auritus</i>	Anserelle naine	477
<i>Pteronetta hartlaubii</i>	Ptéronette de Hartlaub	102
<i>Zapornia flavirostra</i>	Marouette à bec jaune	77
<i>Porphyrio porphyrio</i>	Talève sultane	8
<i>Porphyrio alleni</i>	Talève d'Allen	26
<i>Gallinula chloropus</i>	Gallinule poule-d'eau	195
<i>Mycteria ibis</i>	Tantale ibis	3
<i>Nycticorax nycticorax</i>	Bihoreau gris	96
<i>Butorides striata</i>	Héron strié	177
<i>Ardeola ralloides</i>	Crabier chevelu	356
<i>Bubulcus ibis</i>	Héron garde-boeufs	4 636
<i>Ardea cinerea</i>	Héron cendré	172
<i>Ardea melanocephala</i>	Héron mélanocéphale	21
<i>Ardea goliath</i>	Héron goliath	1
<i>Ardea purpurea</i>	Héron pourpré	13
<i>Ardea alba</i>	Grande Aigrette	282
<i>Ardea brachyrhyncha</i>	Héron a bec jaune	386
<i>Egretta ardesiaca</i>	Aigrette ardoisée	188
<i>Egretta garzetta</i>	Aigrette garzette	312
<i>Egretta gularis</i>	Aigrette à gorge blanche	192
<i>Scopus umbretta</i>	Ombrette africaine	28
<i>Microcarbo africanus</i>	Cormoran africain	687
<i>Anhinga rufa</i>	Anhinga d'Afrique	7
<i>Himantopus himantopus</i>	Échasse blanche	9
<i>Pluvialis squatarola</i>	Pluvier argenté	6
<i>Charadrius hiaticula</i>	Pluvier grand-gravelot	1
<i>Charadrius dubius</i>	Pluvier petit-gravelot	16
<i>Charadrius alexandrinus</i>	Pluvier à collier interrompu	8
<i>Vanellus spinosus</i>	Vanneau à éperons	576
<i>Vanellus senegallus</i>	Vanneau du Sénégal	131
<i>Actophilornis africanus</i>	Jacana à poitrine dorée	1 191
<i>Microparra capensis</i>	Jacana nain	58
<i>Numenius phaeopus</i>	Courlis corlieu	8
<i>Numenius arquata</i>	Courlis cendré	32
<i>Arenaria interpres</i>	Tournepière à collier	3
<i>Calidris canutus</i>	Bécasseau maubèche	1
<i>Calidris pugnax</i>	Combattant varié	1
<i>Calidris alba</i>	Bécasseau sanderling	91
<i>Calidris alpina</i>	Bécasseau variable	1
<i>Actitis hypoleucos</i>	Chevalier guignette	275
<i>Tringa ochropus</i>	Chevalier cul-blanc	107
<i>Tringa erythropus</i>	Chevalier arlequin	3
<i>Tringa nebularia</i>	Chevalier aboyeur	73
<i>Tringa totanus</i>	Chevalier gambette	19
<i>Tringa glareola</i>	Chevalier sylvain	100
<i>Tringa stagnatilis</i>	Chevalier stagnatile	35
<i>Sternula albifrons</i>	Sterne naine	97
<i>Thalasseus sandvicensis</i>	Sterne caugek	181
<i>Thalasseus maximus</i>	Sterne royale	519

## Recommandations

Pour une meilleure organisation du DIOE, il est judicieux:

- D'organiser des sessions de formation sur environ une (01) à deux (02) semaines pour certains compteurs sur la reconnaissance des espèces, le remplissage des fiches d'évaluation environnementale, la compilation des données au niveau des sites, l'utilisation du matériel de comptage ;
- De fournir suffisamment de matériel de comptage pour couvrir les besoins des équipes de terrain.

## Remerciements

La réalisation du DIOE 2023, a été rendu possible grâce à l'aide de Wetlands International et ses partenaires notamment Wadden Sea Flyway Initiative (WSFI), BirdLife International et l'appui technique de plusieurs structures (Universités, ONG, institutions nationaux, société civile).

## ANNEXE

Liste des compteurs DIOE 2023 (observateurs): Yapi Yapi Vanes, Sarambe Bogue Léontine, Ahon Dibie Bernard, Gbahan Arnaud, N'goran Hervé, Kouakou Kan Dieudonné, Niamien Coffi Jean Magloire, Konan Ekoun Michael, Konan Mouassi Paul, Douagouri Elvis, Gitte Affessi Alain Jiani, Sigui Abraham, Coulibaly Idriss, Gueye Frédéric, Kouame Kouassi Firmin, Touboui Bi Guessan Félix, Kouassi Zewauh, Aristide, Gala Bouanga Aimé, Zean Maxime, Beda Ange Alex, Koffi Yves, Kone Daouda, Sougoi Serge, Pkassokro Adji Hermann, Gasson Loua Constant, KONE, KOFFI, Koffi Konan Fulgence, Kouadio Damo Edmond, N'gbani Charlène, N'da Badie Brice, Zrehon Michel, Ella yao henry Michel, Lozo Roméo N'Guessan, SIA, Tra Bi, Guifofo Appolinaire, Vanga Franck, Adoueni Adoueni, Tia Michel, Zou bi Noel, Nagui Ange, Able aime Éric, Mamadou Beno, Tiedoue M. Roland, Assie Djeyao Roy Hartman, Bolla Tanguy, Coulibaly Chonkodjiriki, Ouraga Audrey Ozoua, Bayer Alex, Yaokokore Beibro, Konan Roger, Hugues Martial Zago, Amara Ouattara, Diabate Maboridjon, Ouassa Kouassi Félix, Odoupe Guillaume, Mone Souleymane, Bamba Bakaramoko.

Tableau 2. Récapitulatif des principales menaces sur les sites

Sites	Principales menaces
Zone humide des Iles Ehotilé	<ul style="list-style-type: none"> <li>• Forte trafic de bateaux motorisés à des fins touristiques;</li> </ul>
Zone humide de N'Ganda-N'Ganda	<ul style="list-style-type: none"> <li>• Pollution due aux résidus des pesticides;</li> <li>• Lotissement dans la zone humide</li> </ul>
Zone humide de Grand-Bassam	<ul style="list-style-type: none"> <li>• Dragage de sable;</li> <li>• Prolifération des plantes envahissantes</li> </ul>
Abidjan	<ul style="list-style-type: none"> <li>• Travaux de construction de pont dans la baie de Cocody;</li> <li>• Pollution due aux déchets ménagers;</li> <li>• Travaux d'aménagement dans la baie du Banco</li> </ul>
Barrage de Sologo	<ul style="list-style-type: none"> <li>• Pollution des eaux due à l'utilisation excessive des pesticides et engrais</li> </ul>
Zone Humide de Guessabo	<ul style="list-style-type: none"> <li>• Pollution des eaux due à l'utilisation excessive des pesticides et engrais ainsi que la pratique de la pêche illégale;</li> <li>• Forte activité de pêche et perturbation des oiseaux due au trafic sur le plan d'eau</li> </ul>
Barrage de Soubré	<ul style="list-style-type: none"> <li>• développement des plantes envahissantes dans le site;</li> <li>• Pollution des eaux due aux activités de l'orpaillage clandestin</li> </ul>
Barrage de Ferkessedougou	<ul style="list-style-type: none"> <li>• Pollution des eaux due à l'utilisation excessive des pesticides et engrais</li> </ul>
Lac de Buyo	<ul style="list-style-type: none"> <li>• Pollution des berges due aux issus des filets de pêche</li> </ul>
Zone humide de San-Pedro	<ul style="list-style-type: none"> <li>• Pollution des eaux due aux déversements des déchets industriels et ménagers;</li> <li>• Utilisation excessive des pesticides et engrais pour l'agriculture dans la zone humide;</li> <li>• Dragage de sable</li> </ul>
Zone humide de Sassandra Dagbego	<ul style="list-style-type: none"> <li>• Forte érosion due à l'avancé de la mer;</li> <li>• Forte activité de pêche</li> </ul>

## 24. Ghana



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### Results of January 2023 counts of waterbirds in Ghana

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Ali Nuoh, Prof. Yaa Ntiamoa-Baidu &  
Mr Dickson Agyemang



#### 1. INTRODUCTION

The 550 km coastline of Ghana is dotted with over 100 wetlands of varying sizes and types. There are lagoons, estuaries, salt pan complexes, rocky shores and stretches of sandy beaches. These sites serve as habitat for several wetland biodiversity, notably waterfowl species. Since 1985, a select number of key wetlands along the coast of Ghana have been monitored to record the species and population status of the waterfowls they support. Long-term analysis of monthly waterbird surveys has shown that peak numbers are observed along

the coast of Ghana from September to November, ie. the northern autumn migration period. In some years, however, another peak may be observed between January and March during the northern spring migration. From May to July, there are relatively low numbers of waterbirds observed at all monitored sites along the Ghana coast.

As per each year, and in collaboration with its partners WSFI, BirdLife International and Wetlands International (WI) engaged the Wildlife Division (WD) of the Forestry Commission of Ghana, the government agency focal point for the Ramsar Convention, to undertake the Ghana counts as part of the WI's International Waterbird Census programme. Both WD and WI have collaboration agreements with the Centre for Biodiversity Conservation Research (CBCR) that call on the CBCR to assist with the Ghana counts.

For this 2023 edition, the field surveys were undertaken from 17th – 23rd January, 2023 along the Ghana coast. A total of 12 selected wetlands known to support significant waterbird populations were visited, starting from the west to the east of the Ghana coast (Figure 1). Five of these sites are designated wetlands of international importance under the Ramsar Convention, they are: Muni-Pomadze (Central Region of Ghana), Densu delta (Greater Accra Region), Sakumo (Greater Accra Region), Songor (Greater Accra Region) and Keta lagoons (Volta Region). The other sites currently receive minimal protection at the local/community level. Notable among the



Figure 1. Map of coastal wetland sites counted in the 2023 International Waterbird Census

other sites is the Esiama beach; a 13-kilometre sandy beach between the Ankobra and Amanzuri estuaries in the Western Region of Ghana, which also is known to regularly support internationally important numbers of Sanderling *Calidris alba*. Although the remaining sites do not normally support significant numbers of waterbirds to meet the threshold, they are still important collectively as waterbird habitats.

## 2. METHODOLOGY

Three research assistants from the CBCR with many years of experience in waterbird monitoring led the counts at all 12 sites. To ensure comparability of the count data with the historical data collected by the CBCR, the counts were conducted following the protocol used by CBCR for over three decades. Counts were normally undertaken in the early hours of the morning from 0700 to 1100 GMT. The CBCR team was accompanied by WD staff for the counts, to provide an opportunity for practical training of the WD staff. Appendix 2 presents the dates for the site visits and the personnel involved. The extent of coverage of the wetlands vary and so did the time it took to complete the counts. Counts of waterbirds on the larger sites (Keta/Songor Ramsar sites) lasted for longer periods. For ease of the count, the larger sites have been divided into smaller count units; with Songor consisting of four units (Pute, Totope, Kablevu and Lolonya); while Keta has 10 count units (Adina, Afiadenyigba, Anloga, Anyako, Denu, Dudu Island, Fiahor, Keta, Srogbe-Fiahor and Tegbi). Counts were done on foot along the same pre-defined transects used in previous years by field personnel. Existing observation posts and/ or natural hilly areas, e.g. Sakumo Ramsar site were used as count spots as these presented a broader view that facilitated counting large flocks of roosting or foraging birds. Bird counts were conducted using a Swarovski

25-50 x 80 spotting telescope, a pair of 8 x 10 binoculars, and analogue counters. Individual birds sighted were identified, counted and documented. Large flocks were estimated and documented. The count data were compiled for each site and computed into the standardized excel sheets provided by the IWC.

Following the format provided for the IWC, an environmental assessment was carried out for each of the selected sites. Pollution, especially plastic pollution and encroachment remain the main pressures faced at the various sites surveyed.

## 3 RESULTS & DISCUSSION

Total of 86,864 individual waterbirds were recorded at the twelve selected sites during the 2023 IWC counts. These belonged to eight waterbird groups (Cormorants, Ducks, Grebes, Gulls and Terns, Herons and egrets, Rails, Storks and Waders), 58 species, and 16 waterbird families. The family *Scolopacidae* had the highest number of individuals birds, accounting for 27% of the total count. The families *Charadriidae* and *Phalacrocoracidae* followed with 17% and 14% respectively. The families *Scolopacidae*, *Phalacrocoracidae*, *Charadriidae*, *Ardeidae*, *Laridae*, *Recurvirostridae*, and *Accipitridae* were recorded at the five Ramsar sites.

The five most abundant species during the January 2023 count were *Phalacrocorax africanus* (17%), *Charadrius hiaticula* (13%), *Dendrocygna viduata* (11%), *Calidris ferruginea* (10%), and *Himantopus himantopus* (6%).

About 73% of all waterbirds observed during the survey occurred in the five Ramsar sites (Table 1). The Keta lagoon recorded the highest number of species (42) as well as the highest number of individual waterbirds (39,814). Sakumo recorded the lowest number of individuals (597) and Esiama

beach recorded the lowest number of species (Table 1).

The Keta Lagoon recorded the only sighting of the *Anastomus lamelligerus*, and supported the highest numbers of *Calidris ferruginea* (75%), *Actophilornis africanus* (78%), *Ardea cinerea* (66%), *Casmerodius albus* (80%), *Charadrius hiaticula* (62%), *Dendrocygna viduata* (93%), *Limosa limosa* (92%), *Himantopus himantopus* (52%), *Egretta gaezetta* (83%), *Egretta gularis* (59%), *Phalacrocorax africanus* (78%), and *Tringa nebularia* (59%) individuals recorded. The Songor lagoon supported the highest numbers of *Sterna albifrons* (71%) while the Muni-Pomadze wetland recorded the highest numbers of *Chlidonias niger* (54%). The Densu Delta supported the highest numbers of *Calidris alba* (45%), *Calidris minuta* (47%), *Ceryle rudis* (55%), *Glareola pratincola* (58%), *Egretta Ardesiaca* (52%), *Numenius arquata* (95%), *Numenius phaeopus* (57%), and *Sterna sandvicensis* (75%) individuals recorded (Table 2).

### Threats to the sites

The pressures on the environment, particularly of the six key sites, persist. Some sites have experienced increasing pressures since the last assess-

ment. There has been increases in built-up areas at the Muni-Pomadze, Densu Delta and Sakumo sites. The presence of aquatic weeds poses a challenge to the use of the site as a habitat by the waterbirds. The Keta and Songor lagoons have not experienced much change since the last assessment.

With urbanization increasing the pressures at the sites, efforts must be taken to enforce conservation legislation at the sites, particularly the designated Ramsar wetlands, to guarantee that these wetlands continue to provide habitats for waterbirds and ecosystem services that are so valuable for the communities who live within and around the wetlands.

### ACKNOWLEDGMENT

Our gratitude goes to BirdLife International, Wetlands International, Wadden Sea Flyway Initiative, and Sovon who make it possible to undertake this survey. Our appreciation also goes to the many communities we visited to count birds and carry out habitat assessments. We are indebted to the traditional rulers who welcome us into their jurisdictions and support the work we do.

