

The wintering shorebirds (Aves, Charadrii) in Mauritania: principal species, and wetlands of major importance

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Abstract

The analysis of the distribution wintering waders in Mauritania demonstrated that most of these birds (77 %) are distributed on the Atlantic coast. In fact, this is mainly along this coast that the habitat preferences of this group (sand, mudflats, and near wet grassland) are relatively well represented. Also, the main shorebird populations in Mauritania can be classified into three categories based on their geographical distribution method: Species whose distribution is spread all along the Atlantic coast; these waders seem to favor any latitude. The Mauritanian coast for these species represents continuity between their wintering grounds in Western Europe and those of West Africa. Populations whose distribution is restricted to the northern region of Mauritania; the southern limit of their wintering areas is for these populations. Populations confined mainly in the southern coastal areas the southeastern coast of Mauritania represents, consequently, the northward extension of the main areas of these populations winter in West Africa. From this point of view, the Mauritanian territory constitutes, along through the migration east – Atlantic, a transition zone between Western Europe and West Africa; the northern part of the country plays a role analogous to that of Western Europe, while its southern part is similar to West Africa. The dividing line between the two sectors is represented by the line up of Nouakchott-Nema..

Keywords: Shorebirds, wintering, Diawling National Park, Banc d'Arguine National Park, wetland, Mauritania.

Résumé

L'analyse de la distribution des limicoles hivernants en Mauritanie a montré que la plupart de ces oiseaux (77 %) sont répartie sur la côte Atlantique. En fait, principalement le long de cette côte que les préférences d'habitat de ce groupe (sable, vasières et près de prairie humide) sont relativement bien représentés. En outre, les populations d'oiseaux de rivage principal en Mauritanie peuvent être classées en trois catégories selon leur mode de distribution géographique: espèces dont la répartition s'étend tout au long de la côte Atlantique; ces échassiers semblent privilégier toutes les latitudes. La côte Mauritanienne pour ces espèces représente la continuité entre leurs aires d'hivernage en Europe occidentale et celles de l'Afrique de l'Ouest. Les populations dont la distribution est restreintes à la région du Nord de la Mauritanie; la limite Sud de leur aire d'hivernage est pour ces populations. Les populations principalement confinées dans les régions côtières du Sud, que la côte sud-est de la Mauritanie représente, par conséquent, l'extension vers le nord des zones principales de ces populations hivernent en Afrique de l'Ouest. A ce point de vue, le territoire Mauritanien constitue, au long de la migration dans l'Est– Atlantique, une zone de transition entre l'Europe occidentale et d'Afrique de l'Ouest; la partie septentrionale du pays joue un rôle analogue à celui de l'Europe occidentale, tandis que sa partie méridionale est similaire à l'Afrique de l'Ouest. La ligne de démarcation entre les deux secteurs est représentée par la ligne de transition de Nouakchott à Nema.

INTRODUCTION

With many wetlands and 720 km of coast that belong the flyway East Atlantic, Mauritania plays a major role in the migration of water birds. Within these, shorebirds are the most important in their numbers and diversity. This is mainly due the presence of several large coastal wetlands which constitute the principal areas of stops and feeding ground for species that winter south of the Sahara. Of these areas the National Park of Arguin Bank in Mauritania is numerically the most important wintering site for waders along the East Atlantic Flyway (Trotignon et al., 1980, Engelmoer et al., 1984, Smit et Piersma 1989) not less than 2 million of the total of 7 million coastal waders exist here in winter. However, another 1,5 million

waders winter along the W. African coast south of the Banc d'Arguin (Smit & Piersma 1989) and some of these are thought to follow the coast during northward migration (e.g. Knot *Caiidris canutus*, Dick et al., 1987).

This work represents a new approach to the analysis of wintering shorebirds based on the regular census data that spans a period of 5 years. This approach has been proposed in order to update and reinforce our knowledge of wintering waders, one of the major components of aquatic birds, in National Parks of the Banc d'Arguin and Diawling.

