ISSN 0103-5657

Revista Brasileira de Ornitologia

Volume 18
Número 1
Março 2010

www.ararajuba.org.br/sbo/ararajuba/revbrasorn

Publicada pela
Sociedade Brasileira de Ornitologia
São Paulo - SP

NOTA

Revista Brasileira de Ornitologia, 18(1):61-63
Março de 2010

Squacco Heron *Ardeolla ralloides* in the Fernando de Noronha Archipelago: the fourth Brazilian record with comments on the prospects for a colonisation event

Bradley James William Davis

Rua São Cosme e Damião, 247, 78580-000, Alta Floresta, Mato Grosso, Brasil. E-mail: sclateria@yahoo.ca.

Recebido em 12/05/2008. Aceito em 10/02/2010.

RESUMO: *Ardeola ralloides* no Arquipélago de Fernando de Noronha: o quarto registro brasileiro com comentários sobre as possibilidades para colonização. Apresento um registro da espécie *Ardeola ralloides* do Arquipélago de Fernando de Noronha, o quarto registro para América do Sul. Os primeiros registros desta espécie também foram de Fernando de Noronha, e aqui exploro a idéia de que *A. ralloides* esteja colonizando o Novo Mundo através das ilhas oceânicas brasileiras.

PALAVRAS-CHAVE: *Ardeola ralloides,* Fernando de Noronha, aves coloniais.

KEY-WORDS: *Ardeola ralloides,* Fernando de Noronha, colonial waterbirds, transatlantic vagrancy, colonisation event.

The Fernando de Noronha (03°52'S, 32°25'W) archipelago lies 350 km off the northeast Brazilian coast in the Atlantic Ocean. Along with the São Pedro and São Paulo archipelago (Bencke *et al.* 2005), Fernando de Noronha ranks as one of the two most important locations in the Brazilian territory for Palearctic vagrant birds. No fewer than six species of transatlantic vagrants have been recorded in Brazil solely from Fernando de Noronha (Silva and Olmos 2006). Bencke *et al.* (2005) commented on the weather patterns affecting these oceanic archipelagos, noting that the islands lie in a zone of contact between two major easterly wind systems: southeast trade winds blowing north along the coast of southwestern Africa before crossing the Atlantic Ocean; and northeast trade winds blowing from the tropical eastern North Atlantic to northern South America and the Caribbean. These weather patterns must surely assist the arrival of Palearctic vagrants. Noronha is the only northeast Brazilian archipelago large enough to hold arboreal vegetation and fresh water throughout the year, thus making it the most hospitable location for long-staying vagrant birds.

Jessica Davis and I recorded a single Squacco Heron *Ardeolla ralloides* on three visits to the largest freshwater reservoir on the island of Fernando de Noronha, the Açude do Xaréu, on 22, 23 and 26 January 2008. The bird was photographed on 22 January as it actively foraged on, and at the edges of floating vegetation, probably *Pistia stratiotis* (*c.f.* Silva and Olmos 2006) which covered roughly half the surface of the reservoir. The bird was observed defending a territory on all three dates; it actively guarded against intrusions by Cattle Egrets *Bubulcus ibis,* of which 6-20 individuals frequented the reservoir at any one time. The bird would run and flap its wings at any *B. ibis* that came too close, often chasing the offending individual around the reservoir in flight before landing to forage again in a new location. This behaviour was observed repeatedly, and brief low-quality video was obtained of the bird in flight as it flashed the all-white wings contrasting with its streaked brown back and neck. The lack of elongated head plumes and the extensive streaking on the neck indicate the bird was either an immature or adult in non-breeding plumage (Svensson and Grant 1999). The individual we observed is quite likely the same bird seen on 19, 21 and 22 February, and 01 March 2008 at the same locality (Silva 2008).

All previous New World records of *Ardeola ralloides* come from the Fernanda de Noronha archipelago. These are as follows: June 1986 (Teixeira *et al.* 1987); November-December 2004; and October 2005 (Silva and Olmos 2006; Silva 2008). Considering that the island group receives little observer coverage, the lack of records in the intervening period may not truly reflect the species' status there. Regular observation on Fernando de Noronha, particularly the Açude do Xaréu reservoir and the nearby mangroves at the Baía de Sueste, may find the species to be a more regular visitor to the islands. The reservoir is also the site of records of other vagrant Ardeidae, including *Ardea cinerea, Ardea alba, Egretta tricolor, Egretta gularis,* and *Nycticorax nycticorax* (Silva 2008).