Table 1. Number of species and individual waterbirds encountered at the 12 coastal sites during the 2023 waterbird census.

Site	Status	No. of waterbird species recorded	No. of individual waterbirds counted
Densu Delta	Protected	41	16,128
Keta Lagoon	Protected	42	39,814
Muni-Pomadze	Protected	38	3105
Sakumo Lagoon	Protected	26	597
Songor Lagoon	Protected	38	3734
Amisa Lagoon	Unprotected	24	979
Elmina Salt Pans	Unprotected	31	5799
Esiama Beach	Unprotected	21	2867
Lalui Lagoon	Unprotected	24	4414
Narkwa Lagoon	Unprotected	22	1424
Ningo Salt Pans	Unprotected	32	6180
Whin Mouth	Unprotected	28	1823
Total			86,864

Table 2. Species and numbers recorded on the six key sites along the Ghana coast in the January 2023 counts

Scientific name	Densu Delta	Esiama	Keta	Muni-Pomadze	Sakumo	Songor	Total
<i>Actitis hypoleucos</i>	52	23	66	132	8	26	307
<i>Actophilornis africanus</i>			69	4	14	1	88
<i>Amaurornis flavirostra</i>						1	1
<i>Anastomus lamelligerus</i>			1,127				1,127
<i>Ardea cinerea</i>	194		455	30	1	8	688
<i>Ardea melanocephala</i>				1			1
<i>Ardea purpurea</i>	4		19	3			26
<i>Ardeola ralloides</i>	19		37	6	34		96
<i>Arenaria interpres</i>	2	6	22				30
<i>Bubulcus ibis</i>		2	47	83	101		233
<i>Burhinus senegalensis</i>			1	2	3	1	7
<i>Butorides striatus</i>	2	1	20	3	3	1	30
<i>Calidris alba</i>	413	1,528	252			254	2,447
<i>Calidris ferruginea</i>	1,302	18	5,040	303		56	6,719
<i>Calidris minuta</i>	984		915	26		135	2,060
<i>Casmerodius albus</i>	200		1,027	49	11	1	1,288
<i>Ceryle rudis</i>	312		146	78	12	17	565
<i>Charadrius hiaticula</i>	3,027	83	5,460	166	1	127	8,864
<i>Charadrius marginatus</i>			18	2		1	21
<i>Charadrius pecuarius</i>			164			64	228
<i>Chlidonias niger</i>	67	40		115		31	253
<i>Corythornis cristatus</i>	3		1			2	6
<i>Dendrocygna viduata</i>	287		6,502	70		118	6,977
<i>Egretta ardesiaca</i>	252		196	32	4		484
<i>Egretta garzetta</i>	455	6	2,749	50	6	54	3,320
<i>Egretta gularis</i>	478	34	1,164	132	2	185	1,995
<i>Egretta intermedia</i>	12			8	1		21
<i>Gallinula chloropus</i>	152		4	5	4		165
<i>Glareola pratincola</i>	662		250	179	43		1,134
<i>Halcyon senegalensis</i>					6		6
<i>Himantopus himantopus</i>	1,010	2	2,005	205	18	607	3,847
<i>Larus argentatus/fuscus</i>			167			160	327
<i>Limosa lapponica</i>	9	5	23	8		5	50
<i>Limosa limosa</i>	20		241				261
<i>Milvus migrans parasitus</i>	10	33	14	48	4	19	128
<i>Numenius arquata</i>	60	4	3				67
<i>Numenius phaeopus</i>	144	96	68	19		21	348
<i>Nycticorax nycticorax</i>	3						3
<i>Phalacrocorax africanus</i>	2,052	2	8,608	340	27	15	11,044
<i>Pluvialis squatarola</i>	89	139	70	18		20	336
<i>Porphyrio porphyrio</i>			3	2			5



Scientific name	Densu Delta	Esiama	Keta	Muni-Pomadze	Sakumo	Songor	Total
<i>Sterna albifrons</i>	130			195		801	<b>1,126</b>
<i>Sterna dougallii</i>	54					14	<b>68</b>
<i>Sterna hirundo</i>	712	213		146		93	<b>1,164</b>
<i>Sterna maxima</i>	557	377	54	168	1	163	<b>1,320</b>
<i>Sterna sandvicensis</i>	1,250	217	163		1	235	<b>1,866</b>
<i>Tachybaptus ruficollis</i>	2						<b>2</b>
<i>Tringa glareola</i>	201		183	111	48	1	<b>544</b>
<i>Tringa nebularia</i>	856	38	2,150	141	6	474	<b>3,665</b>
<i>Tringa stagnatilis</i>	26		51				<b>77</b>
<i>Tringa totanus</i>	6		37	4		5	<b>52</b>
<i>Vanellus senegallus</i>				4	7		<b>11</b>
<i>Vanellus spinosus</i>	58		223	217	231	18	<b>747</b>
<b>Grand Total</b>	<b>16,128</b>	<b>2,867</b>	<b>39,814</b>	<b>3,105</b>	<b>597</b>	<b>3,734</b>	<b>66,245</b>

## 25. Togo



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### Comptage des oiseaux d'eau à la février 2023 en Togo

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#### 1. INTRODUCTION

Les Dénombrements Internationaux d'Oiseaux d'Eau (DIOE) constituent l'un des anciens programmes de suivi de la faune aviaire et se déroulent dans le monde entier. Ils couvrent près de 25 000 sites dans plus de 100 pays. A l'instar de tous ces pays, les oiseaux d'eau de certains milieux humides du Togo font l'objet d'identification et de comptage dans le cadre du suivi écologique

et de la valorisation du capital biologique de ces milieux. Depuis 1999 le Togo a participé à quelques dénombrements internationaux des oiseaux d'eau (DIOE). Grâce à l'appui financier de Wetlands International et de l'Initiative de la voie de migration de la mer des Wadden et Birdlife et aussi, avec l'appui technique des partenaires nationaux (Direction des ressources forestières, l'association Renaissance des Femmes pour le Développement Durable), le dénombrement international des oiseaux d'eau de février 2023 a pu se réaliser.

L'objectif de ce suivi est de recenser les oiseaux d'eau dans certaines zones importantes de conservation des oiseaux du pays afin de contribuer à renseigner davantage la base de données internationales de comptage (IWC) d'oiseaux d'eau.

Spécifiquement, il s'agit de renforcer les capacités techniques des compteurs d'oiseaux d'eau du Togo; de conduire le recensement des oiseaux d'eau dans l'année 2023; d'identifier les facteurs de menaces qui affectent les oiseaux d'eau et leurs habitats.

#### 2. METHODOLOGIE

Pour cause d'insuffisances de moyens, seules certaines zones importantes de conservation des oiseaux (ZICO) situées dans la bande côtière ont pu être prises en compte dans les opérations antérieures de dénombrement. Le dénombrement international des oiseaux d'eau 2023 a couvert les sites de la Lagune de Bè niveau Centre communautaire, le Torrent d'Agbalepedo, la Mare

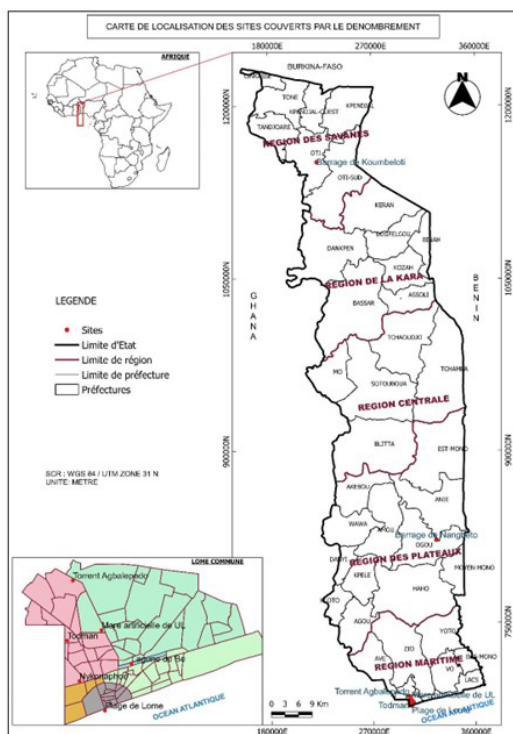


Figure 1. Carte du Togo avec indication sites visités dénombrés

artificielle de l'Université de Lomé, la lagune de Bè niveau Nyekonakpoe (T-Oil), le site de Todman, à l'ancien Warf sur la plage de Lomé, à la ZICO du lac artificiel du barrage hydro électrique de Nangbéto et la mare de Koumbeloti.

Le dénombrement s'est fait à pied. La technique a consisté d'abord à la détection, l'identification et ensuite l'estimation de l'effectif des espèces. Les données sont enregistrées sur les fiches de dénombrement et les activités anthropiques développées autour des sites sont notées. Il faut préciser que les fiches de dénombrement des oiseaux de chaque équipe sont réceptionnées, vérifiées, et analysées. Le présent rapport fait la synthèse des données collectées.

Deux groupes ont été constitués pour la phase pratique. Sous l'encadrement des formateurs, les participants ont procédé aux comptages dans six (06) ZICO de Lomé

### 3. RESULTATS

Un total de 28 espèces d'oiseaux d'eau appartenant à 25 genres et 16 familles ont été recensées sur les sites des zones importantes de conservation des oiseaux (ZICO) parcourus et du barrage de Koumbeloti. Aussi, un effectif total de 2 971 individus toutes espèces confondues a été dénombré au cours des opérations dont plus de 1 938 individus

pour le seul site du barrage de Koumbeloti. La liste exhaustive des espèces d'oiseaux inventoriées est consignée dans le tableau 1.

### 4. DISCUSSION

Il est à noter que le Togo n'a pas pu organiser le DIOE dans les deux dernières années. Par contre, si nous comparons les résultats du DIOE de cette année 2023 à ceux de 2020, la tendance indique des résultats plus riches en individus comme en espèce par rapport à ceux des derniers DIOE au Togo. Cette différence est principalement due au résultat du site du barrage de Koumbeloti.

Les difficultés les plus importantes sont: l'insuffisance de moyens matériel et financier pour la couverture des opérations; le matériel d'observation notamment les jumelles utilisées ne sont pas assez performantes pour une meilleure observation et identification des oiseaux à une distance donnée; insuffisance de guides d'identification d'espèces d'oiseaux d'eau; le délai très court pour le dénombrement.

Table 1. Tableau récapitulatif global des espèces et le nombre d'individus comptés

Nom scientifique	Nom vernaculaire	Total 2023
<i>Dendrocygna viduata</i>	Dendrocygne veuf	1 500
<i>Tachybaptus ruficollis</i>	Grèbe castagneux	31
<i>Zapornia flavirostra</i>	Marouette à bec jaune	12
<i>Gallinula chloropus</i>	Gallinule poule-d'eau	5
<i>Ciconia ciconia</i>	Cigogne blanche	6
<i>Nycticorax nycticorax</i>	Bihoreau gris	60
<i>Butorides striata</i>	Héron strié	21
<i>Ardeola ralloides</i>	Crabier chevelu	50
<i>Bubulcus ibis</i>	Héron garde-boeufs	414
<i>Ardea cinerea</i>	Héron cendré	4
<i>Ardea alba</i>	Grande Aigrette	27
<i>Egretta ardesiaca</i>	Aigrette ardoisée	1
<i>Scopus umbretta</i>	Ombrette africaine	9
<i>Microcarbo africanus</i>	Cormoran africain	254
<i>Vanellus spinosus</i>	Vanneau à éperons	16
<i>Actophilornis africanus</i>	Jacana à poitrine dorée	18
<i>Actitis hypoleucos</i>	Chevalier guignette	18
<i>Sterna hirundo</i>	Sterne pierregarin	420
<i>Thalasseus sandvicensis</i>	Sterne caugek	40
<i>Thalasseus maximus</i>	Sterne royale	35

Table 2. Récapitulatif des principales menaces / pressions par site

Principales menaces / pressions	Site
Aménagement à des fins de construction d'habitations et de routes	Lagune de Bè, niveau station service T-oil Nyekonakpoe
Nuisances et pollutions	Lagune de Bè, niveau centre communautaire
	Lagune de Bè, niveau station service T-oil Nyekonakpoe
	Torent d'Agbalepedo
	ZICO de Todman
Activités agricoles autour du site	ZICO de l'ancien Wharf / Plage de Lomé
	Lac artificiel du barrage hydro électrique de Nangbéto
Changements climatiques	Barrage de Koumbeloti
	Lagune de Bè, niveau centre communautaire
	Lagune de Bè, niveau station service T-oil Nyekonakpoe
	Torent d'Agbalepedo
	ZICO de Todman
	ZICO de l'ancien Wharf / Plage de Lomé
Lac artificiel du barrage hydro électrique de Nangbéto	
Barrage de Koumbeloti	

### Points d'améliorations et d'apprentissage pour le futur / avenir

- Doter la direction des ressources forestières et la Renaissance des Femmes pour le Développement Durable de moyens nécessaires et adéquats (financier, matériel tels que des télescopes, appareils photo-numériques, jumelles, GPS, chaussures de terrain appropriées aux zones humides, guides d'identification, etc.);
- Organiser des suivis écologiques mensuels des ZICO de la région Maritime;
- Organiser des suivis trimestriels des sites de dénombrement des oiseaux d'eau dans les autres régions du Togo;
- Organiser des rencontres semestrielles d'échanges d'expériences;
- Actualiser la liste des ZICO du Togo;
- Développer des partenariats en matière de dénombrement des oiseaux d'eau.

### Remerciements

Le dénombrement international des oiseaux d'eau de février 2023 au Togo a été possible grâce à l'appui financier de Wetlands International, l'Initiative voie de migration de la Mer de Wadden et Birdlife international et la collaboration technique des partenaires nationaux (DRF et RFDD).

Nous adressons nos sincères remerciements aux trois partenaires financiers ci-dessus pour leurs appuis financiers renouvelés.

### ANNEXE

Liste des participants:

BAKAI Piwélon, DARE Gbati O., AGBETI Kossi Agbesime, KOU DANOU Mensanh, DAYE Koffi Grégoire, DEY Koffi Kekeli, AGBETI Afi Kafui Kpomonè, KLOLOE Kokou Seyram, ASSOUH Kossi, DJAKPERE Nateyombo, DJESSOU Yawa, KOMBATE Esther.

## 26. Benin



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## Comptage des oiseaux d'eau à la janvier 2023 en Benin

Maximin DJONDO, Colonel Rémi HE-FOUME, Daouda M. ALIOU, Sylvestre CHAFFRA, Joie D. E. SOSSOUKPE, Frédéric HOUNGA et Mariano HOUNGBEDJI. Benin Environment and Education Society et Direction Générale des Eaux-Forêts et Chasse



### 1. INTRODUCTION

Les zones humides constituent des habitats pour de nombreuses espèces d'oiseaux d'eau (Koukou-doui & Chidikofan, 2020). Ces oiseaux constituent l'un des composants les plus remarquables des écosystèmes humides du Bénin (Ahoissi & Adjakpa, 2020).

