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Bird records in the Diawling National Park and surrounding areas, Mauritania

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Introduction

The Diawling National Park, located in southern Mauritania close to the Senegal border, is a coastal floodplain included in a Ramsar Wetland (Fig. 1). With a highly saline substrate, one third of the park is seasonally flooded by freshwater from the Senegal river (Sow *et al.* 2017). Biogeographically, it lies in the westernmost part of the Sahel; its vegetation is dominated by an Acacia savannah (Dinerstein *et al.* 2017), a xerophilous open woodland common south of the Sahara desert.

The Sahel is a transition region where the desert meets the forest, hosting bird communities composed of both Afrotropical and Palearctic species (Dinerstein *et al.* 2017). On the one hand, it is the northern limit of the distribution for several highly diverse tropical bird families, such as *Estrildidae* and *Nectariniidae*, which have some representatives living in the semi-dry savannah forests. On the other hand, the Sahel is the southern range limit for western Palearctic species, and the winter headquarters of most of the trans-Sahara migrants, which cross the Sahara desert after breeding in Europe. It has been estimated that up to 2.1 billion birds make the seasonal trans-Saharan migration from Europe (Hahn *et al.* 2009).

For these reasons, the arid forests of the Sahel host unique bird communities in winter, in which, for example, the Palearctic breeders *Sylvia* and *Phylloscopus* share the same habitat with the African residents *Ploceus* and *Tockus*.

Scarce and scattered permanent water bodies, in the otherwise arid environment of Mauritania, provide valuable habitat for resident and migrating waterfowl and passerines. Some examples are the abundant *Dendrocygna viduata* and the poorly known *Acrocephalus paludicola* (Triplet & Yésou 2000, Salewski *et al.* 2019). In this report we present the bird records obtained during two expeditions in the winter 2019-2020, conducted to monitor the Sahelian biodiversity.

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Methods

Two field expeditions to the Diawling National Park were carried out: the first one from 27 to 30 December 2019 (participants: AQ, MLMH & HB) and the second from 18 to 24 January 2020 (PAA, XSI, MP & ZB). The first expedition was focused on the Park while the second one also included several locations in the surrounding Sahelian savannah. Birds were observed both in the wetlands and in the savannah, and the GPS coordinates of bird observations were registered. Species identification was performed using binoculars and digital cameras based on Borrow & Demey (2004), Sinclair & Ryan (2010) and Svensson *et al.* (2009). The 6th edition of the Clements Checklist of the Cornell Lab of Ornithology was the reference used for the taxonomic classification (https://www.birds.cornell.edu/clementschecklist/).

Results

We identified 136 species within the Diawling National Park during the first expedition. We identified 321 records of 114 species in the Park and 30 records of 20 species outside of the Park, during the second expedition (Table 1). In total, 167 species were identified (Table 1, Fig. 1).

Discussion

The results show that a high diversity and abundance of birds can be identified in this area over the course of a few day long surveys. Due to its habitat diversity (Fig. 2), the Diawling National Park hosts a very rich bird community, while only few arid adapted species occur in the surrounding areas (Fig. 1, Table 2). Most of the passerines were observed in the open woodlands (Fig. 3). Wetlands attracted several water-specialist species (Fig. 4), sometimes in large numbers: e.g. a group of ca. 120 *Pelecanus onocrotalus*, about 800 *Dendrocygna viduata*, and many pairs of the iconic *Haliaeetus vocifer* were recorded (Table 2).

The only species recorded outside, but not inside, the protected area was *Eremomela icteropygialis*, a widely distributed member of the diverse African *Cisticolidae*. In addition, *Corvus albus*, although observed both inside and outside the Park, was more abundant outside where it was seen in six different locations, sometimes in large groups of up to 30 birds. Two other records are worth of interest. One *Caprimulgus eximius* was observed (21.01.2020) at night in the dunes of the Park. Although this species has been previously recorded in the Park, there are just 41 records on eBird (https://ebird.org/species/golnig1), which is a very low figure considering it is thought to be distributed across the entire Sahel (Sinclair & Ryan 2010). This species is undergoing a northwards expansion; it has been recorded in southern Morocco since 2015 (Bergier *et al.* 2017) and its breeding has been confirmed 60 km north of Aousserd in 2019 (M.L. Samali comm. pers.). Likewise, one individual of *Halcyon leucocephala* was observed (21.01.2020) flying over a small lake. This species had been already seen in nearby Senegal and to the E in Mauritania, but not in the Diawling National Park.