MATERIAL AND METHODS

The principal period considered in this analysis is from 2005

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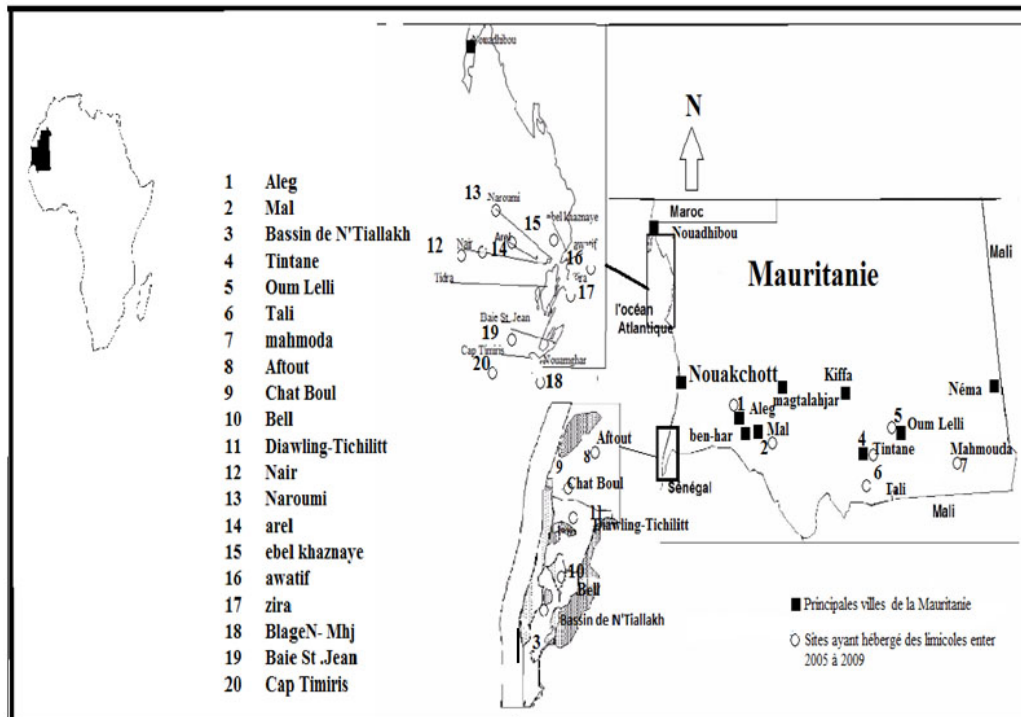


Figure 1: Location of wetlands which housed Mauritanian waders during the winters from 2005 to 2009

Table 1: Presentation by functional site, the implementation rate of counts synchronized to the whole period (2005-2009).

N°	Sites	2005	2006	2007	2008	2009	Total
1	Aleg	1	1	1	1	1	5
2	Mal	1	1	1	1	1	5
3	Bassin de N'Tiallakh	0	1	0	1	0	2
4	Tintane	1	1	1	1	1	5
5	Oum Lelli	1	1	1	1	1	5
6	Tali	1	1	1	1	1	5
7	mahmoda	1	1	1	1	1	5
8	Aftout	12	12	12	12	12	60
9	Chat Boul	12	12	12	12	12	60
10	Bell	12	12	12	12	12	60
11	Diawling-Tichilitt	12	12	12	12	12	60
12	Nair	0	0	1	1	1	3
13	naroumi	0	0	1	1	1	3
14	arel	0	0	1	1	1	3
15	ebel khaznaye	0	0	1	1	1	3
16	awatif	0	0	1	1	1	3
17	zira	0	0	1	1	1	3
18	PlageN-Mouhj	0	0	1	1	1	3
19	baie st jean	0	0	1	1	1	3
20	cap tim	0	0	1	1	1	3

to 2009 (5 years), but we also considered the period 2000-2005 to compare the number of wintering birds recorded in the two periods. The number of wetlands surveyed at least once during the winter between 2005 and 2009 amounted to 30 sites, 20 of which harbored shorebirds (Figure 1).