Squacco Heron is a colonial species and a long distance migrant that winters mainly in west Africa south of the Sahara (Prosper and Hafner 1996; Hafner *et al.* 2001). The species breeds from the Iberian Peninsula east as far as central Asia; the western European populations are the most likely source region for potential transatlantic vagrants, as in other *Ardeidae* such as the Little Egret *Egretta garzetta* (Murphy 1992). Records from the archipelago in November-December 2004, October 2005 and January-March 2008 indicate the species is prone to vagrancy during its southbound migration and post-breeding dispersal movements. It is also accidental on the Atlantic Macaronesian island groups from the Azores to Cape Verde (Martinez-Vilalta and Motis 1992). Western European populations of *A. ralloides* undergo considerable interannual fluctuations but are increasing overall (Prosper and Hafner 1996, Delord *et al.* 2003). Interannual trends in vagrancy events may be dependent on breeding success in the source populations (Veit 1997). Vagrancy likelihood may thus be linked to density-dependent long-range dispersal events (Gilroy and Lees 2003) and the frequency and intensity of tropical storms that may disorient birds and facilitate swift passage across the Atlantic.

Past instances of multiple vagrancy in *A. ralloides* on Fernando de Noronha, including the record of five individuals at the Açude do Xaréu in November 2004 (Silva and Olmos 2006), suggest that establishment of a small colony on the island is a possibility. The Açude do Xaréu is the largest fresh water reservoir on the islands, and during our visit at the end of the dry season it was the only location still holding fresh water. There is suitable roosting and nesting habitat adjacent to the reservoir in the form of a small area of mangroves bordering Sueste beach. The principal competitor for nesting and roosting sites on the islands is *B. ibis.* However, that species does not nest in the mangroves at Sueste, which may be structurally the most similar habitat on the island to the dense vegetation near water (Martinez-Vilalta and Motis 1992) and sites "low in thick underbrush below the tree canopy" (Hafner *et al.* 2001) usually preferred by *A. ralloides.*

The population of *B. ibis* on the island expanded rapidly in the past decade (Serrano *et al.* 2005), to the point that culling was approved in October 2007 due to the hazard posed by the birds to commercial and military aircraft landing on the main island. The program to control the Fernando de Noronha Cattle Egrets aimed to reduce the growing local population by 90% through the trapping and destroying of birds feeding at the garbage processing site on the main island. The local Cattle Egret population may also pose threats to native species. Barbosa-Filho *et al.* (2009) concluded that an unchecked Cattle Egret population on Fernando de Noronha may pose a threat to nesting colonies of Red-footed Booby *Sula sula* on secondary islands, given that the two species compete directly for nesting sites. Silva (2008) notes that the control program has already visibly reduced *B. ibis* numbers on the archipelago, though nesting continues on two offshore islands. He goes on to suggest that the conditions for colonisation of the archipelago by Cattle Egrets are ideal given the lack of predators and abundant unexploited food resources.

On the other hand, a colonisation event for *A. ralloides* in the Fernando de Noronha archipelago would be remarkable given the existence of multiple impedimentary variables. Anthropogenic pressures at the Sueste mangroves, including disturbance from holiday-goers, hunting by domestic animals and introduced rats, and the systematic destruction of native habitats on the main island, may conspire to prevent the eventual colonisation of Fernando de Noronha by *A. ralloides.* On the other hand, a continuation of the Cattle Egret cull could reduce inter-specific competition at foraging sites. Hafner *et al.* (2001) suggest that reduced clutch sizes of *A. ralloides* in the Camargue region of southern France may be related to an increased Cattle Egret population in the same area – plausible given the overlap in foraging habitat and diet of the two species. On Fernando de Noronha, Cattle Egrets feed principally at non-aquatic sites such as the island's waste processing facility and grassy areas at the airport (Silva 2008). The program to reduce these birds should act to neutralize one of the competitive advantages the Cattle Egrets hold over vagrant Squacco Herons.

Whether *A. ralloides* might use Fernando de Noronha as a stepping stone to the successful colonisation of the New World remains to be seen. Vagrant individuals dispersing from regions with strong population growth may be the drivers of colonisation events and range expansions (Veit and Lewis 1996; Veit 2000; Gilroy and Lees 2003). At least two migratory Palearctic Ardeidae species have successfully colonised the New World. Cattle Egrets first arrived in Suriname in 1877 and are now abundant throughout much of North and South America. The first Little Egrets *Egretta garzetta* in the Americas arrived in the Caribbean from Cota Doñana, Spain during the late 1950s in multiple instances of transatlantic vagrancy (Murphy 1992). The species had established a nesting population on the island of Barbados by the mid 1990s and is recorded with increasing frequency along the Atlantic coast of North America (Kushlan 2007). On Fernando de Noronha itself, in addition to the colonisation success of *Bubulcus ibis,* the Black-crowned Night-heron *Nycticorax nycticorax* has also apparently established a small population suspected to have colonised the island from an Old World source population, though the subspecific identity of the birds remains to be confirmed (Silva 2008). In the Albufera de Valencia in Spain, *A. ralloides* and *N. nycticorax* breed simultaneously and population fluctuations of the two species roughly coincide (Prosper and Hafner 1996). While it is uncertain whether *N. nycticorax* arrived on Fernando de Noronha