Our survey emphasizes the importance of the Diawling National Park and surrounding savannah for birds, both African residents and Palearctic migrants. Research and action are needed in the Sahel to set the basis for biodiversity conservation and sustainable human development in such a diverse landscape, which will likely be affected in the coming decades by climate change and habitat conversion.

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References

Bergier, P.; Thévenot, M. & Qninba, A. 2017. *Oiseaux du Sahara Atlantique Marocain*. SEOF, Paris, 359 pp.

Borrow, N. & Demey, R. 2004. *Birds of Western Africa*. Press, Princeton University.

Dinerstein, E.; Olson, D.; Joshi, A.; Vynne, C. *et al.* 2017. An ecoregion-based approach to protecting half the terrestrial realm. *BioScience* 67(6): 534–545. doi: 10.1093/biosci/bix014

Hahn, S.; Bauer, S.; & Liechti, F. 2009. The natural link between Europe and Africa - 2.1 billion birds on migration. *Oikos* 118: 624–626. doi: 10.1111/j.1600-0706.2008.17309.x

Salewski, V.; Flade, M.; Lisovski, S.; Poluda, A.; Iliukha, O.; Kiljan, G.; Malashevich, U. & Hahn, S. 2019. Identifying migration routes and non-breeding staging sites of adult males of the globally threatened Aquatic Warbler *Acrocephalus paludicola*. *Bird Conservation International* 29 (4): 503-514. doi: 10.1017/S0959270918000357

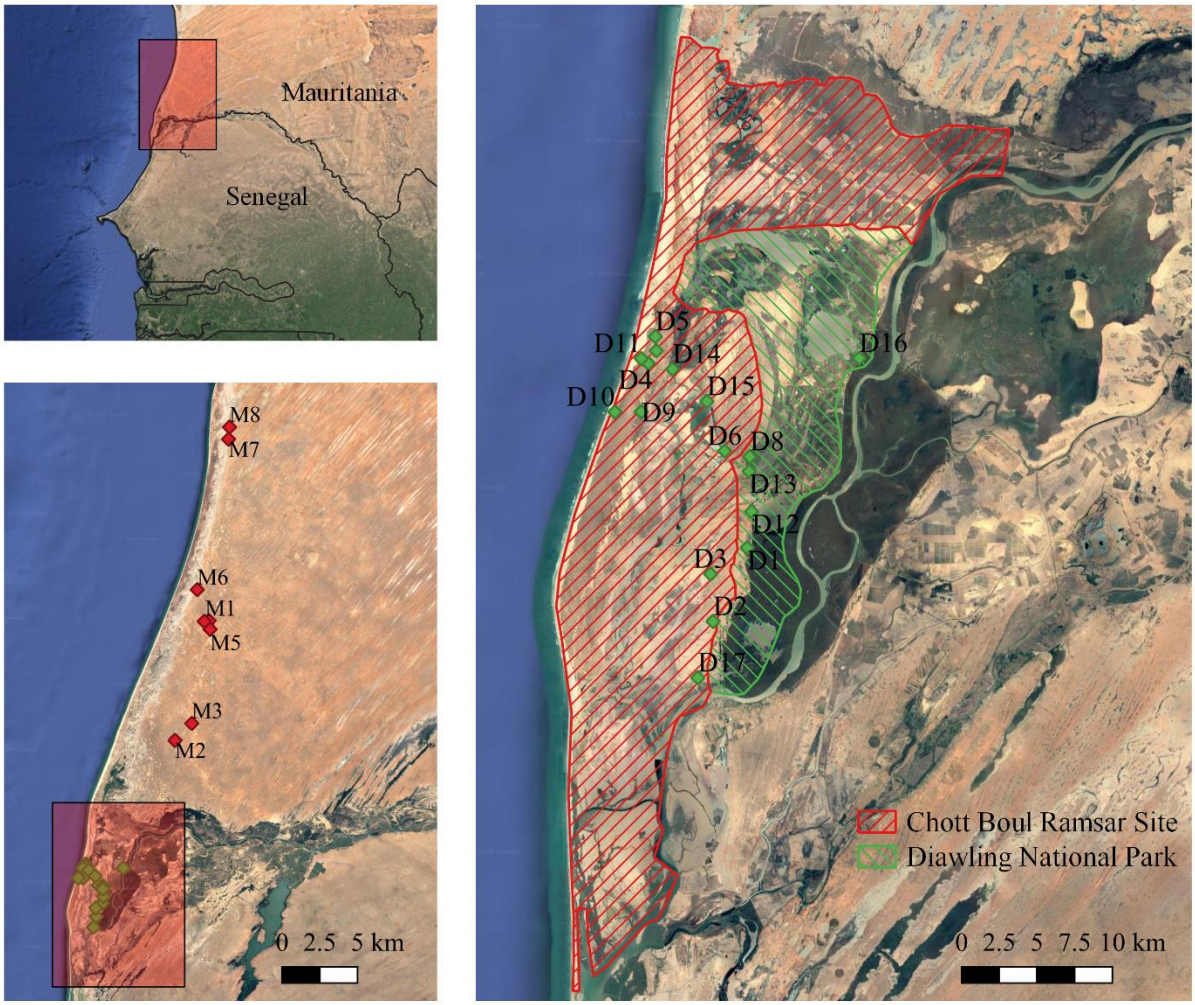
Sinclair, I. & Ryan, P. 2010. B*irds of Africa south of the Sahara (Second)*. Cape Town: Struik Nature.