Le Dénombrement International des Oiseaux d'eau (DIOE) permet de collecter des données sur les oiseaux d'eau. Les données collectées par Wetlands International au niveau de chaque pays contribuent à renseigner les statuts de conservation des populations biogéographiques d'oiseaux d'eau à travers le monde. Ces données constituent l'un des plus importants et précieux programmes de suivi, et alimentent les accords multilatéraux sur l'environnement pour la conservation des oiseaux d'eau et de leurs milieux. Elles sont également précieuses pour évaluer les politiques et la législation de conservation des populations d'oiseaux d'eau et de leurs milieux à l'échelon communautaire (Deceuninck & Quaintance, 2016).

La Direction Générale des Eaux, Forêts et Chasse (DGEFC), point focal AEWA, au Bénin, coordonne les activités du dénombrement chaque année sur le plan national avec l'implication et la participation de plusieurs acteurs (Organisations Non Gouvernementales, Universitaires, spécialistes en environnement etc.) engagés dans la conservation des oiseaux d'eau et de leurs habitats. L'édition 2023 s'est déroulée du 28 au 30 janvier 2023 sur l'ensemble des sites Ramsar du Sud et Nord Bénin avec la participation de toutes les catégories d'acteurs impliquées dans la conservation des oiseaux au Bénin.

L'objectif général du DIOE a été d'identifier, de compter et de caractériser les oiseaux d'eau migra-

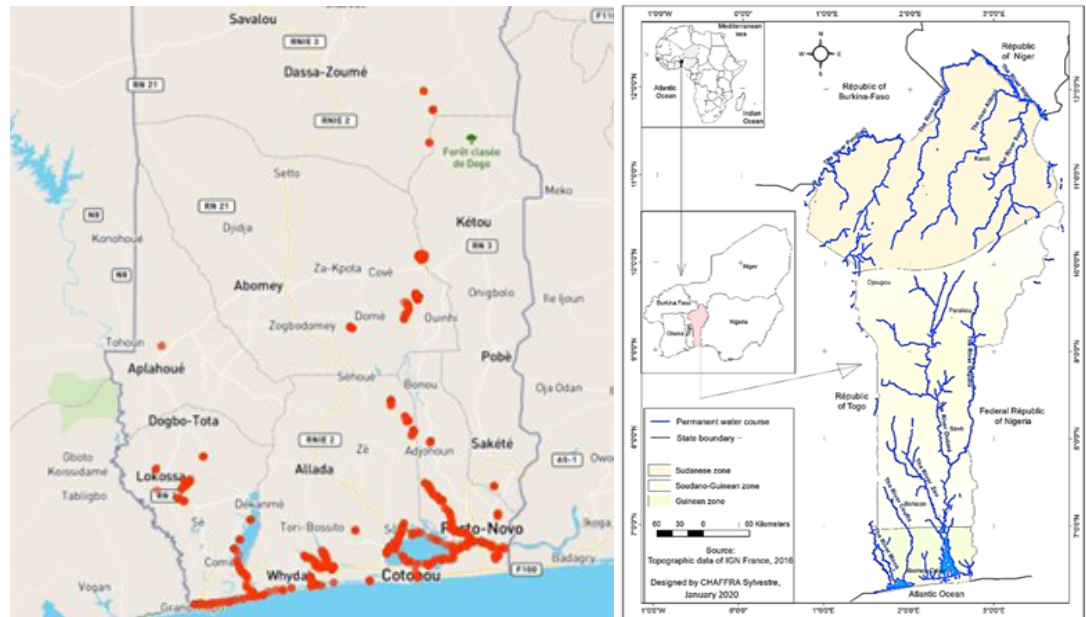


Figure 1. Cartes des sites de comptage et hydro-géographique du Bénin; Source : DIOE 2020 Et Fond de carte IGN France, 2016

teurs et locaux ainsi que leur site de nidification. De manière spécifique, il s'est agi de:

- Inventorier les espèces d'oiseaux d'eau des zones humides du sud et du nord du Bénin;
- Caractériser les habitats de ces espèces d'oiseaux dans ces écosystèmes humides;
- Identifier les facteurs de pressions et menaces de ces espèces et de leurs habitats.

## 2. METHODOLOGIE

La méthodologie adoptée pour l'organisation de l'édition 2023 du DIOE suit trois étapes à savoir la réunion préparatoire, le comptage proprement dit et la réunion bilan. Le comptage proprement dit s'est déroulé les 28 et 29 janvier 2023. Les participants aux travaux du DIOE 2023 (Direction Générale des Eaux, Forêts et Chasse, Point Focal AEWA, Agence Béninoise pour l'Environnement, Directrice de la Production Halieutique et les ONGs) qui sont au nombre de 53, ont été répartis sur l'ensemble des sites identifiés afin de faire un décompte simultané sur l'ensemble des sites. Au total trente-deux (32) sites ont été parcourus dans le cadre de l'édition 2023 du DIOE au Bénin. Ces sites s'étendent du Sud au Nord du pays. Dans le Sud et le Centre du pays, les observations ont eu lieu sur vingt-huit (28) sites. Il s'agit entre autres : du Bas Delta du Mono, la carrière Gbakpodji, Chenal Aho, Cours d'eau Godro, Cours d'eau Sédjè, Cours d'eau Tozamè, Fleuve Ouémé, Ganvié, lac Ahémé, lac Doukonta, Cours d'eau Godogba, lac Hlan, lac Nokoué, lac Togbadji, lac Toho, lagune

ancienne, lagune côtière, lagune de Porto-Novo, rivière Gbadohouin, Vagnon Tokpa-Avrankou, rivière Sô et Tohouè. Cinq sites ont été pris en compte au Centre du pays: lac Sré, lac Tévèdji, lac Azili, Kôdogba-Ifangni, Cours d'eau Ninwé et le Confluent Fleuve Ouémé-Rivière Okpara. Dans le nord, les observations ont été faites sur quatre (04) sites à savoir: le fleuve Okpara, la rivière Bétérou, le barrage de Sepounga et le barrage de Oubérou

## 3. RESULTATS

L'édition 2023 du DIOE a permis de recenser au total 11 351 individus, issus de 82 espèces appartenant à 61 genres et 33 familles au niveau des principaux plans et cours d'eau des zones humides d'importances internationales du Sud au Nord. Les résultats pour les espèces d'eaux à en tableau 1.

## 4. DISCUSSION

En comparaison aux résultats des DIOE précédents, ceux de 2023 sont légèrement supérieurs à ceux de 2022 en termes de richesse spécifique. Cependant, l'effectif total d'individu dénombré reste inférieur à ceux des deux années antérieures. Soit 11 351 individus en 2023 et 27 640 individus en 2022 et 17 757 individus en 2021.

La Lagune côtière est le site ayant le nombre d'espèces le plus élevé (31 espèces et 2 404 individus); suivi de la Lagune ancienne s'ensuit avec vingt-six (26 espèces et 667 individus) et du lac Nokoué avec vingt-cinq (25 espèces et

2 344 individus). Les sites présentant un effectif d'espèce considérablement faible sont le Cours d'eau Ninwé, Kôdogba-Ifangni et la Carrière Gbakodji avec 4 espèces et le Bas Delta du Mono (3) espèces seulement.

### Principales menaces spécifiques aux sites

Les principales menaces enregistrées sur les différents sites se résument au développement incontrôlé des habitations humaines sur les berges des zones humides, le comblement du plan d'eau par les déchets solides et ménagers, la prolifération des plantes aquatiques envahissantes, l'installation non réglementée des pêcheries sédentaires, la petite chasse des oiseaux d'eau.

### Difficultés rencontrées, qualité et couverture, du dénombrement

Depuis trois ans, la crise sécuritaire au Nord du Bénin est l'une des principales raisons pour lesquelles les sites Ramsar du Nord Bénin ne sont pas pris en compte lors des DIOE. Certains sites qui ont été pris en compte lors des éditions antérieures n'ont pas été sondés cette année. Par contre tous les autres itinéraires préétablis ont été respectés malgré quelques difficultés rencontrées. Ces difficultés sont liées à la prolifération des parcs à poissons « Acadja »; au comblement / envasement et faible profondeur du Lac rendant difficile la circulation des équipes; au brouillard obstruant la visibilité; à la forte anthropisation des habitats des espèces d'oiseaux; aux travaux de construction de route à Djègbadji avec fort pompage d'eau; aux averses de pluie survenues sur les sites du sud Bénin lors du dénombrement.

### Remerciements

La collaboration entre la Direction Générale des Eaux, Forêts et Chasse (DGEFC), BEES ONG et les structures impliquées dans les DIOE au Bénin a permis d'obtenir ces résultats.

Nous remercions ainsi tout particulièrement Wetlands International et AEWA pour leurs divers soutiens; l'Université Nationale d'Agriculture, la Direction de la Production Halieutique, le Programme WACA pour leurs appuis et différentes structures et ONG pour leur participation et leur soutien à cette activité.

### ANNEXE

Liste des participants:

ADIKPETO Arnaud, ADJAHOUINOUE Elie, ADJIBODE Gabriel, AGBELESSESI Flavien, AINONKPON

Tableau 1. Liste des espèces d'eau

Nom scientifique	Nom vernaculaire	Total 2023
<i>Dendrocygna viduata</i>	Dendrocygne veuf	3 434
<i>Nettapus auritus</i>	Anserelle naine	32
<i>Tachybaptus ruficollis</i>	Grèbe castagneux	20
<i>Zapornia flavirostra</i>	Marouette à bec jaune	71
<i>Porphyrio porphyrio</i>	Talève sultane	1
<i>Gallinula chloropus</i>	Gallinule poule-d'eau	25
<i>Paragallinula angulata</i>	Gallinule africaine	7
<i>Anastomus lamelligerus</i>	Bec-ouvert africain	1 071
<i>Plegadis falcinellus</i>	Ibis falcinelle	2
<i>Nycticorax nycticorax</i>	Bihoreau gris	89
<i>Butorides striata</i>	Héron strié	20
<i>Ardeola ralloides</i>	Crabier chevelu	50
<i>Bubulcus ibis</i>	Héron garde-boeufs	905
<i>Ardea cinerea</i>	Héron cendré	20
<i>Ardea melanocephala</i>	Héron mélanocéphale	1
<i>Ardea purpurea</i>	Héron pourpré	74
<i>Ardea alba</i>	Grande Aigrette	37
<i>Ardea brachyrhyncha</i>	Héron a bec jaune	207
<i>Egretta ardesiaca</i>	Aigrette ardoisée	251
<i>Egretta garzetta</i>	Aigrette garzette	181
<i>Egretta gularis</i>	Aigrette à gorge blanche	26
<i>Scopus umbretta</i>	Ombrette africaine	2
<i>Microcarbo africanus</i>	Cormoran africain	2 680
<i>Himantopus himantopus</i>	Échasse blanche	8
<i>Charadrius hiaticula</i>	Pluvier grand-gravelot	4
<i>Charadrius dubius</i>	Pluvier petit-gravelot	3
<i>Charadrius marginatus</i>	Pluvier à front blanc	2
<i>Vanellus spinosus</i>	Vanneau à éperons	81
<i>Actophilornis africanus</i>	Jacana à poitrine dorée	402
<i>Numenius phaeopus</i>	Courlis corlieu	4
<i>Calidris pugnax</i>	Combattant varié	2
<i>Actitis hypoleucos</i>	Chevalier guignette	38
<i>Tringa nebularia</i>	Chevalier aboyeur	7
<i>Tringa glareola</i>	Chevalier sylvain	9
<i>Tringa stagnatilis</i>	Chevalier stagnatile	2
<i>Glaucopis pratensis</i>	Glaréole à collier	1
<i>Chlidonias niger</i>	Guifette noire	1
<i>Sterna hirundo</i>	Sterne pierregarin	5
<i>Thalasseus sandvicensis</i>	Sterne caugek	3
<i>Thalasseus maximus</i>	Sterne royale	3

Arlette, AKAMBI Isdeen, AKODEKOU David, AKOTON Pérugin, AKOTONOU Toussaint, ALES Nazif, AMADOU B. Farid, Ankie de KEMP, Antonie de KEMP, APITHY Eric, AZONNINGBO Wilfrid, BADA Adonai, BADOUSI Gloria, BATOKO Isikirou, BOKO Mariano, CHAFFRA A. Sylvestre, COBEDE Isidore, CODJIA Christelle, DAKPOGAN Chrystelle, DANVO Gildas, DJAGOUN Joel, DJONDO Maximin, DOHETO Emmanuel, DOSSOU Etienne, DOSSOUKPEVI Baptiste, GANDONOU Bernero, GOUDOU Merveille, HODONOU Mézidar, HONFO Médard, HOUNGA Frédéric, HOUNGBEDJI Mariano, IDOHOU Adidjath, Klaas TJOELKER, KODJO Déo-Gratias, KOTIN Ange, KOUAGOU Florentin, KOUKODOU Gloria, KOUASSA Moïse, MADOGOTCHA Josias, MAMA Sadam, MISSISSO Basile, OGA O. Alfred, OLOFINDJI Jean Pierre, SAIZONOU Aritha, SOSSOU Donald,

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SOUROU Arnaud, TEVOEDJRE Félicia, To TJOELKER, TOVIESSI Mathieu, YAOITCHA Léon, GANSO Rockis, GNARIGO Benoît

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## 27. Nigeria



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### Results of January 2023 counts of waterbirds in Nigeria

Joseph Onoja , Egbe Stella, Harry  
Hanson Jr, and Eynos Kevin  
Nigerian Conservation  
Foundation (NCF)



#### 1. INTRODUCTION

Nigeria has a landmass of about 923,770 sq.km that lies between the latitude 4° 10' to 60° 20' N and longitude 20° 45' to 80° 35' E. The habitat varies from north to south, on the boundary of the Atlantic Ocean, there is about 850km of coastline characterised by mangroves and swamp forests, this is followed by the low land rain forest that precedes the extensive guinea savanna. The major

seasons are wet (April – October) and dry (November – March) seasons. Resident and migratory waterbirds utilise different habitats throughout the country and the regular winter waterbird counts is carried out to understand the changing habitat conditions and population trends.

The 2023 waterbird count was carried out to meet the following objectives:

- To monitor the population and threats facing birds as part of the global efforts during the winter water bird counts;
- To determine the current population of the waterbirds in the coastal areas of Nigeria.
- To monitor the areas identified as regular sites for waterbird monitoring and possibly identify new areas;
- To continue to raise awareness and educate the people on species and habitat protection across these sites.
- To build the capacities of local stakeholders in species and habitat monitoring.
- To promote the sustainable use of the wetlands by engaging the local communities while conserving critical habitats for migratory waterbirds.