The mean number of each species in each of 20 wetlands is the sum of the populations recorded at each visit, which divides the number of field campaigns concerned with this site. The strength per nation of each species of wader is then calculated by adding the average number found in all 20 wetlands.

The digital data are taken into account between January 2005 and December 2009. We thus have four annual cycles, followed by monthly. The numbers located on the site are differentiated to compare with those observed on the altars outside the nature reserve. According to locality, digital data collected can correspond to almost all staff present throughout the functional site or the contrary; represent a very small proportion of shorebirds present at the local functional scale (Table 1).

The collected data allowed us to calculate a certain number of indications including:

The average per site (EMS) obtained by dividing the sum of effective annual (January) identified by the number of years (between 2005 and 2009) when this site had been visited; the effective national average (ENM) of a species is the sum of its average workforce calculated for all 20 sites (ENM = Σ EMS).

RESULTS

The overall number of wintering waders in Mauritania amounted to more than 1314786 birds (Table 2); this number represents an increase of nearly 22% compared to that recorded for the period 2000-2004, this is caused by an increase in staff from a number of wading birds including the Common Redshank *Tringa totanus* (41516%), The Ringed Plover *Charadrius hiaticula* (15485%), the Black-winged Stilt *Himantopus himantopus* (5697%), the Eurasian Curlew *Numenius arquata* (1301%), Grey Plover *Pluvialis squatarola* (1116%). Only the number of Ruddy Turnstone *Arenaria interpres* as a significant decrease of approximately (-87%).

The most common species are: Little Stint *Calidris minuta*; Dunlin *Calidris alpina*, Black-winged Stilt *Himantopus himantopus*; Bar-tailed Godwit *Limosa lapponica*,

Table 3: Effective of the major wintering waders in Mauritania calculated for the periods 2000-2004 and 2005-2009

Species	2000-2004	2005-2009
<i>Recurvirostra avosetta</i>	6777	38587
<i>Limosa limosa</i>	44025	56966
<i>Limosa lapponica</i>	121694	123159
<i>Calidris ferruginea</i>	33488	37337
<i>Calidris minuta</i>	238599	290610
<i>Calidris canutus</i>	96096	96441
<i>Calidris alba</i>	26144	30168
<i>Calidris alpina</i>	232290	237481
<i>Tringa nebularia</i>	3053	3966
<i>Tringa erythropus</i>	134	245
<i>Philomachus pugnax</i>	63548	67979
<i>Tringa ochropus</i>	87	113
<i>Tringa totanus</i>	123	51188
<i>Actitis hypoleucos</i>	894	1442
<i>Tringa stagnatilis</i>	456	3797
<i>Numenius arquata</i>	176	2465
<i>Numenius phaeopus</i>	48283	97883
<i>Cursorius cursor</i>	234	1499
<i>Himantopus himantopus</i>	1918	111188
<i>Charadrius hiaticula</i>	213	33197
<i>Charadrius alexandrinus</i>	345	2176
<i>Charadrius dubius</i>	546	1663
<i>Pluvialis squatarola</i>	443	5386
<i>Charadrius forbesi</i>	120	300
<i>Vanellus spinosus</i>	2416	7263
<i>Arenaria interpres</i>	97785	12287
TOTAL	1019887	1314786

The overall distribution of shorebirds is primarily along the Atlantic coast (Figure 1, Table 4); near about 77% of wintering birds were recorded on wetlands located on the west coast of Mauritania. Also, the four best sites for wintering waders in Mauritania are all Atlantic (Table 5); they combined a workforce of 820, 296 birds approximately 62% of the overall number of wintering birds Mauritania. Note that among the four wetlands, the Diawling National Park (PND) and The Banc d'Arguin National Park are already listed in the Ramsar Convention, Aleg and mahmoda are currently proposed for the listing.