Sow, A.S.; Vasconcelos Gonçalves, D.; Vieira Sousa, F.; Martínez-Freiría, F.; Santarém, F.; Velo-Antón, G.; Dieng, H.; Campos, J.C.; Khayar Diagne, S.; Boratyński, Z. & Brito, J.C. 2017. Atlas of the distribution of amphibians and reptiles in the Diawling national park, Mauritania. *Basic and Applied Herpetology*, 31: 101-116. doi: 10.11160/bah..87

Svensson, L.; Mullarney, K. & Zetterström, D. 2009. *Collins bird guide. The most complete guide to the birds of Britain and Europe*. Harper Collins Publishers Ltd., London. 445 pp.

Triplet, P. & Yésou, P. 2000. Controlling the flood in the Senegal Delta: do waterfowl populations adapt to their new environment? *Ostrich* 71(1-2): 106–111. doi: 10.1080/00306525.2000.9639883

Figure 1. Locations of bird observations inside the Chott Boul Ramsar site, Diawling National Park (green diamonds) and outside the protected areas (red diamonds)



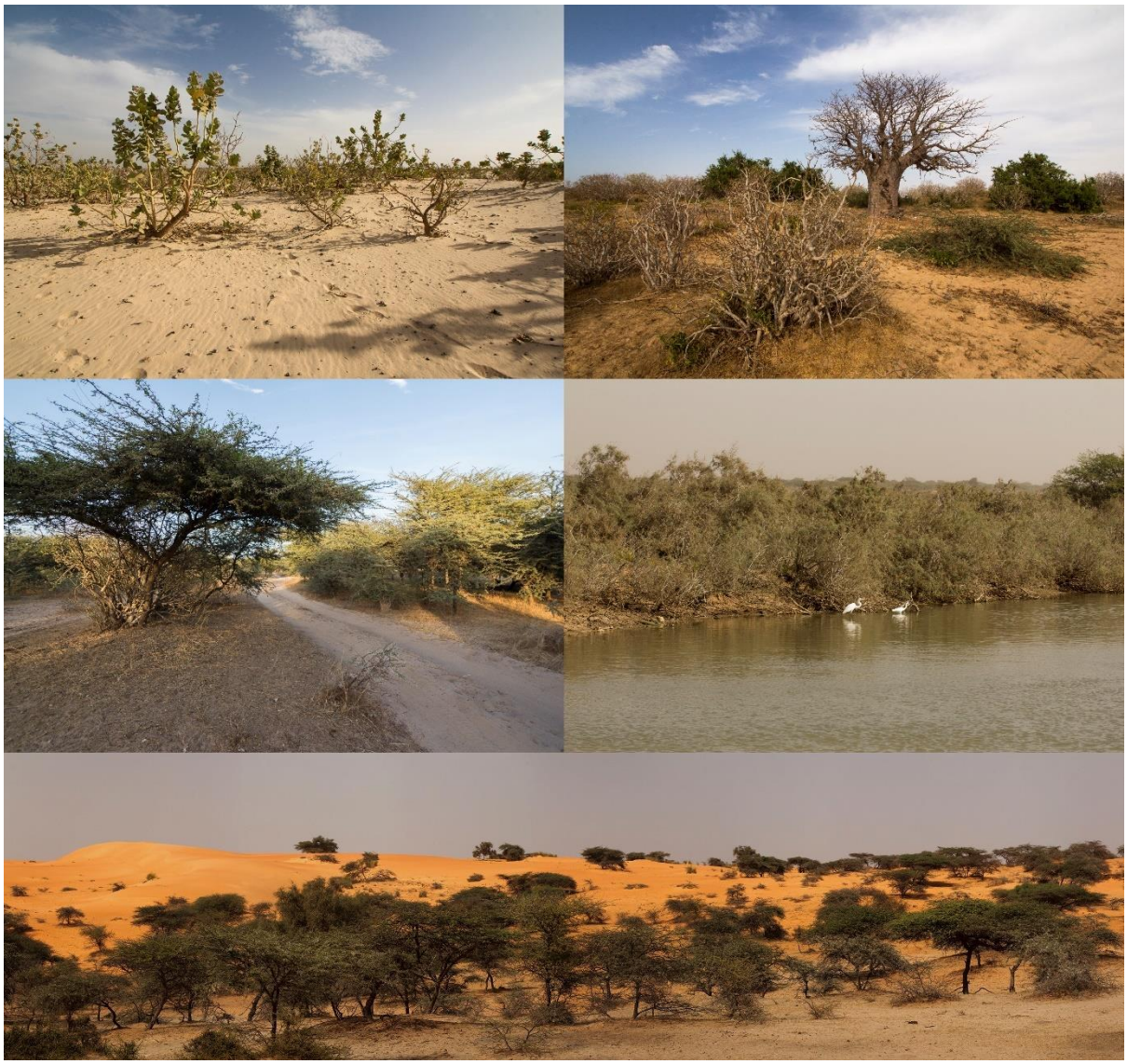


Figure 2. Landscapes of the study area: (top four) habitat diversity in Diawling National Park, and (bottom) sand dunes and acacia open forest outside of Diawling National Park, near location M3. Photo credits PAA

Figure 3. Forest species: (top left) Phylloscopus bonelli a migratory species breeding in Europe, (top right) a Sahelian resident, the starling Lamprotornis caudatus (bottom left) Euodice cantans a gregarious common resident, (bottom right) male Cinnyris pulchellus in non-breeding plumage, a member of the paleotropical Nectariniidae. Photo credits XSI

Figure 4. Wetland species: (top left) Ceryle rudis, one of the biggest African kingfishers, (top right) subadult Haliaeetus vocifer, (bottom left) Vanellus spinosus, a very common species in Diawling National Park, and (bottom right) group of Pelecanus onocrotalus and the resident Dendrocygna viduata. Photo credits XSI