#### 2. METHODOLOGY

Twenty-one sites were surveyed across the country, this includes long-established sites that have been surveyed over 20 years and more recent southern coastal sites which have only been

regularly surveyed in recent years (see table 1). The sites in the southern region are characterised by a matrix of sandy beaches, muddy beaches, mangroves creeks, swamp forests, bays, mudflats, and residential areas. The sites in the northern region are wetlands characterised by seasonally fluctuating floodplains. It includes a RAMSAR, a UNESCO heritage site and a national park. The vegetation here mainly savannah, areas of marshy grassland and residential areas. The winter waterbird count was carried out from 15<sup>th</sup> through the 31<sup>st</sup> of January 2023. Individuals formed the different teams that surveyed different sites across the country. Movements between and within sites were done using cars, motorbikes, boats and feet depending on the nature of the habitat. Binoculars, telescope, cameras, field guide (ABC mobile field guide and Birds of Western African field guide), field notes and mobile phones with biodiversity gathering applications (Obsmap, Birdlaser) were used to identify and record birds. All birds sighted and heard were recorded and, in some cases, where birds are hidden within the vegetation, attempts were made to flush them to ensure proper counts.

### 3. RESULTS

Results from the northernmost sites shows a total abundance of 161,980 individual birds, and the presence of 75 bird species (water & landbirds). Dagona waterfowl sanctuary provided the highest number of individual birds with 61,708, followed by Gwayo complex with 37,848, Nguru lake with

25,912 and Baturia complex with 16,937, while in species richness, Gashua complex provided the highest record of diversity with 45 bird species followed by Dagona with 43 bird species. The total abundance recorded for all fourteen sites surveyed in southern Nigeria was 3,310 individuals of 55 species (water & landbirds). The site with the most species was Ologe lagoon which is in Lagos state and the most abundant species recorded was the African Jacana *Actophilornis africanus*. Table 2 gives the totals counted in Nigeria (North and South combined) for the most important waterbird species.

### 4. DISCUSSION

Nguru Lake is a designated RAMSAR site based on the 20,000 waterfowl criterion for three species (*Philomachus pugnax*, *Anas querquedula*, and *Dendrocygna viduata*). Floods in the wet season play a critical role in recharging groundwater in the northern wetland sites which are critically important for the local communities and birds. However, anthropogenic land use like agricultural intensification, overfishing and climate change are impacting these important habitats across all the sites (Gashua, Gwayo, Baturia complex, Hadejia complex). The extensive areas of invasive *Typha australis* is reducing habitat quality and size. The predominant species recorded include White-faced Whistling Duck (*Dendrocygna viduata*), Fulvous Whistling Duck (*Dendrocygna bicolor*), Reed Cormorant (*Phalacrocorax africanus*), Ruff

Table 1. List of sites assessed during the International Waterbird count.

Zone / Region / Department	Main site	Sites name	Geographical coordinates
North West	Hadejia Nguru Wetland Complex	Baturia	N12.5839 E10.5379
		Marma channel	N12.6465 E10.2277
		Hadejia barrage	N12.4364 E10.0333
North East	Hadejia Nguru Wetland Complex	Dagona waterfowl sanctuary	N12.4859 E10.4440
		Gashua/Gwayo	N12.4630 E10.4238
		Katagum barrage	N12.3327 E10.3647
		Nguru Lake Complex	N12.5015 E10.2518
South West	Badagry Ibese Tarkwa bay Illaje	Badagry creek	N6.2719 E3.1235
		Ibese	N6.2077 E3.2997
		Tarkwa bay	N6.2397 E3.2375
		Ologe lagoon	N6.2804 E3.0553
		Manran abijo	N6.1157 E4.4095
		Illaje – bijimi	N6.0391 E4.4942
		Mahin canal	N6.1149 E4.4896
South East	Calabar	Calabar estuaries	N4.5208 E8.1626
South South	Ibena Andoni Ikot abasi Akassa	Ibena shoreline	N4.3401 E7.5869
		Ngo-creek Rivers	N4.3059 E7.2766
		Oyorokoto Rivers	N4.2795 E7.3166
		Obianga – shooter creek	N4.2914 E7.3666
		Palmpoint	N4.1646 E6.0504
		Sangana	N4.1942 E5.5979

Table 2. Total numbers counted per waterbird species in Nigeria, January 2023.

Scientific name	Common name (EN)	Total 2023
<i>Dendrocygna viduata</i>	White-faced Whistling-duck	81,983
<i>Dendrocygna bicolor</i>	Fulvous Whistling-duck	15,735
<i>Alopochen aegyptiaca</i>	Egyptian Goose	132
<i>Plectropterus gambensis</i>	Spur-winged Goose	8,094
<i>Sarkidiornis melanotos</i>	African Comb Duck	11,041
<i>Nettapus auritus</i>	African Pygmy-goose	234
<i>Spatula querquedula</i>	Garganey	6,501
<i>Zapornia flavirostra</i>	Black Crane	729
<i>Porphyrio porphyrio</i>	Purple Swamphen	879
<i>Porphyrio alleni</i>	Allen's Gallinule	182
<i>Gallinula chloropus</i>	Common Moorhen	980
<i>Paragallinula angulata</i>	Lesser Moorhen	566
<i>Anastomus lamelligerus</i>	African Openbill	203
<i>Threskiornis aethiopicus</i>	African Sacred Ibis	49
<i>Plegadis falcinellus</i>	Glossy Ibis	410
<i>Butorides striata</i>	Green-backed Heron	11
<i>Ardeola ralloides</i>	Squacco Heron	3,295
<i>Bubulcus ibis</i>	Cattle Egret	8,813
<i>Ardea cinerea</i>	Grey Heron	1,836
<i>Ardea melanocephala</i>	Black-headed Heron	135
<i>Ardea purpurea</i>	Purple Heron	647
<i>Ardea alba</i>	Great White Egret	404
<i>Ardea brachyrhyncha</i>	Yellow-billed Egret	322
<i>Egretta ardesiaca</i>	Black Heron	639
<i>Egretta garzetta</i>	Little Egret	1,770
<i>Egretta gularis</i>	Western Reef-egret	317
<i>Scopus umbretta</i>	Hamerkop	29
<i>Microcarbo africanus</i>	Long-tailed Cormorant	5,244
<i>Haematopus ostralegus</i>	Eurasian Oystercatcher	1
<i>Himantopus himantopus</i>	Black-winged Stilt	481

Scientific name	Common name (EN)	Total 2023
<i>Pluvialis squatarola</i>	Grey Plover	5
<i>Charadrius hiaticula</i>	Common Ringed Plover	109
<i>Charadrius dubius</i>	Little Ringed Plover	17
<i>Charadrius marginatus</i>	White-fronted Plover	4
<i>Charadrius alexandrinus</i>	Kentish Plover	15
<i>Vanellus spinosus</i>	Spur-winged Lapwing	1,533
<i>Actophilornis africanus</i>	African Jacana	4,231
<i>Microparra capensis</i>	Lesser Jacana	338
<i>Numenius phaeopus</i>	Whimbrel	233
<i>Numenius arquata</i>	Eurasian Curlew	24
<i>Limosa lapponica</i>	Bar-tailed Godwit	58
<i>Calidris pugnax</i>	Ruff	14,462
<i>Calidris ferruginea</i>	Curlew Sandpiper	24
<i>Calidris alba</i>	Sanderling	6
<i>Calidris minuta</i>	Little Stint	140
<i>Gallinago gallinago</i>	Common Snipe	6
<i>Actitis hypoleucos</i>	Common Sandpiper	343
<i>Tringa ochropus</i>	Green Sandpiper	136
<i>Tringa erythropus</i>	Spotted Redshank	45
<i>Tringa nebularia</i>	Common Greenshank	36
<i>Tringa glareola</i>	Wood Sandpiper	47
<i>Tringa stagnatilis</i>	Marsh Sandpiper	139
<i>Larus ridibundus</i>	Black-headed Gull	119
<i>Larus cirrocephalus</i>	Grey-headed Gull	12
<i>Sterna albifrons</i>	Little Tern	16
<i>Gelochelidon nilotica</i>	Common Gull-billed Tern	13
<i>Hydroprogne caspia</i>	Caspian Tern	51
<i>Sterna hirundo</i>	Common Tern	30
<i>Thalasseus sandvicensis</i>	Sandwich Tern	14
<i>Thalasseus maximus</i>	Royal Tern	4

(*Philomachus pugnax*), African Jacana (*Actophilornis africanus*), Comb Duck (*Sarkidiornis melanotos*). Waders recorded include the Common sandpiper (*Actitis hypoleucos*), Green Sandpiper (*Tringa ochropus*), and Wood Sandpiper (*Tringa glareola*).

The sites surveyed in the southern part of the country are majorly coastal wetlands that lie on the East Atlantic Flyway. The natural habitat is a matrix of mangroves, sandy beaches, muddy beaches, sand marshes, marshlands, sand bars and mudflats. All these features are in a mix with human habitations and land use that impacts the habitats and the species that utilise them. Some of the economic activities recorded include mangrove exploitation for fuel, invasive *Nypa* spp that is colonising natural mangroves, overfishing, and sand dredging that is altering the ecosystem. Common species recorded include the Reed cormorant (*Microcarbo africanus*), Egrets (Great egret, cattle

egret), waders like the Eurasian Whimbrel (*Numenius phaeopus*), Common sandpiper (*Actitis hypoleucos*), Wood sandpiper (*Tringa glareola*) etc.

Difficulties encountered included inaccessibility to some sites because of flooding and insecurity issues. Not all sites could be explored using telescopes or professional cameras, this may have impacted the species records from such sites. Aside from the Hadeija Nguru wetland complex where the waterbird count exercise is consistent, efforts in the other sites are being developed. The results from some sites varied significantly between 2022 and 2023. There is a need to develop the capacities of site support group to increase monitoring efforts at different sites, this will increase the quality of the data.

### Acknowledgements

The project received financial support from Wetlands International, BirdLife International and the

Wadden Sea Flyway Initiative which has made it possible to sustain monitoring activities this year. The local communities support the survey efforts by approving the recruitment of members of the communities as guides. For the monitoring team at the Hadeija Nguru wetland complex which includes staff of the Federal University in Dutse. Support from the members of Akassa Development Fund and Ayetoro Youth Forum. We also thank the management of the under listed Institutions for their cooperation and release of their staff to participate in the exercise. (1), Federal University Dutse, (2), Jigawa State Ministry of Environment, (3), Yobe State Ministry of Environment, and (4), Chad Basin National Park. Our gratitude goes to all the participants for their time and pain-taking efforts to ensure the exercise was a huge success. Our appreciation also goes to the Site Support Groups (SSGs)/resource users in all communities within and around the surveyed sites for their cooperation and support during the 2023 water-bird census.

## ANNEX

List the observers involved and their organisations:  
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## 28. Cameroon



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### Results of January 2023 counts of waterbirds in Central Coastal Cameroon

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#### 1. INTRODUCTION

Global attention has been given in recent times to the importance of water birds as they have been recognised as high-priority research indicators for wetland health (Leilowitz and Brown 1990, Furness and Greenwood 1993). Given their importance and the threat to their habitats and water

birds themselves, there is a need for monitoring data necessary for the characterisation and determination of their status and trends on which to base sustainable use options, especially for local population. The collection of information is also of vital importance for the flyway perspective of waterbird conservation.

Cameroon's participation in the IWC has been through its network of volunteers coming from the government, NGOs, private sector and local communities. The system and periodicity of counts in the country have been heavily limited by accessibility and cost factors. Certain sites have been regularly counted, some counted annually while others are irregularly counted. Periodically or irregularly counted sites are located within the inland areas, especially around the Lake Chad, the lagoon and Shari basins, Noun basins and Dschang artificial lake.

The IWC with its accumulated database within Cameroon since its inception in 1999 has contributed to many policy changes worth of note including among others, the recognition of the Douala-Edea National Park and the accession of Cameroon to AEWA (African-Eurasian Water Bird Agreement).

#### 2. METHODOLOGY

In line with the global objective and the draft national water bird & wetlands management plan, the January 2023 count in Cameroon in-

Table 1. Summary of January 2023 waterbird count at Cameroon coast giving totals for most important waterbird species

Scientific name	Common name (EN)	Total 2023
<i>Dendrocygna viduata</i>	White-faced Whistling-duck	51
<i>Pteronetta hartlaubii</i>	Hartlaub's Duck	3
<i>Anas undulata</i>	Yellow-billed Duck	40
<i>Tachybaptus ruficollis</i>	Little Grebe	2
<i>Phoeniconaias minor</i>	Lesser Flamingo	550
<i>Zapornia flavirostra</i>	Black Crake	2
<i>Porphyrio porphyrio</i>	Purple Swamphen	6
<i>Gallinula chloropus</i>	Common Moorhen	16
<i>Mycteria ibis</i>	Yellow-billed Stork	410
<i>Ciconia episcopus</i>	African Woollyneck	406
<i>Anastomus lamelligerus</i>	African Openbill	593
<i>Threskiornis aethiopicus</i>	African Sacred Ibis	25
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron	153
<i>Butorides striata</i>	Green-backed Heron	188
<i>Ardeola ralloides</i>	Squacco Heron	17
<i>Bubulcus ibis</i>	Cattle Egret	481
<i>Ardea cinerea</i>	Grey Heron	309
<i>Ardea goliath</i>	Goliath Heron	4
<i>Ardea purpurea</i>	Purple Heron	1
<i>Ardea alba</i>	Great White Egret	2,980
<i>Ardea brachyrhyncha</i>	Yellow-billed Egret	73
<i>Egretta ardesiaca</i>	Black Heron	4
<i>Egretta garzetta</i>	Little Egret	369
<i>Egretta gularis</i>	Western Reef-egret	1,645
<i>Scopus umbretta</i>	Hamerkop	25
<i>Pelecanus rufescens</i>	Pink-backed Pelican	1,552
<i>Pelecanus onocrotalus</i>	Great White Pelican	508
<i>Microcarbo africanus</i>	Long-tailed Cormorant	904
<i>Anhinga rufa</i>	African Darter	32

Scientific name	Common name (EN)	Total 2023
<i>Haematopus ostralegus</i>	Eurasian Oystercatcher	1
<i>Recurvirostra avosetta</i>	Pied Avocet	1,505
<i>Himantopus himantopus</i>	Black-winged Stilt	1
<i>Pluvialis squatarola</i>	Grey Plover	887
<i>Charadrius hiaticula</i>	Common Ringed Plover	4,310
<i>Charadrius marginatus</i>	White-fronted Plover	82
<i>Vanellus spinosus</i>	Spur-winged Lapwing	17
<i>Actophilornis africanus</i>	African Jacana	36
<i>Numenius phaeopus</i>	Whimbrel	185
<i>Numenius arquata</i>	Eurasian Curlew	31
<i>Limosa lapponica</i>	Bar-tailed Godwit	26
<i>Arenaria interpres</i>	Ruddy Turnstone	4
<i>Calidris pugnax</i>	Ruff	2
<i>Calidris ferruginea</i>	Curlew Sandpiper	20
<i>Calidris minuta</i>	Little Stint	14
<i>Actitis hypoleucos</i>	Common Sandpiper	296
<i>Tringa nebularia</i>	Common Greenshank	2,197
<i>Tringa totanus</i>	Common Redshank	74
<i>Tringa glareola</i>	Wood Sandpiper	507
<i>Tringa stagnatilis</i>	Marsh Sandpiper	245
<i>Rynchops flavirostris</i>	African Skimmer	788
<i>Larus ridibundus</i>	Black-headed Gull	3
<i>Larus fuscus</i>	Lesser Black-backed Gull	549
<i>Sternula albifrons</i>	Little Tern	5,313
<i>Hydroprogne caspia</i>	Caspian Tern	2
<i>Chlidonias niger</i>	Black Tern	5,050
<i>Thalasseus sandvicensis</i>	Sandwich Tern	28
<i>Thalasseus maximus</i>	Royal Tern	4,344

cluded counts in regularly counted sites within the coastal region. Thirty sites within the coastal areas and selected inland sites within 60 km were covered including West of Douala-Edea National Park (Moungo Bridge and Wouri basins), Douala-Edea (Wouri, Kwakwa and Sanaga Rivers estuaries), Upper Douala-Edea National Park (Upper Sanaga sand banks of Dizangué) and the inland site of Dschang artificial lake were counted partially or totally following standard bird census techniques (Bibby et al, 1992; Dodman et al, 1997; Girard, 1998).