Table 4: Effective of wintering waders in Mauritania by geographic sector

Geographic areas	Number of sites prospected	Effective	
		Absolute	Related
Atlantic Coast	14	1017896	77
Inside the country	6	296892	23

In general, the Waders in Mauritania can be grouped into three categories based on their distribution: the Species which occur all along the Atlantic coast, without any favored sites; The Ringed Plover *Charadrius hiaticula*; Kentish Plover *C. alexandrinus*; Grey Plover *Pluvialis squatarola*; Dunlin *Calidris alpina*; Little Stint *Calidris minuta*; Common Redshank *Tringa totanus*; indicate this tendency. The Species whose distribution is restricted to northern Mauritania, this tendency is represented by Eurasian Oystercatcher *Haematopus ostralegus*; Red Knot *Calidris canutus*; sanderling *C. Alba* and Curlew Sandpiper *C. ferruginea*; together with Bar-tailed Godwit *Limosa lapponica*.

Species found primarily on the southern Mauritania coast these are: Black-winged Stilt *Himantopus himantopus*; Pied Avocet *Recurvirostra avosetta*; European Golden Plover *Pluvialis apricaria*; Black-tailed Godwit *Limosa limosa*.

DISCUSSION

The geographical distribution of wintering birds is mainly along the Atlantic coast of Mauritania, even then its species distribution usually is in continental like Northern Lapwing *Vanellus vanellus*; Black-tailed Godwit *Limosa limosa*; Ruff *Philomachus pugnax*.

One of major reason in that are the favorable habitats for shorebirds (mudflats, sand and sandy beaches, rocky flats, salt marshes, swamps and wet grasslands) are more represented and more extensive along the Atlantic coast compared to continental wintering sites.

Table 5: The four best sites wintering waders in Mauritania

Sites	Absolute	Related
Naroumi	395630	30
Awatif	193680	15
Arel	120870	9
Diawling-Tichilitt	110116	8
Total	820296	62

On the other hand, the reception capacity of continental wetlands are limited by their fragility and temporality (the depth of the water is often very low) because they are located mostly in Sahelian regions and are often exploited. These are a source of non negligible disturbance for the birds. The only exceptions are represented by wetlands in the region of Mahmouda in the backcountry of the city of Nema which uses to host large numbers of wintering shorebird populations in Mauritania.

We also note that the distribution of a number of waders was essentially along the South Atlantic coast of Mauritania; they include Black-winged Stilt *Himantopus himantopus*; Pied Avocet *Recurvirostra avosetta* and Black-tailed Godwit *Limosa limosa*.

Other species like Eurasian Oystercatcher *Haematopus ostralegus*; Red Knot *Calidris canutus*; Sanderling *C. Alba*; Curlew Sandpiper *C. ferruginea*; or Bar-tailed Godwit *Limosa lapponica*; were distributed mainly along the northern sector of the Atlantic coast Mauritanian; this sector was consisted by the great area of wintering (Banc d'Arguin). Even in the case of Dunlin *Calidris alpina*, that demonstrates a continuous distribution throughout the Atlantic coast. It seems that the subpopulation *schinzii* of northwestern Europe and the population *alpina* winter in the southern part of Mauritania when the subpopulation *schinzii* in Iceland-Greenland and the population *arctica* rather spend the winter along the North-Atlantic coast (Pienkowski et Dick 1975, Smit et Piersma 1989). This may also be the case of Common Ringed Plover *Charadrius hiaticula*, which is a part of West-European winter in southern Mauritania.

CONCLUSION

From this point of view, the Mauritanian territory constitutes, along the through migration east – Atlantic, a transition zone between Western Europe and West Africa; the northern part of the country plays an important role analogous to that of Western Europe, while its southern part is similar to West Africa. The dividing line between the two sectors is represented by the lineup of Nouakchott-Nema.

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