Table 1. Bird taxa identified in the Diawling National Park during the expeditions conducted in December (Dec) 2019 and January (Jan) 2020. For the January expedition we also provide the maximum number of individuals recorded per site. nc: species present in large number (>200), counting not possible. D1-D17 and M1-M8 refer to locations inside and outside the Park, respectively (Table 2).

	Species/subspecies	Diawling NP																		Sahel Outside DNP							
		Dec	Jan	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	M1	M2	M3	M4	M5	M6	M7	M8
1	*Dendrocygna viduata*	x	x						300							400	400		800									
2	*Dendrocygna bicolor*	x																										
3	*Alopochen aegyptiaca*	x	x						4										100									
4	*Plectropterus gambensis*	x																										
5	*Nettapus auritus*	x																										
6	*Spatula querquedula*	x	x												nc				600									
7	*Spatula clypeata*	x	x												nc				150									
8	*Anas platyrhynchos*	x																										
9	*Anas acuta*	x																										
10	*Anas crecca*	x																										
11	*Coturnix coturnix*		x										2															
12	*Phoenicopterus roseus*	x	x						150						0				60									
13	*Phoeniconaias minor*	x																										
14	*Tachybaptus ruficollis*		x																2									
15	*Columba guinea*	x	x	1					4									3	4			30	2		30	4	2	1
16	*Streptopelia decipiens*	x	x								3							2										
17	*Streptopelia senegalensis*	x	x	9		3			4	1	1		2	3				12	8		3		1					
18	*Turtur abyssinicus*	x	x	1			1			1	3	1	2	2														
19	*Oena capensis*	x	x	4		1	2				2							7	12						1			
20	*Centropus senegalensis*	x	x	1																								
21	*Clamator glandarius*	x	x	1																								
22	*Caprimulgus eximius*		x											1														
23	*Caprimulgus climacurus*	x	x	2		1						3		7														
24	*Apus affinis*		x	1																								
25	*Gallinula chloropus*	x	x																30									