The coastal Anglophone zone from Mt Cameroon Coast up to and including Ndian-Basin which has in the years before been confronted with socio-political armed conflicts was also counted this year.

The counts were conducted in January - February 2023. This year's count was quite spectacular with the participation of over dozens of people within the sites in addition to the regular participants.

The count exercise also assessed the pressure and environmental characteristics of major count sites.

### 3. RESULTS & DISCUSSION

Over 38,586 waterbirds and 175 kingfishers & other birds were countered in seven sites: Wouri, Douala-Edea National Park, Sanaga estuary & coast, Upper Sanaga (Dizangué), Mount Cameroon Coast and Ndian Basin. Most of the waterbirds were counted in the Ndian basin 31,378 (81%) followed by Douala-Edea National Park: 4,627 (12%) and upper Sanaga (Dizangué) 1,180 (3%). The waterbirds were distributed amongst 64 species and 14 species of kingfishers & other birds. The most abundant waterbird species group were gulls and terns (including skimmers) 16,093 (42%) followed by large waders 11,233 (29%). The most abundant species were Little Terns 5313, Black Terns 5,050 and Ringed Plovers 4,310. Skimmers could only be sighted in Upper Sanaga (567 birds) and Ndian basins (220 birds). Environmental data shows the perturbation of counts sites by mainly human factors especially infrastructural development and settlement.

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## Annexes List of participants

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## 29. São Tomé and Príncipe



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### Results of January 2023 counts of waterbirds in São Tomé and Príncipe

Ricardo Faustino de Lima,  
Abigail Varela, João Alves &  
Yodiney dos Santos



#### 1. INTRODUCTION

São Tomé and Príncipe is an island country, internationally recognized for the endemic-rich forest avifauna (Melo et al. 2022). Even though the country also hosts an impressive diversity of aquatic ecosystems for its small size, its waterbirds are not well known. These include swamps, streams and rivers, coastal lagoons, mangroves, sandy beaches, rocky shores, and small offshore rocks and islets.

São Tomé and Príncipe has regionally important seabird colonies, including Sooty tern *Onychoprion fuscatus* and Brown booby *Sula leucogaster*

(Bollen et al. 2017). It hosts small populations of resident freshwater and coastal species, including some endemics (e.g., Príncipe Blue-breasted Kingfisher *Halcyon malimbica dryas*, Príncipe Kingfisher *Corythornis nais*, São Tomé Kingfisher *C. thomensis*, and Dwarf Olive Ibis *Bostrychia bocagei*, a Critically Endangered Forest specialist), and a sparse but diverse community of migrant waterbird species (de Lima et al. 2021). Most of these follow the Eastern Atlantic migratory route and occur along the coast, including the regular migrants Common Sandpiper *Actitis hypoleucos*, Whimbrel *Numenius phaeopus*, and Common Greenshank *Tringa nebularia*.

The main objective of this census is to learn more about the waterbirds and wetlands of São Tomé and Príncipe, contributing to the 2023 International Waterbird Census

#### 2. METHODS

The census took place in the main islands São Tomé and Príncipe (STP), but also in the Tinhosas Islets, which is STP's only Ramsar site. It covered 5 out of the 6 important bird areas in the country, and a diversity of aquatic habitats, including beaches, coastal lagoons, estuary zones, mangroves, rivers, and islets. The count lasted 8 days with 30 observers from 19 institutions were involved in the census.

We used standard census techniques and the sampling design defined in previous years to assess



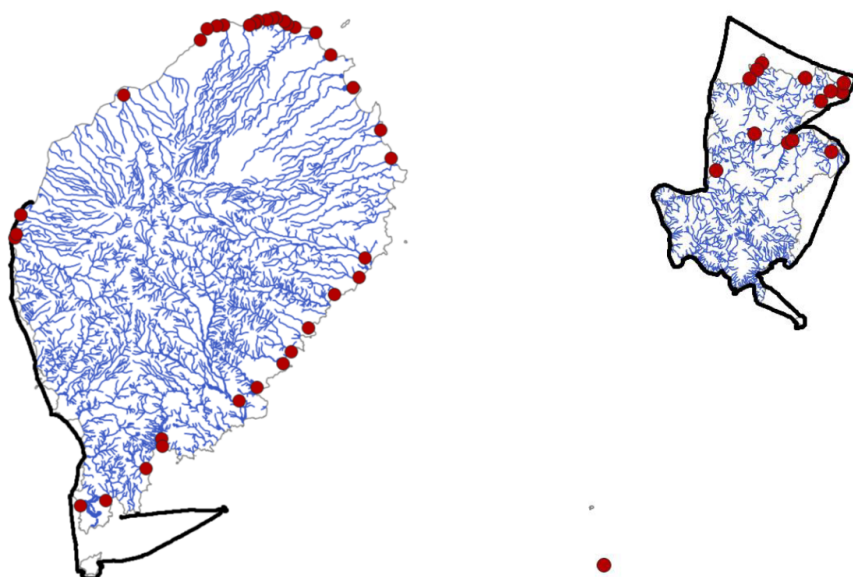


Figure 1. São Tomé (left) and Príncipe and Tinhosas (right) sites sampled during the 2023 waterbird census, including 10 minutes point counts (red circles) and boat transects (black lines).

the presence, abundance and trends of waterbirds species occurring in the country in January. Simultaneously, we used birdwatching to train, engage, and raise awareness of Santomeans for biodiversity science and conservation.

The 2023 census took place in São Tomé on January 10, 11, 12 and 18, in Príncipe on January 24, 25 and 26, and in Tinhosas on February 8. Areas accessible by car were sampled using 10-minute point counts (37 in São Tomé and 13 in Príncipe), while islets and less accessible coastal areas were sampled using boat transects (around Príncipe and on the southwest of São Tomé). In the Tinhosas, estimates were applied based on a methodology previously developed for the site, which focuses mainly on breeding pairs (Bollen et al. 2017), Figure 1.

### 3. RESULTS

This survey totaled 409,093 individuals belonging to 21 species. It allowed confirming the presence of regularly occurring coastal and freshwater species on both islands (Tables 1).

It also allowed counting resident waterbird species that occur in only one of the islands, namely São Tomé Kingfisher *Corythornis thomensis* (33 individuals at 17 sites) in São Tomé, and Blue-breasted Kingfisher *Halcyon malimbica dryas* (13 individuals at 6 sites), and Príncipe Kingfisher *Corythornis nais* (21 individuals at 9 sites) in Príncipe.

In terms of seabirds, we registered five out of

the six species known to breed regularly in oceanic islands of the Gulf of Guinea. Black Noddy *Anous minutus* was seen in the south of São Tomé (32 at Sete Pedras), and in Tinhosas (over 1 559 individuals), where breeding was confirmed (13 breeding pairs estimated). Brown Noddy *A. stolidus* was only detected in the south of São Tomé (96 between Porto Alegre, Sete Pedras and Ilhéu das Rolas). Unlike in previous years, Bridled Tern *Onychoprion anaethetus* was not detected, while Sooty Tern *O. fuscatus* was only recorded at Tinhosas (over 200,000 breeding pairs estimated). Finally, White-tailed Tropicbird *Phaeton lepturus* was recorded mostly close to coastal cliffs (60 at 12 sites) and Brown Booby *Sula leucogaster* close to rocky islets, including larger numbers at Boné de Jóquei (35 individuals), and Tinhosas (692 breeding pairs estimated).

During the census some less frequent coastal birds were also recorded, including one Ruddy Turnstone *Arenaria interpres* at Largo da Juventude, in Príncipe, and, in São Tomé, one Pied Kingfisher *Ceryle rudis* at Diogo Nunes (1st photographic record for the island), one Lesser Moorhen *Paragallinula angulata* at Praia Melão, and a Wood Sandpiper *Tringa glareola* at Praia do Governador.

### 4. DISCUSSION

The average number of species recorded at each site was 3.27, which is identical to previous years (3.29 in 2020, 3.18 in 2021 and 3.02 in 2022). The total number of species recorded was 22, the same as in previous years, except 2021, when 23 were

Table 1. Abundance of waterbird species in São Tomé and Príncipe during the 2023 waterbird census. the 2020 census.

Scientific name	São Tomé	Príncipe	Tinhosas
<i>Actitis hypoleucos</i>	17	23	
<i>Anous minutus</i>	32		1,559
<i>Anous stolidus</i>	96		
<i>Anous sp.</i>		8	
<i>Arenaria interpres</i>		1	
<i>Bubulcus ibis</i>	72	6	
<i>Butorides striatus</i>	28	10	
<i>Ceryle rudis</i>	1		
<i>Corythornis nais</i>		21	
<i>Corythornis thomensis</i>	33		
<i>Egretta gularis</i>	59	103	
<i>Gallinula chloropus</i>	6	4	
<i>Halcyon malimbica</i>		13	
<i>Milvus migrans</i>	253	75	
<i>Numenius phaeopus</i>	5	14	
<i>Onychoprion fuscatus</i>			405,080
<i>Paragallinula angulata</i>	1		
<i>Phaeton lepturus</i>	25	31	4
<i>Phalacrocorax africanus</i>	51	1	
<i>Sula leucogaster</i>	5	60	1,384
<i>Tringa glareola</i>	1		
<i>Tringa nebularia</i>	9	2	

recorded. There variations are not particularly meaningful, since there are 18 species that are recorded every year, while the remaining are mostly vagrants. Exceptionally, was that the Bridled Tern *Onychoprion anaethetus*, a regular migrant on the islands, was not recorded this year.

Brown Noddy had the biggest changes in abundance, dropping from an average of 16,435 individuals in previous years to 96 in 2023 (Table 1). This was mostly due to its absence at Tinhosas, where the estimated number of breeding pairs used to be in the thousands, even though there was also a significant reduction in the number of individuals in São Tomé. The São Tomé Kingfisher had the strongest positive trend, raising from an average of 21 individuals in previous years to 33 in 2023. This trend seems consistent throughout the period in analysis and is accompanied by an increase in frequency. Black Noddy and Whimbrel were the two other species with negative trends, while Cattle Egret, Green-backed Heron, Yellow-billed Black Kite, Sooty Tern, White-tailed Tropicbird, Reed Cormorant, and Greenshank showed positive trends.

These changes might reflect long-term trends or interannual variation, for instance related to the weather or climatic conditions, or to disturbance, which will only be possible to distinguish after obtaining a long series of temporal data for these counts in São Tomé and Príncipe.

Since most of the population on São Tomé and Príncipe lives by the coast, wetlands are under intense anthropogenic pressure. Important threats on the main islands include fishing, agricultural and urban expansion, and invasive alien species. In the Tinhosas, which are uninhabited and have no vegetation or freshwater supply, fishermen are likely to be the biggest threat, since they are known to harvest seabirds and their eggs. Since there are currently no biosecurity measures in place, the introduction of invasive predators is also of great concern for this particular site. It remains unknown whether the crabs found at Tinhosas, recorded to eat eggs and chicks, are having population-level impacts on the breeding success of seabirds.

The pressures recorded this year are similar to those of previous years, even though some local changes have been noticed, such as the ongoing construction of a road between the coastal lagoon and the sea at Micoló, and the destruction of the coastal lagoon at Praia Melão to build a market.

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## ANNEX

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## 30. Gabon



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## Comptage des oiseaux d'eau à la janvier 2023 en Gabon

Gabin NZAMBA,  
Coordinateur national



### 1. INTRODUCTION

Avec plus de 800 km de côte ouverts sur l'océan atlantique et de nombreux cours d'eau, le Gabon abrite une diversité d'habitats, parmi lesquels de nombreuses zones humides. Neuf sites Ramsar sont répertoriés dans le pays, notamment les parcs nationaux de Pongara et d'Akanda, ce dernier ayant classé pour protéger les nombreuses espèces d'oiseaux d'eau qui viennent y séjourner chaque

année, principalement en provenance d'Europe et d'Asie.

Le Dénombrement international des Oiseaux d'Eau (DIOE), lancé en 1967 par Wetlands International, est un programme de surveillance des populations d'oiseaux dans les zones humides à travers le monde. Ainsi, chaque année au mois de janvier, tous les types de zones humides (fleuves, marais, estuaires, lagunes, deltas, lacs, plaines inondées, etc.) sont visités par des équipes d'ornithologues et autres personnels afin de dénombrer toutes les espèces d'oiseaux d'eau présentes. A travers le suivi annuel de l'évolution des populations d'oiseaux, ce programme vise à :

- Connaître les populations d'oiseaux présentes chaque année sur les sites bien identifiés;
- Dégager des tendances sur les effectifs de ces populations d'oiseaux au fil des ans, afin de déceler des changements;
- Identifier les menaces pour les zones humides le plus tôt possible afin de prendre les mesures adaptatives.

Les oiseaux d'eaux étant de bons indicateurs de la qualité et de l'évolution des milieux naturels, leur dénombrement annuel et les informations générées constituent des éléments pertinents pour évaluer les mesures de gestion et de conservation dans les sites. Aussi, le Gabon, a rejoint le programme en 1999, et prend depuis lors une part active aux activités annuelles.