from the Old World, it is conceivable that individuals of the two species could arrive together on the island in a post-breeding dispersal movement. The establishment of a small breeding population of *N. nycticorax,* if the birds are indeed the nominate form, indicates that the Fernando de Noronha archipelago is perhaps also the most likely location for a first New World colony of the Squacco Heron. Fernando de Noronha receives very little coverage from ornithologists and birdwatchers, but all future field workers are encouraged to monitor the situation at the Açude do Xaréu and other fresh water sites on the islands for *A. ralloides* and other trans-Atlantic vagrants. A bird observatory on the archipelago – perhaps administered by CEMAVE/ICMBIO – would greatly contribute to our understanding of trans-Atlantic vagrancy in the Southern Hemisphere.

ACKNOWLEDGEMENTS

I would like to thank my wife Jessica for her patient companionship in the field. I am grateful to Alexander Lees for sharing his theories on vagrancy and its role in population dynamics, and for his valuable comments on this manuscript. Dr. Rolph A. Davis also critically reviewed the manuscript, for which I am grateful.

REFERENCES

Barbosa-Filho, R.C.; Souza, A.E.A.B.; Freitas, G.L.; Nunes, M.F.C.; Souza, E.A. e Filho, D.Z. (2009). A garça-vaqueira (*Bubulcus íbis,* Linnaeus, 1758) e o atobá-de-pé-vermelho (*Sula sula,* Linnaeus, 1766) no Arquipélago de Fernando de Noronha: uma abordagem ecológica comparativa. *Ornithologia,* 3(2):101-114.

Bencke, G.A.; Ott, P.; Moreno, I.; Tavares, M. and Caon, G. (2005). Old World birds new to the Brazilian territory recorded in the Archipelago of São Pedro and São Paulo, equatorial Atlantic Ocean. *Ararajuba,* 13(1):126-129.

Delord, K.; Kayser, Y.; Barbaud, C. and Hafner, H. (2003). Variability in breeding parameters of the Squacco Heron *Ardeola ralloides. Bird Study,* 50:300-305.

Gilroy, J.G. and Lees, A.C. (2003). Vagrancy theories: are autumn vagrants really reverse migrants? *British Birds,* 96:427-438.

Hafner, H.; Bennetts, R.E. and Kayser, Y. (2001). Changes in clutch size, brood size and numbers of nesting Squacco Herons *Ardeola ralloides* over a 32-year period in the Camarque, southern France. *Ibis,* 143:11-16.

Kushlan, J.A. (2007). Sympatric foraging of Little Egrets and Snowy Egrets in Barbados, West Indies. *Waterbirds,* 30(4):609-612.

Martínez-Vilalta, A. and Motis, A. (1992). Family Ardeidae (herons). *In:* del Hoyo, J., Elliot, A. and Sargatal, J. (eds.) *Handbook of the birds of the world,* 1. Barcelona: Lynx Edicions.

Murphy, W.L. (1992). Notes on the occurrence of the Little Egret (Egretta garzetta) in the Americas, with reference to other Palearctic vagrants. *Colonial Waterbirds,* 15(1):113-123.

Prosper, J. and Hafner, H. (1996). Breeding aspects of the colonial Ardeidae in the Albufera de Valencia, Spain: population changes, phenology, and reproductive success of the three most abundant species. *Colonial Waterbirds,* 19(Spec. Pub. 1):98-107.

Serrano, I.L.; Schulz Neto, A.; Alves, V.S.; Maia, M.; Efe, M.A.; Telino Júnior, W.R. and Amaral, M.F. do. (2005). Diagnóstico da situação nacional de colisões de aves com aeronaves. *Ornithologia,* 1(1):93-104.

Silva, R.S. (2008). *Aves de Fernando de Noronha/Birds of Fernando de Noronha.* Vinhedo: Avis Brasilis.

Silva, R.S. and Olmos, F. (2006). Noteworthy bird records from Fernando de Noronha, northeastern Brazil. *Revista Brasileira de Ornitologia,* 14:470-473.

Svensson, L. and Grant, P.J. (1999). *Birds of Europe.* Princeton: Princeton University Press.

Teixeira, D.M.; Nacinovic, J.B. and Pontual, F.B. (1987). Notes on some birds of northeastern Brazil. *Bull. Brit. Orn. Club,* 107(4):151-157.

Veit, R.R. (1997). Long-distance dispersal and population growth of the Yellow-headed Blackbird *Xanthocephalus xanthocephalus. Ardea,* 85(1):135-143.

Veit, R.R. (2000). Vagrants as the expanding fringe of a growing population. *Auk,* 117(1):242-246.

Veit, R.R. and Lewis, M.A. (1996). Dispersal, population growth and the Allee effect: dynamics of the House Finch invasion of eastern North America. *American Naturalist,* 148:255-271.