26	*Fulica atra*		x											15			
27	*Porphyrio madagascariensis*	x	x											12			
28	*Zapornia flavirostra*	x	x											1			
29	*Balearica pavonina*	x	x			2											
30	*Burhinus oedicnemus*		x						1								
31	*Burhinus senegalensis*	x	x	3								10		2	15		
32	*Himantopus himantopus*	x	x				3			5	15			120			
33	*Recurvirostra avosetta*	x	x											35			
34	*Vanellus spinosus*	x	x	2		2	5	1					7	20	3		
35	*Charadrius pecuarius*	x	x								4						
36	*Charadrius alexandrinus*	x															
37	*Charadrius hiaticula*	x	x								5			120	1		
38	*Rostratula benghalensis*	x															
39	*Actophilornis africanus*	x	x											1			
40	*Numenius phaeopus*	x	x												1		
41	*Limosa limosa*	x	x											1			
42	*Calidris canutus*	x															
43	*Calidris pugnax*	x	x				1										
44	*Calidris ferruginea*	x															
45	*Calidris temminckii*	x															
46	*Calidris alba*	x															
47	*Calidris alpina*	x															
48	*Calidris minuta*	x	x								6			180			
49	*Gallinago gallinago*	x															
50	*Actitis hypoleucos*	x	x									1					
51	*Tringa ochropus*	x															
52	*Tringa erythropus*	x															
53	*Tringa nebularia*	x	x				1							15			
54	*Tringa stagnatilis*	x															
55	*Tringa glareola*	x	x								1			35			
56	*Tringa totanus*	x															

57	*Glareola pratincola*	x	x		7		6			20			
58	*Chroicocephalus genei*	x											
59	*Chroicoc. cirrocephalus*	x	x								35		
60	*Chroicocephalus ridibundus*	x											
61	*Larus michahellis*	x											
62	*Gelochelidon nilotica*	x	x					2					
63	*Hydroprogne caspia*	x	x						13	8			
64	*Thalasseus sandvicensis*	x	x				5	10	14	12			
65	*Ciconia nigra*	x	x							3		1	
66	*Mycteria ibis*	x	x				5		6	8			
67	*Anhinga rufa*	x	x		1		3			2			
68	*Microcarbo africanus*		x				10			200			
69	*Phalacrocorax carbo maroccanus*	x	x	1			20	80		300			
70	*Phalacrocorax carbo lucidus*	x											
71	*Pelecanus onocrotalus*	x	x					15	15	120			
72	*Pelecanus rufescens*	x											
73	*Ardea cinerea cinerea*	x	x				4		2	20	1		
74	*Ardea cinerea monicae*	x											
75	*Ardea melanocephala*	x											
76	*Ardea goliath*		x	1									
77	*Ardea purpurea*	x	x							2			
78	*Ardea alba*	x	x	1			2	1		70			
79	*Egretta garzetta*	x	x					3		10	1		
80	*Egretta gularis*	x	x							20	1		
81	*Egretta ardesiaca*		x		1					3			
82	*Bubulcus ibis*	x	x			1				50			
83	*Ardeola ralloides*	x	x				1	1		3			
84	*Nycticorax nycticorax*	x											
85	*Plegadis falcinellus*	x	x				30			45			
86	*Threskiornis aethiopicus*	x											
87	*Platalea leucorodia*	x	x		2					25			

88	*Platalea alba*	x	x											7								
89	*Pandion haliaetus*	x	x						1		1						2	2				
90	*Polemaetus bellicosus*	x																				
91	*Circus aeruginosus*	x	x											1	2			2				
92	*Circus macrourus*		x												1							
93	*Circus pygargus*	x																				
94	*Milvus m. migrans*	x	x																1			
95	*Milvus m. parasitus*	x																				
96	*Haliaeetus vocifer*	x	x	2													1	3				
97	*Tyto alba*	x																				
98	*Otus senegalensis*	x																				
99	*Urocolius macrourus*	x	x	4			1	5									1	3		8		
100	*Upupa epops*		x		2	1		2	1	1		1					4	3				
101	*Tockus kempi*	x	x		1			29									19					
102	*Corythornis cristatus*		x															1				
103	*Halcyon leucocephala*		x							1												
104	*Halcyon chelicuti*	x																				
105	*Ceryle rudis*	x	x												1	4		1				
106	*Merops pusillus*	x	x	1																		
107	*Merops albicollis*	x																				
108	*Merops persicus*	x	x					2				2										
109	*Merops apiaster*	x																				
110	*Chloropicus goertae*	x																				
111	*Falco tinnunculus*	x	x																		1	
112	*Batis senegalensis*		x	1																		
113	*Nilaus afer*		x	1																	2	
114	*Laniarius barbarus*		x	1									1									
115	*Lanius isabellinus*	x																				
116	*Lanius senator*		x			1	1	1													1	
117	*Corvus albus*	x	x																			2
118	*Corvus ruficollis*	x	x																			