Pour le compte de l'année 2023, les opéra-

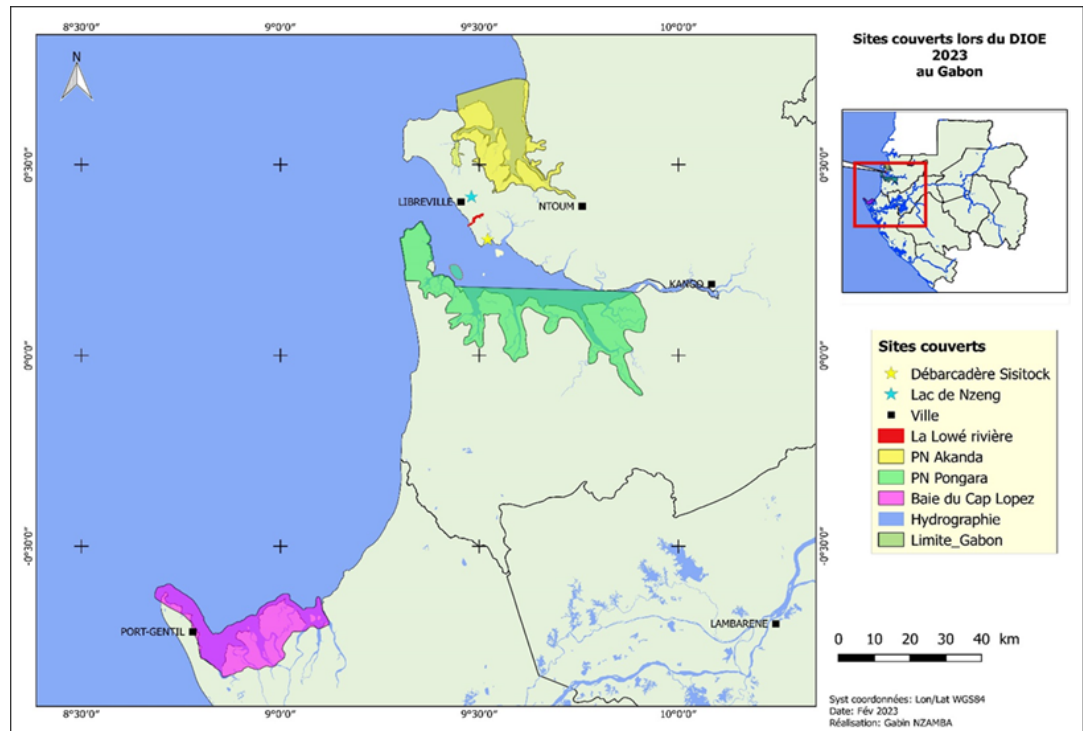


Figure 1. Cartes des sites de comptage et hydro-géographique du Gabon

tions du DIOE 2023 au Gabon, se sont déroulées dans les parcs nationaux d'Akanda et Pongara, tous deux situés dans la province de l'Estuaire, ainsi que dans des unités de comptage de leurs périphéries, notamment la Lowé, lac de Nzeng-Ayong et le débarcadère de Sisitock, dans la commune d'Owendo, au sud de Libreville. Par ailleurs, l'équipe s'est rendue dans la province de l'Ogooué-Martitime, où le site de la baie du Cap Lopez a été couvert (Figure 1).

## 2. METHODOLOGIE

Le dénombrement international des Oiseaux d'Eau au Gabon s'effectue selon la méthodologie agréée par Wetlands International et ses partenaires.

Cette année, le dénombrement s'est déroulé du 18 au 24 janvier 2023, à travers les trois principaux sites que sont les parcs nationaux d'Akanda et Pongara dans la province de l'Estuaire, et la baie du Cap Lopez, dans la province de l'Ogooué-Maritime.

Sur le terrain, la méthode employée est celle du comptage direct, principalement depuis les embarcations, mais aussi à pieds. Les comptages commencent aussi tôt que possible en matinée, dès que le permet la marée, c'est-à-dire lorsqu'elle est basse ou descendante, et que les vasières et bancs de sable sont à découvert. Pour les sites d'Akanda et Pongara, deux équipes distinctes

ont été constituées et se sont déployées sur les différentes unités de comptage afin de procéder aux dénombrements de manière simultanée. Pour la baie du Cap Lopez, une équipe unique de 4 membres s'est rendue dans la province de l'Ogooué-Maritime pour réaliser le dénombrement, à laquelle s'est jointe un agent local de l'ANPN. Chaque équipe comporte au minimum deux (2) observateurs expérimentés, qui identifient les espèces, puis comptent ou estiment les effectifs pour chacune d'elles. Les notes sur les décomptes sont prises par deux autres membres chargés de cette tâche, tandis qu'un autre se charge de collecter les données environnementales (ZICO). Tous les décomptes se sont faits depuis les bateaux, à l'exception de la grande vasière Moka, et de la baie du Cap Lopez qui ont été parcourus à pieds.

A la fin de chaque comptage, les membres chargés de la prise des données de décompte sont invités à les compiler, les vérifier, et les reporter sur les fiches standards. Les comptages se terminent en fin de matinée, ou un plus tôt en fonction de la montée de la marée.

Notons qu'avant le départ sur le terrain, une session de formation/recyclage a été organisée à l'endroit des participants le 13 janvier 2023, dans les locaux abritant les Ministère des Eaux et Forêts, précisément dans la salle de réunion de la Direction Générale de la Faune et des Aires Protégées.

### 3. RESULTATS

Pour le DIOE 2023 au Gabon, Au total, 4 597 individus appartenant à 19 familles et représentant 65 espèces ont été comptabilisés. Avec 18,8% des espèces recensées, la famille des scolopacidae est la plus représentée, suivie de celles des ardeidae et des alcedinidae avec respectivement 15,9 et 11,6%. En terme d'effectifs, c'est la famille des Laridae qui enregistre le plus grand nombre d'individus, soit 20,1% de tous les oiseaux dénombrés. Viennent ensuite les familles des scolopacidae (18,3%), des charadriidae (18,1%) et des pelecanidae (16,9%). Le tableau 1 ci-dessous présente les résultats globaux du DIOE cette année.

### 4. DISCUSSION

Comparativement à l'année 2022, on enregistre une hausse du nombre d'oiseaux (+20%), et du nombres d'espèces (+12%) recensés. Par contre, une baisse du nombre total de familles (-9%) enregistrées au cours du DIOE 2023. L'augmentation du nombre d'espèces et d'individus (5 597 contre 3 838), pourrait s'expliquer simplement par l'effort de couverture plus important cette année. Tandis que l'amélioration de la diversité résulterait de la visite du site de la baie du Cap Lopez qui renferme des habitats d'eau douce (mares, marécages,

prairies inondées, etc) avec une partie importante d'autres espèces qu'on rencontre difficilement dans les autres habitats, notamment les anatidae et rallidae. Par ailleurs et comparativement à l'année 2022, moins d'espèces non aquatiques ont été intégrées dans les dénombrement. L'accent a été mis sur les oiseaux d'eau, même si quelques espèces telles que les guépiers (Meropidae) ou le Gonolek à ventre blanc (Malaconotidae) ont été prises en compte.

Bien qu'ayant un double statut de protection (parcs nationaux et sites Ramsar), la pression urbaine, les activités touristiques et l'insalubrité sont les principales menaces sur les sites d'Akanda et Pongara, à cause de leur localisation à proximité de grand centre urbain qu'est Libreville. Ces menaces sont principalement concentrées dans les zones où la surveillance par les agents des parcs est moins efficiente, à cause d'une forte proximité avec les activités anthropiques urbaines. Si les oiseaux ne sont directement visés, la pression sur leur habitat (notamment la mangrove) et l'insalubrité sont les principaux soucis dans ces deux sites.

### Remerciements

Les équipes ayant réalisé le DIOE sont essentiellement constituées des membres du réseau national des compteurs d'oiseaux d'eau, constitué

Tableau 1. Résultats du dénombrement 2023

Nom scientifique	Nom vernaculaire	Total 2023
<i>Dendrocygna viduata</i>	Dendrocygne veuf	3
<i>Nettapus auritus</i>	Anserelle naine	6
<i>Zapornia flavirostra</i>	Marouette à bec jaune	2
<i>Porphyrio alleni</i>	Talève d'Allen	1
<i>Gallinula chloropus</i>	Gallinule poule-d'eau	18
<i>Mycteria ibis</i>	Tantale ibis	48
<i>Platalea alba</i>	Spatule d'Afrique	21
<i>Threskiornis aethiopicus</i>	Ibis sacré	11
<i>Nycticorax nycticorax</i>	Bihoreau gris	111
<i>Butorides striata</i>	Héron strié	44
<i>Ardeola ralloides</i>	Crabier chevelu	2
<i>Bubulcus ibis</i>	Héron garde-boeufs	92
<i>Ardea cinerea</i>	Héron cendré	154
<i>Ardea melanocephala</i>	Héron mélanocéphale	2
<i>Ardea goliath</i>	Héron goliath	1
<i>Ardea purpurea</i>	Héron pourpré	3
<i>Ardea alba</i>	Grande Aigrette	113
<i>Egretta garzetta</i>	Aigrette garzette	78
<i>Egretta gularis</i>	Aigrette à gorge blanche	4
<i>Scopus umbretta</i>	Ombrette africaine	21
<i>Pelecanus rufescens</i>	Pélican gris	523
<i>Pelecanus onocrotalus</i>	Pélican blanc	258
<i>Microcarbo africanus</i>	Cormoran africain	62

Nom scientifique	Nom vernaculaire	Total 2023
<i>Pluvialis squatarola</i>	Pluvier argenté	77
<i>Charadrius hiaticula</i>	Pluvier grand-gravelot	34
<i>Charadrius pecuarius</i>	Pluvier pâtre	1
<i>Charadrius marginatus</i>	Pluvier à front blanc	173
<i>Actophilornis africanus</i>	Jacana à poitrine dorée	18
<i>Numenius phaeopus</i>	Courlis corlieu	255
<i>Numenius arquata</i>	Courlis cendré	8
<i>Limosa lapponica</i>	Barge rousse	96
<i>Limosa limosa</i>	Barge à queue noire	1
<i>Calidris canutus</i>	Bécasseau maubèche	5
<i>Calidris ferruginea</i>	Bécasseau cocorli	113
<i>Calidris alba</i>	Bécasseau sanderling	171
<i>Calidris minuta</i>	Bécasseau minute	10
<i>Actitis hypoleucos</i>	Chevalier guigrette	50
<i>Tringa nebularia</i>	Chevalier aboyeur	88
<i>Tringa totanus</i>	Chevalier gambette	18
<i>Tringa glareola</i>	Chevalier sylvain	1
<i>Tringa stagnatilis</i>	Chevalier stagnatille	26
<i>Rynchops flavirostris</i>	Bec-en-ciseaux d'Afrique	152
<i>Sternula albifrons</i>	Sterne naine	42
<i>Sterna hirundo</i>	Sterne pierregarin	15
<i>Thalasseus sandvicensis</i>	Sterne caugek	210
<i>Thalasseus maximus</i>	Sterne royale	605

des agents du Ministère des Eaux et Forêts, spécifiquement ceux de la Direction Générale de la Faune et des Aires Protégées (DGFAP), de l'Agence Nationale des Parcs Nationaux (ANPN) de l'ONG Aventures Sans Frontières (ASF), de stagiaires de l'Ecole Nationale des Eaux et Forêts (ENEF), ainsi que de volontaires passionnés par les oiseaux et leur conservation.

L'équipe de dénombrement des oiseaux d'eau au Gabon tient à exprimer sa profonde gratitude à l'endroit de Wetlands International, Wadden Sea Flyway Initiative et Birdlife international, pour leur contribution multiforme à la réalisation de cette activité dans notre pays. Leur contribution financière, leurs orientations techniques et leur disponibilité ont rendu cette campagne 2023 possible au Gabon.

Que nos partenaires locaux, l'ONG ASF, les conservateurs des parcs nationaux d'Akanda et

Pongara, le conservateur des aires marines protégées de Port-Gentil, les populations riveraines des différents sites trouvent ici notre reconnaissance pour leur aide. Enfin à ceux qui partagent régulièrement leurs observations et photographies sur les oiseaux, donc certaines ont été utilisées dans le présent rapport, notamment Lionel SINIEU et Michèle SIBERT.

## ANNEXE

Liste des participants au DIOE 2023:

NZAMBA OUMAR Gabin, MIBAMBANI NDIMBA Aimé Serge, BOUSSAMBA François, KUMBATH Dieu-Donné, DIDZIENGA MAMBOUNDOU Fertini Harris, MBADOU MOU NEMBE Chris Aliston, DJOMBE Denis Jospin, MOUELE Cyril, MOUSSI David, DJABEMBA Loïc, Michèle SIBERT, AGANGA SOWA Den, MAKEMBA Well, TSIVENDO MONDJO Justie, KASSA KASSA Levy, LEMBI Bertin, Kevin

## 31. République Démocratique du Congo (RDC)



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### Comptage des oiseaux d'eau à la février 2023 en République Démocratique du Congo

Pierre MAVUEMBA TUVI,  
Élisabeth MUILA-YA-LUSILA &  
Zacharie LELO SAMBIANDI



#### 1. INTRODUCTION

Le présent dénombrement concerne les oiseaux d'eau ayant fréquenté les différents sites du Parc Marin des Mangroves, le long de la côte atlantique de la République Démocratique du Congo (RDC) sur près de 35 km et les zones humides avoisinantes, au mois de Février 2023. Avec une vaste zone humide sur la côte Est-Atlantique, comprenant une grande forêt de mangroves immergée, la RDC constitue un site de repos et de reproduction de plusieurs oiseaux migrateurs. Si cette zone est perturbée, ces migrateurs auront des difficultés

pour aller de l'Afrique du Nord vers le sud. Comme pour les années précédentes, le dénombrement de cette année 2023 a eu pour objectifs:

- Comptage visuel et réel des oiseaux d'eau du Parc Marin des Mangroves et ses environs.
- Relevé de l'état environnemental des sites parcourus.
- Compilation, analyse et présentation des résultats du dénombrement.

Les opérations de cette année se sont déroulées dans le Parc Marins des Mangroves (Muanda – Congo central) au niveau d'une douzaine de sites présentés ci-dessous (Figure 1).

#### 2. METHODOLOGIE

Les opérations de dénombrement de 2023 ont été menées du 21 au 24 février 2023. Elles ont été précédées par un l'organisation d'un atelier de pré comptage pour une mise à niveau des compteurs et une sensibilisation de des populations riveraines. Les parcours et sites à visités sont définis et répartis entre les équipes / groupes de compteurs.

Les méthodes standards d'observation et de comptage ont été utilisées avec des visites de sites soit à pied, soit à bord de voitures, à bord de bateaux hors-bord ou encore à bord de pirogues. Les matériels à disposition sont principalement des 10 paires de jumelles, 2 télescopes, 2 GPS et 2 appareils photo-numériques. Outre les matériels divers



Figure 1. Localisation du Parc Marin des Mangroves en RDC.

de prises de notes quelques guides d'identification des oiseaux ont aussi mis à profit (Borrow et Demey, 2008 ; Barlow et Dodman, 2016).

Il est utile de noter qu'en terme d'implication institutionnelle, des agents du Parc Marin des Mangroves (PMM) ainsi que des volontaires de l'Association « Sauvons nos Côtes » (SANOCO – ONGD) se sont joints aux éléments de l'Institut Supérieur de Navigation et de Pêche (ISNP/Muanda) pour conduire les opérations de dénombrement sur les différents sites retenus

### 3. RESULTATS & DISCUSSION

Nous avons dénombré en février 2023 un total de 1 492 oiseaux d'eaux pour 57 espèces contre 2 160 individus pour 34 espèces en 2022, et 3 734 oiseaux d'eau pour 51 espèces en 2021, 4 123 oiseaux d'eau pour 53 espèces en 2020, et 3 978 oiseaux d'eaux pour 47 espèces en 2019. Bien que le nombre d'espèces soit plus élevé, cette année est la moins abondante en nombre d'individus d'oiseaux d'eau dénombrés.

Le nombre plus élevé d'espèces peut s'expliquer par le fait que depuis quelques années plusieurs rapaces comme le faucon crécerelles, ainsi que certains cisticolidae comme la cisticole des joncs et autres motacillidae comme la bergeronnette pie, ont été pris en compte. Ce mauvais score en nombre d'individus est à mettre en grande partie, si pas entièrement, du moins pour cette année, aux mauvaises conditions climatiques.

Les principales menaces spécifiques aux sites: Ainsi l'érosion côtière, une forte urbanisation non réglementaire, un déboisement anarchique et une pollution aux déchets plastiques sont notés

comme menaces au niveau des lagunes de Ngoyo et de Tonde. A Banana et dans les presqu'îles de Km3, Km4 et Km5 se sont les constructions non contrôlées qui constituent la grande pression aux sites, tandis que dans les îles Tompo et Bulambembo les menaces sont à travers les déchets plastiques, la pollution aux hydrocarbures, la pêche et le le déboisement. On note aussi desmenaces liées au developpment de fermes agricoles ainsi et aux feux de brousse (Lukungu et Ile de Mateba) de même qu'à l'exploitation pétrolière et au déboisement.

### Remerciements

Nos remerciements à Wetlands International et ses partenaires Wadden Sea Flyway Initiative et BirdLife International, aux responsables du Parc Marin des Mangroves, à SANOCO/ ONGD, et à tous les bénévoles qui nous ont accompagné dans ce travail.

### ANNEXE

Liste des compteurs:

Pierre Mavuemba Tuvi, Elisabeth Muila-Ya-Lusila, Zacharie Lelo Sambiandi, Olivier Mavuemba, Mbuyi Mushingayi, Mbelembe Nzangi, David Angenda Mbuli, Guelor Konde Konde, Simon Ntedika Luemba, Louison Ngeli Payi, Pierrette Basolo Ngoma, Cele, Rodrigue Mandembo, Benjamin Luemba Matanga, 15 Etudiants.



Tableau 1. Listes et effectifs des oiseaux d'eau dénombrés, par espèce

Nom scientifique	Nom vernaculaire	Total 2023	Nom scientifique	Nom vernaculaire	Total 2023
<i>Dendrocygna viduata</i>	Dendrocygne veuf	159	<i>Scopus umbretta</i>	Ombrette africaine	12
<i>Nettapus auritus</i>	Anserelle naine	59	<i>Microcarbo africanus</i>	Cormoran africain	107
<i>Tachybaptus ruficollis</i>	Grèbe castagneux	1	<i>Anhinga rufa</i>	Anhinga d'Afrique	28
<i>Anastomus lamelligerus</i>	Bec-ouvert africain	12	<i>Himantopus himantopus</i>	Échasse blanche	1
<i>Platalea alba</i>	Spatule d'Afrique	4	<i>Pluvialis squatarola</i>	Pluvier argenté	9
<i>Threskiornis aethiopicus</i>	Ibis sacré	8	<i>Charadrius hiaticula</i>	Pluvier grand-gravelot	2
<i>Nycticorax nycticorax</i>	Bihoreau gris	4	<i>Charadrius marginatus</i>	Pluvier à front blanc	3
<i>Butorides striata</i>	Héron strié	14	<i>Actophilornis africanus</i>	Jacana à poitrine dorée	23
<i>Ardeola ralloides</i>	Crabier chevelu	55	<i>Numenius phaeopus</i>	Courlis corlieu	71
<i>Bubulcus ibis</i>	Héron garde-boeufs	348	<i>Arenaria interpres</i>	Tournepierre à collier	8
<i>Ardea cinerea</i>	Héron cendré	2	<i>Calidris alba</i>	Bécasseau sanderling	19
<i>Ardea melanocephala</i>	Héron mélanocéphale	2	<i>Calidris alpina</i>	Bécasseau variable	11
<i>Ardea goliath</i>	Héron goliath	1	<i>Actitis hypoleucos</i>	Chevalier guignette	18
<i>Ardea purpurea</i>	Héron pourpré	20	<i>Tringa nebularia</i>	Chevalier aboyeur	15
<i>Ardea alba</i>	Grande Aigrette	26	<i>Rynchops flavirostris</i>	Bec-en-ciseaux d'Afrique	56
<i>Ardea brachyrhyncha</i>	Héron a bec jaune	3	<i>Chlidonias niger</i>	Guifette noire	30
<i>Egretta garzetta</i>	Aigrette garzette	68			
<i>Egretta gularis</i>	Aigrette à gorge blanche	2			

## 32. Angola



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### Results of January 2023 counts of waterbirds in Angola

José Dala, Filipe Kodo, José Dianguessa, Sango Sá & Martin Poot



#### 1. INTRODUCTION

Since 2016, waterbird counting activities have become a regular activity in Angola. The waterbird counting activity is an important tool and constitutes an important action in the implementation of the national strategy on the conservation of biodiversity, regarding the strengthening of knowledge and monitoring of coastal and marine biodiversity of Angola as well as in the implementation of the actions of conventions and multilateral agreements signed by Angola on migratory bird species and their habitats.

The waterbird counts of this year 2023 were conducted in north Angola by the NGO BIOCON-

SERV and INBC (National Institute for Biodiversity and Conservation) and counted with the participation of NGO members and Institute technicians. In south Angola, the counts were carried out by technicians of Iona National Park and an expert ornithologist from the Netherlands.

The objectives are: a) To carry out bird counts along the coast of Luanda, Zaire and Bengo in the north and along the coast of Namibe including the island Baía dos Tigres in the south; b)- To identify the birds observed to the highest taxonomic level possible, and c)- To record human threats to the birds and their habitats.

#### Objectives

- Proceed the monitoring of water birds along the Angolan coast;
- Increase the coverage of coastal wetlands, including the locations of Soyo and Nzeto;
- Record human threats to birds and their habitats in the selected areas.

#### 2. SITES AND METHODOLOGY

Angola has an extensive coastline of 1650 km, from the Cabinda region (Northern Angola) to the mouth of the Cunene River (Southern Angola). The counts took place along the coast of Namibe in south Angola (figure 1) and in the provinces of Luanda, Zaire and Bengo (figure 2) in north Angola.

In terms of methodology used in north Angola, the counting groups were assembled at a pre-

announced location and from there the groups were distributed to the counting sites. Each group was responsible for conducting the count at a fixed point or conducting transects using cars, motor boats and on foot, thus covering kilometres and kilometres.

In south Angola the counting group consisted of two - three persons and the operations started specially with the search for expected breeding locations of Damara terns in the northern part of Iona National Park. Transport was by 4WD along the coast of Tombwa and along the coast of Iona National Park as south as the southern tip of Baía dos Tigres. In order to reach the island Baía dos Tigres a suitable ship was hired.

From the participation and institutional involvement point of view, the counting operations mobilised, in north Angola, technicians from the National Institute for Biodiversity and Conservation of the Ministry of Environment in addition to voluntary members of the Association BIOCONSERV. While in south Angola, the counts were carried out by technicians from Iona National Park and an expert ornithologist from the Netherlands.

Counters in the north have mainly used the standard equipment being binoculars, cameras,

telescopes, identification guides, notepads and GPS etc while in the south the app Obsmap/iObs was used in addition for the data collection. Doing like this, data is automatically stored with GPS location and when uploaded shared as open data to the GBIF international biodiversity database. Then after, data were downloaded for own use and processed for analysis and presentation.

### 3. RESULTS AND DISCUSSION

In north Angola, in the seven sampled counting areas a total of 34 species was recorded, making a total of 1,806 individuals, with the species *Actitis hypoleucos* being the most numerous with a total of 363 individuals in the lagoon of the wetland of Praia de São Tiago, Bengo province. Second numerous was *Phoenicopus roseus* with a total of 200 individuals, the majority, of which 90.5% was recorded in the Integral Natural Reserve of Ilhéu dos Pássaros, Luanda province.

The greatest diversity of species was recorded in the Ilhéu dos Pássaros Integral Nature Reserve, Luanda with 16 species.

The coastal zone of southern Angola covers 200 km of coast up to the Namibian border and



Figure 1. Map of the location of the count sites in south Angola

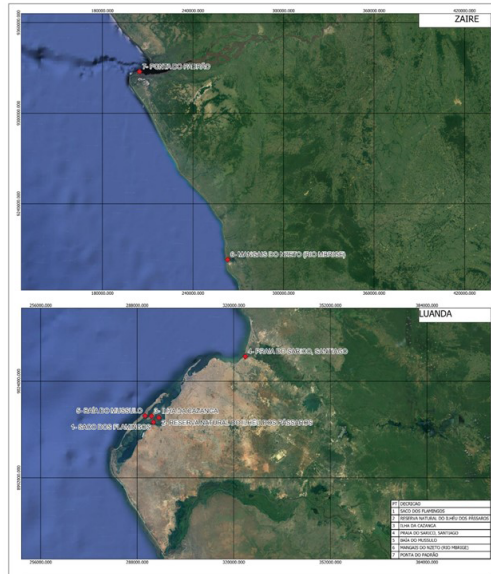


Figure 2. Map of the location of the count sites in north Angola.

is a scenically very spectacular area. Here lies a very extensive sandy desert area, part of which, about 80 km long, consists of dunes up to more than 100 m high. There are three large sand bars on this coast, within which there are mudflats teeming with many thousands of water birds. Besides many migratory birds, there are also many local African waterbirds there including, most prominently, pelicans, flamingos and the many tens of thousands of Cape cormorants. There is also the desert island Baia dos Tigres that has been visited by ship.

In table 1 the totals per waterbird species is given (Angola North and South combined). The importance of Angola for the globally rare species *Phalacrocorax capensis* is evident. Notable also was the large number of sanderlings counted, around 7,500. Also for the currently severely threatened Sandwich Tern over 3.5% of the biogeographical population stays along the south Angola coast. And it is clear that for both species this must be under estimated figures because not all suitable areas for these species along the coast of Angola have been covered. Remarkably, three groups of 25 knots were found, clearly of the long-billed subspecies *Calidris c. canutus*. This is the subpopulation that migrates all the way to southern Africa, but had not been observed for several years. As a 'by-catch', small colonies of Damara terns *Sternula balaenarum* were found on the island Baia dos Tigres and along the north coast of Iona National Park, the northernmost breeding events in Africa of this endemic species of the Namibian coast at present.

In the north part of the country, the major concerns about environmental degradation are the presence of large clumps of solid plastic waste on the beaches due to low waste collection activity in coastal cities, as well as the lack of environmental education of beach goers who leave waste generated during their recreation. In Saco dos flamingos (Luanda) the threats of land occupation for construction tend to increase every year. Another the greatest registered threat (São Tiago lagoon) has to do with the increase of artisanal and semi-industrial salt production in an uncontrolled way and the cutting of matebeira, a kind of palm tree (*Hyphaene guineensis*) to manufacture commercial handicraft and the collection of mabangas (*Arca senilis*) in the Ilhéu dos Pássaros Integral Nature Reserve.

Along the entire coast of southern Angola, fishing is a major threat to waterbirds. Baia dos Tigres were found several fishing villages. People living there not only fish in the protected coastal area including coastal bays, but also harvest eggs in the bird colonies. The extent of the impact of fishing activities is unknown. It involves not only taking away potential food for birds and affecting the ecosystem food chain, but also disturbing resting and foraging areas for birds.

Near Tombwa, the pressure of fishing activities in the bays and along the coast is even greater. Pollution of bays and beaches by rubbish also plays a role. In the mouth of the river Curoca, salt mining, agricultural activities and hunting specifically play a role.

## Acknowledgements

Thanks to Wetlands International, BirdLife International and Wadden Sea Flyway Initiative whose financial support allowed us to carry out the counts and to all the members of the Association BIOCONSERV and INBC who, in the spirit of volunteerism and with their hands in conservation, were able to give their support to these counts. Iona National Park is sincerely thanked for all logistic support, including making available two 4WD's with experienced staff, support in arranging the visit by ship to the island Baia dos Tigres, board and lodging and many more, with special thanks to Pedro Monteroso and Bruce Bennet. Many thanks also to the crew of the ship Kiss for safe transport and good services on board.

Table 1. Totals per waterbird species counted in Angola in January–February 2023

Scientific name	Common name (EN)	Total 2023	Scientific name	Common name (EN)	Total 2023
<i>Alopochen aegyptiaca</i>	Egyptian Goose	2	<i>Charadrius pecuarius</i>	Kittlitz's Plover	6
<i>Anas capensis</i>	Cape Teal	9	<i>Charadrius marginatus</i>	White-fronted Plover	40
<i>Phoenicopterus roseus</i>	Greater Flamingo	2,368	<i>Numenius phaeopus</i>	Whimbrel	68
<i>Phoeniconaias minor</i>	Lesser Flamingo	58	<i>Numenius arquata</i>	Eurasian Curlew	38
<i>Mycteria ibis</i>	Yellow-billed Stork	1	<i>Limosa lapponica</i>	Bar-tailed Godwit	29
<i>Anastomus lamelligerus</i>	African Openbill	8	<i>Arenaria interpres</i>	Ruddy Turnstone	33
<i>Platalea alba</i>	African Spoonbill	1	<i>Calidris canutus</i>	Red Knot	25
<i>Threskiornis aethiopicus</i>	African Sacred Ibis	22	<i>Calidris ferruginea</i>	Curlew Sandpiper	627
<i>Bubulcus ibis</i>	Cattle Egret	13	<i>Calidris alba</i>	Sanderling	7,529
<i>Ardea cinerea</i>	Grey Heron	103	<i>Calidris minuta</i>	Little Stint	119
<i>Ardea melanocephala</i>	Black-headed Heron	1	<i>Actitis hypoleucos</i>	Common Sandpiper	6
<i>Egretta ardesiaca</i>	Black Heron	2	<i>Tringa nebularia</i>	Common Greenshank	45
<i>Egretta garzetta</i>	Little Egret	262	<i>Larus dominicanus</i>	Kelp Gull	3,204
<i>Pelecanus onocrotalus</i>	Great White Pelican	441	<i>Larus fuscus</i>	Lesser Black-backed Gull	14
<i>Phalacrocorax carbo</i>	Great Cormorant	428	<i>Sternula balaenarum</i>	Damara Tern	57
<i>Phalacrocorax capensis</i>	Cape Cormorant	55,904	<i>Hydroprogne caspia</i>	Caspian Tern	252
<i>Haematopus moquini</i>	African Oystercatcher	10	<i>Sterna hirundo</i>	Common Tern	200
<i>Recurvirostra avosetta</i>	Pied Avocet	11	<i>Thalasseus sandvicensis</i>	Sandwich Tern	6,078
<i>Himantopus himantopus</i>	Black-winged Stilt	27	<i>Thalasseus maximus</i>	Royal Tern	868
<i>Pluvialis squatarola</i>	Grey Plover	999	<i>Thalasseus bergii</i>	Greater Crested Tern	206
<i>Charadrius hiaticula</i>	Common Ringed Plover	830			

## Appendix

### List of counters (observers):

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## 33. South Africa



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### Results of January 2023 counts of waterbirds in East Atlantic South Africa