119	*Eremopterix leucotis*	x																							
120	*Eremopterix nigriceps*	x	x					2	7			2	1				1								
121	*Galerida cristata*	x	x	2	1			1	3			1	4	7				3	30						2
122	*Sylvietta brachyura*	x	x																		3				
123	*Eremomela icteropygialis*		x																		2				
124	*Camaroptera brachyura*		x	1																					
125	*Spiloptila clamans*	x	x																			1			
126	*Prinia subflava*	x																							
127	*Cisticola juncidis*	x																							
128	*Cisticola aridulus*		x							1															
129	*Acr. schoenobaenus*	x	x																1						
130	*Acrocephalus scirpaceus*	x																							
131	*Riparia riparia*	x	x						60					60			50	17	60						
132	*Hirundo rustica*	x	x				3		15				12						4						
133	*Delichon urbicum*	x	x										6												
134	*Pycnonotus barbatus*	x	x	6																					
135	*Phylloscopus bonelli*	x	x	2																	3				
136	*Phylloscopus collybita*	x	x	2																					
137	*Sylvia hortensis*		x	1																	2				
138	*Sylvia cantillans*		x	1									2												
139	*Sylvia communis*	x	x	1										1											
140	*Lamprotornis caudatus*	x	x	2																					
141	*Lamprotornis pulcher*	x	x	4				1	3			1	5					2				12	10		
142	*Lamprotornis chalybaeus*		x								5														
143	*Cercotrichas podobe*	x	x	2																	2	2			
144	*Cercotrichas galactotes*		x									1	2												
145	*Phoenicurus phoenicurus*	x	x	1						1															
146	*Saxicola torquatus*	x																							
147	*Oenanthe oenanthe*	x	x	2	2		2												1		3				1
148	*Oenanthe hispanica*	x																							
149	*Cinnyris pulchellus*		x	1																					

150	*Ploceus luteolus*	x											
151	*Ploceus cucullatus*		x	5									
152	*Ploceus melanocephalus*		x	12							13		
153	*Quelea quelea*		x			15							
154	*Estrilda troglodytes*		x	3									
155	*Lagonosticta senegala*		x	15									
156	*Sporaeginthus subflavus*	x	x	25									
157	*Euodice cantans*	x	x	15	60			25		5			
158	*Vidua chalybeata*	x	x	1									
159	*Passer domesticus*	x	x	6									2
160	*Passer griseus*	x	x	1									
161	*Passer luteus*	x	x	10		20		4				25	7
162	*Motacilla cinerea*	x											
163	*Motacilla flava*	x	x	1			1	3	1		10		
164	*Motacilla alba*	x	x	3		2				1	20		
165	*Anthus campestris*	x	x						1				
166	*Anthus trivialis*		x	1									
167	*Crithagra leucopygia*	x											

Table 2. Geographic locations of the records during the January 2020 expedition. D: Diawling National Park, M: Mauritania, outside Diawling National Park.

Location	Latitude	Longitude	Location	Latitude	Longitude
D1	16.303	-16.4003	D14	16.409	-16.4466
D2	16.2593	-16.4215	D15	16.3898	-16.4259
D3	16.2874	-16.423	D16	16.4154	-16.3309
D4	16.4125	-16.4616	D17	16.2259	-16.4309
D5	16.4284	-16.4573	M1	17.207	-16.043
D6	16.3604	-16.4143	M2	16.8246	-16.1576
D7	16.4199	-16.4567	M3	16.8789	-16.1014
D8	16.3571	-16.3987	M4	17.2051	-16.0596
D9	16.3837	-16.466	M5	17.1796	-16.0399
D10	16.3836	-16.4824	M6	17.3063	-16.0832
D11	16.4153	-16.466	M7	17.7859	-15.978
D12	16.3244	-16.3976	M8	17.8246	-15.9749
D13	16.3483	-16.3991			