Giselle Murison & Bronwyn Maree



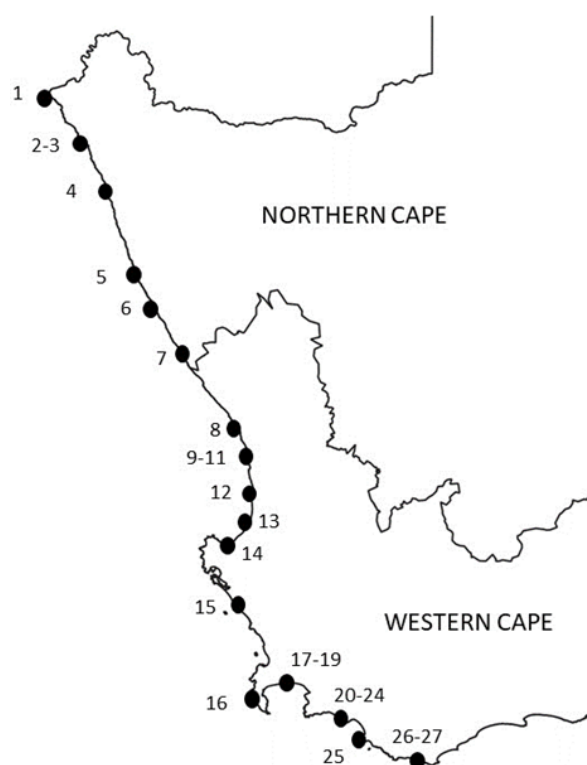
#### 1. INTRODUCTION

South Africa's East Atlantic Flyway (EAF) coastal wetland system is dominated by estuaries. Known for their rich biodiversity and the myriad of services they provide, these estuaries are amongst South Africa's most vulnerable, but valuable ecosystems. Notably, they support important populations of waterbirds, including viable populations of globally and regionally threatened bird species, such as Cape Cormorant *Phalacrocorax capensis* (Endangered), Lesser Flamingo *Phoenicopterus minor* (Near threatened) and Chestnut-banded Plover *Charadrius pallidus* (Near threatened), and Greater Flamingo *Phoenicopterus roseus* (Near threatened), Great White Pelican *Pelecanus ono-*

*crotalus* (Vulnerable), and African Marsh Harrier *Circus ranivorus* (Endangered), respectively. They are also important feeding and staging sites for significant populations of migratory birds, like Curlew Sandpiper *Calidris ferrugine* and Little Stint *Calidris minuta*. South Africa is recording substantial declines in its waterbird populations, and particularly, reduced occurrences of very high counts. There have been declines in all but one of the functional groups (i.e.: piscivorous birds of prey) and nearly all the species analysed since the 1980s. The largest overall decreases have been recorded in migratory birds, especially migratory waders (approximately, an 85% overall decrease since the 1980s). Other groups that have undergone major declines include the gulls and terns, and the omnivorous and herbivorous waterfowl. Very few South African wetland sites have long-term, consistent, waterbird count datasets. The expanded and enhanced monitoring of important coastal wetland sites is crucial to informing improved management action.

This project focused on the summer 2023 CWAC at coastal wetlands in the Western and Northern Cape, and looked to achieve the following objectives:

- To maximise CWAC coverage of critical coastal wetlands within the East Atlantic Flyway in the Western and Northern Cape, during the January–February 2023 counts, including the inclusion and survey of inactive and new Parent Waterbird Count Sites and count sites;



	Parent Waterbird Count Site
1	Orange River Estuary (Mouth)
2	Port Nolloth Salt Pan
3	McDougall's Bay
4	Buffels River Estuary
5	Swartlintjies River Estuary
6	Spoeg River Estuary
7	Groen River Estuary
8	Olifants River Estuary
9	Jakkals River Estuary
10	Lamberts Bay
11	Wadriest Estuary
12	Verlorenvlei
13	Rocherpan
14	Berg River Estuary
15	Langebaan
16	Wildevoevlei
17	Zandvlei
18	Rondevlei
19	Strandfontein Sewerage Works
20	Palmiet River Estuary
21	Bot/ Kleinmond Estuarine System
22	Onrus River Estuary
23	Vermont Salt Pan
24	Klein River Estuary
25	Uilkraals River Estuary
26	Heuningnes River Estuary/ De Mond
27	De Hoop Vlei

Figure 1. Locations of Parent Waterbird Count Sites counted during the South African East Atlantic Flyway IWC Total Count.

- To formalise CWAC survey routes at each site, through their digitization and mapping, to allow for better standardization and uptake of future counts; and
- To introduce and train more volunteers in CWAC, to ensure CWAC is sustained going forward, including assignment of observers to new sites.

## 2. METHODOLOGY

CWAC follows a prescribed [methodology](#) and [counting technique](#). CWAC protocols follow best practice, bird monitoring guidelines, including set transect routes and count times, and the use of standardised counting techniques. Participants at each site included experienced observers capable of training/ mentoring others. Counts were done on foot, by car, or by boat (where access to the shoreline was highly restricted), using binoculars and telescopes to ensure accurate identification and numbers of birds are recorded.

The 2023 summer counts were carried out between 15 January and 27 February. A total of 27 Parent Waterbird Count Sites were surveyed in 2023, including seven sites in the Northern Cape, previously discontinued for survey (see Map 1). Table 2 provides more detail on the methodology employed at each site.

Data was also entered into the relevant CWAC data forms and submitted to the South African CWAC site database. All new (and discontinued) CWAC sites were submitted for (re-) registration.

## 3. RESULTS

The counted totals per species are presented in Table 1. The pressures per site are presented in Table 2.

### Acknowledgements

With grateful thanks to all partners in the 2023 Summer Total Count: CapeNature, West Coast District Municipality, SANParks, City of Cape Town, University of Cape Town (Michael Brooks), Cape Bird Club, West Coast Bird Club, Tygerberg Bird Club, BirdLife Overberg, Hermanus Bird Club, Stanford Bird Club, Kleinmond Bird Club, Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform, Beverley Moll (CWAC Coordinator – Berg River estuary), Carin Malan (CWAC Coordinator – Cape Whale Coast sites) and, with thanks to all the many other volunteers involved.

Table 1. Total number counted at East Atlantic coast of South Africa for most important species.

Scientific name	Common name (EN)	Total 2023	Scientific name	Common name (EN)	Total 2023
<i>Dendrocygna viduata</i>	White-faced Whistling-duck	16	<i>Microcarbo africanus</i>	Long-tailed Cormorant	643
<i>Dendrocygna bicolor</i>	Fulvous Whistling-duck	32	<i>Phalacrocorax carbo</i>	Great Cormorant	845
<i>Alopochen aegyptiaca</i>	Egyptian Goose	4,833	<i>Phalacrocorax capensis</i>	Cape Cormorant	15,980
<i>Tadorna cana</i>	South African Shelduck	1,025	<i>Anhinga rufa</i>	African Darter	178
<i>Plectropterus gambensis</i>	Spur-winged Goose	3,105	<i>Haematopus moquini</i>	African Oystercatcher	292
<i>Spatula smithii</i>	Cape Shoveler	2,482	<i>Recurvirostra avosetta</i>	Pied Avocet	606
<i>Anas undulata</i>	Yellow-billed Duck	1,184	<i>Himantopus himantopus</i>	Black-winged Stilt	1,082
<i>Anas capensis</i>	Cape Teal	1,245	<i>Pluvialis squatarola</i>	Grey Plover	697
<i>Anas erythrorhyncha</i>	Red-billed Teal	86	<i>Charadrius hiaticula</i>	Common Ringed Plover	1,164
<i>Tachybaptus ruficollis</i>	Little Grebe	524	<i>Charadrius pecuarius</i>	Kittlitz's Plover	1,261
<i>Podiceps cristatus</i>	Great Crested Grebe	450	<i>Charadrius marginatus</i>	White-fronted Plover	442
<i>Podiceps nigricollis</i>	Black-necked Grebe	369	<i>Charadrius pallidus</i>	Chestnut-banded Plover	122
<i>Phoenicopterus roseus</i>	Greater Flamingo	4,397	<i>Numenius phaeopus</i>	Whimbrel	352
<i>Phoeniconaias minor</i>	Lesser Flamingo	2,903	<i>Numenius arquata</i>	Eurasian Curlew	3
<i>Zapornia flavirostris</i>	Black Crake	5	<i>Limosa lapponica</i>	Bar-tailed Godwit	57
<i>Porphyrio porphyrio</i>	Purple Swamphen	11	<i>Arenaria interpres</i>	Ruddy Turnstone	258
<i>Gallinula chloropus</i>	Common Moorhen	166	<i>Calidris canutus</i>	Red Knot	1
<i>Fulica cristata</i>	Red-knobbed Coot	7,944	<i>Calidris pugnax</i>	Ruff	72
<i>Platalea alba</i>	African Spoonbill	267	<i>Calidris ferruginea</i>	Curlew Sandpiper	6,149
<i>Threskiornis aethiopicus</i>	African Sacred Ibis	2,439	<i>Calidris alba</i>	Sanderling	836
<i>Plegadis falcinellus</i>	Glossy Ibis	89	<i>Calidris minuta</i>	Little Stint	4,223
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron	39	<i>Actitis hypoleucos</i>	Common Sandpiper	11
<i>Bubulcus ibis</i>	Cattle Egret	269	<i>Tringa nebularia</i>	Common Greenshank	739
<i>Ardea cinerea</i>	Grey Heron	250	<i>Tringa glareola</i>	Wood Sandpiper	1
<i>Ardea melanocephala</i>	Black-headed Heron	37	<i>Tringa stagnatilis</i>	Marsh Sandpiper	13
<i>Ardea goliath</i>	Goliath Heron	10	<i>Larus hartlaubii</i>	Hartlaub's Gull	3,026
<i>Ardea purpurea</i>	Purple Heron	19	<i>Larus cirrocephalus</i>	Grey-headed Gull	32
<i>Ardea alba</i>	Great White Egret	1	<i>Larus dominicanus</i>	Kelp Gull	6,285
<i>Ardea brachyrhyncha</i>	Yellow-billed Egret	6	<i>Sternula albifrons</i>	Little Tern	11
<i>Egretta garzetta</i>	Little Egret	454	<i>Hydroprogne caspia</i>	Caspian Tern	203
<i>Scopus umbretta</i>	Hamerkop	1	<i>Sterna hirundo</i>	Common Tern	12,668
<i>Pelecanus onocrotalus</i>	Great White Pelican	220	<i>Thalasseus sandvicensis</i>	Sandwich Tern	364
			<i>Thalasseus bergii</i>	Greater Crested Tern	701

Table 2. Current ecological status of each estuarine system/ current condition of wetland site, as well as key pressures faced by each site. Ecological Status (A: natural; B: Largely natural/ few changes; C: Moderately modified; D: Largely modified; E: Highly degraded; F: Extremely degraded) – taken from *South African National Biodiversity Assessment (2018) – Estuarine realm technical report*.

Site No.	Site name	Present Ecological Status	Wetland Condition (at time of count)	Pressures
1	Orange	D	Partially flooded, due to of recent high rainfall.	Significantly reduced flow and water quality, pollution, mining, massive habitat loss (including, transformation of Estuarine Functional Zone to agriculture/ livestock grazing) and degradation (floodplain/ saltmarsh artificially cut off from main system – reduced wetting/ flooding).
2	Port Nolloth Saltpan	n/a	Dry. Poor condition.	Dumping. Litter. 4x4 driving. Mining.
3	McDougall's Bay	n/a	Beach Et offshore island.	Disturbance from beach areas. Reduced bird food availability offshore.
4	Buffels	D	Partially flooded, due to of recent high rainfall.	Significantly reduced flow and water quality, high levels of pollution, mining, significant habitat loss, invasive alien plants, mining.
5	Swartlontjies	B	Partially flooded, due to of recent high rainfall.	Some estuarine habitat loss.



Site No.	Site name	Present Ecological Status	Wetland Condition (at time of count)	Pressures
6	Spoeg	A/B	Dry.	Issues with reduced flow.
7	Groen	B	Partially flooded, due to of recent high rainfall.	Some issues with reduced flow.
8	Olifants	C	Partially flooded, due to of recent high rainfall.	Reduced water quality and high levels of pollution, some issues with reduced flow, very high fishing pressure, invasive alien plants, very high counts of invasive alien fish, significant pressure from mining.
9	Jakkals	D	Dry. Area of West Coast in 7th year of drought.	Significantly reduced flow and water quality, pollution, habitat loss, mining.
10	Lamberts Bay	n/a	Beach & offshore island.	Disturbance from beach areas. Reduced food availability offshore.
11	Wadrift	E	Completely dry. Area of West Coast in 7th year of drought.	Significantly reduced flow and water quality, high levels of pollution, mining, significant habitat loss.
12	Verlorenvlei	D	Dry. Little standing water. Water acidic. Area of West Coast in 7th year of drought.	Significantly reduced flow and water quality (significant overallocation of resources and overabstraction in catchment), high levels of pollution, mining, habitat loss, invasive alien fish. Significant pressure from mining in the catchment. Heavily impacted by climate change.
13	Rocherpan	n/a	Completely dry. Area of West Coast in 7th year of drought.	Reduced rainfall in drying western region, heavily impacted by climate change.
14	Berg	C	Little standing water in floodplain. Area of West Coast in 7th year of drought. Mouth permanently open.	Significantly reduced flow and water quality, high levels of pollution, habitat loss, high levels of fishing pressure, invasive alien fish.
15	Langebaan	B	Partly flooded.	High levels of fishing pressure.
16	Wildevoelivlei	D/E	Water levels normal.	Very high levels of pollution, habitat loss, invasive alien plants
17	Zand	D	Water levels normal.	Significantly high levels of pollution and habitat loss, as well as high levels of invasive alien fish, disturbance, and fishing pressure.
18	Rondevlei	n/a	Artificial system, managed for birds. Low water levels.	Low water levels, poor water quality, pollution.
19	Strandfontein Sewerage Works	n/a	Artificial system.	Low water levels, poor water quality, pollution, disturbance.
20	Palmiet	C	Mouth open. Water levels normal.	Habitat loss, invasive alien fish, with some flow, water quality and pollution issues.
21	Bot/ Kleinmond	C	Mouth closed.	Significantly high levels of fishing pressure (incl. poaching), high levels of pollution and invasive fish species, with some reduced freshwater inflow and water quality, issues around mouth management (artificial breaching), disturbance.
22	Onrus	D	Mouth closed.	Very high pollution levels, with reduced freshwater inflow and water quality, and high levels of invasive alien fish, disturbance.
23	Vermont	n/a	Artificial system, reliant on rainfall. Flooded.	Low water levels, poor water quality, pollution, disturbance.
24	Klein	C	Mouth closed.	High levels of pollution and reduced water quality, habitat loss, disturbance, high levels of invasive alien plants and fish, and very high levels of fishing (incl. poaching).
25	Uilkraals	D	Mouth open.	Significantly reduced flow and water quality, high levels of pollution, habitat loss, some fishing pressure.
26	Heuningnes/ De Mond	C/D	Mouth open.	Habitat loss, and very high levels of invasive alien fish, invasive alien plants, with some issues around reduced freshwater inflow and water quality, and some fishing pressure.
27	De Hoop	n/a	Water levels normal.	Pollution. Disturbance.

**Simultaneous January 2023 waterbird and  
wetland census along the East Atlantic Flyway:  
National Reports**

