

West African Ornithological Society Société d'Ornithologie de l'Ouest Africain



# Join the WAOS and support the future availability of free pdfs on this website.

http://malimbus.free.fr/member.htm If this link does not work, please copy it to your browser and try again.

# Devenez membre de la SOOA et soutenez la disponibilité future des pdfs gratuits sur ce site.

http://malimbus.free.fr/adhesion.htm

Si ce lien ne fonctionne pas, veuillez le copier pour votre navigateur et réessayer.

May/mai 2014

### A new breeding site of the Cape Verde Purple Heron Ardea (purpurea) bournei on Santiago, Cape Verde Islands

by D. Cesarini<sup>1</sup>, A. Boughtflower<sup>2</sup> & A. Furtado<sup>3</sup>

<sup>1</sup>Projecto "Áreas Protegidas", Parque Natural Monte Gordo, São Nicolau, Cabo Verde. <cosmoanarca@libero.it>

<sup>2</sup>Cobweb Cottage, Moor Lane, Sculthorpe, Fakenham, Norfolk NR21 9PY, U.K. <a href="mailto:scalaronboughtflower@hotmail.com"><a href="mailto:scalaronboughtflower@hotmail.com"></a>

<sup>3</sup>Projecto "Áreas Protegidas", Parque Natural Serra Malagueta, Santiago, Cabo Verde. <amandiofurtado@hotmail.com>

Received 21 October 2007; revised 11 June 2008.

#### Summary

The Cape Verde Purple Heron Ardea (purpurea) bournei is endemic to the island of Santiago in the Cape Verde Islands where, until recently, it was known to breed at only one location. However, between June 2006 and February 2007, a small population was discovered and a single successful nesting attempt recorded at Serra Malagueta, Santiago Island, *c*. 18 km away from the known site. Notes on breeding behaviour are presented. *A. bournei* is considered critically endangered, due to increasingly arid conditions and loss of habitat. The new nest site is therefore considered important for its survival.

#### Resumo

Um novo local de nidificação da Garça vermelha de Cabo Verde Ardea (purpurea) bournei em Santiago, arquipélago de Cabo Verde. A Garça vermelha de Cabo Verde Ardea (purpurea) bournei é endémica da ilha de Santiago (arquipélago de Cabo Verde), até recentemente, apenas se conhecia um único local de nidificação. No entanto entre Junho de 2006 e Fevereiro de 2007, descobriu-se uma pequena população e registou-se uma tentativa bem sucedida de nidificação, em Serra Malagueta, ilha de Santiago, numa área que dista c. 18 km do sitio conhecido. Observações acerca do comportamento em época de nidificação, são apresentados. A. bournei é considerada em perigo crítico, devido ao aumento das condições de aridez e à perda do habitat. Por estas razões, a descoberta de um novo local de nidificação é considerada importante para a sua sobrevivência.

#### Introduction

The Cape Verde Purple Heron Ardea (purpurea) bournei is endemic to the island of Santiago in the Cape Verde Islands. It was first discovered in 1951, breeding at São Domingos (Bourne 1955). Another colony was discovered at Boa Entrada in the Santa Catarina region in March 1963 and later a single breeding attempt was reported at Trindade (Naurois 1966). Breeding at São Domingos ended during the 1970s, when trees used as nest sites were felled, leaving Boa Entrada as the sole remaining known nest site for the species. However, in 1991 a new colony was discovered at Banana in Ribeira Montanha (Hazevoet 1992), which subsequently became the only known breeding site when sightings at Boa Entrada became so scarce that Hazevoet (2003) considered this colony as abandoned. Despite Clarke (2006) asserting that breeding activity continued at this site, resident observers disagree, since individuals have been present only periodically in recent years, with no evidence to suggest that breeding has occurred (A. Randall pers. comm.). If so, the colony at Banana was the only breeding site known at the beginning of this study (June 2006), and the only site used consistently over the last 15 years. During the mid-1990s, the total population was thought to consist of c. 25 pairs or less (Hazevoet 1995). In recent years, censuses seem to show a consistently higher population, of around c. 60 pairs (A. Randall pers. comm.).

The Cape Verde Purple Heron breeds from mid-August to early March (Hazevoet 1995) and almost nothing is known of its ecology other than from observations at breeding sites. It is assumed that post-breeding dispersal into the interior of the island occurs (Hazevoet 1995) and, due to its discreet behaviour, observations during this period are few. Prior to 2006, records during the non-breeding season (late March to early August) included three juveniles collected at Pedra Badejo lagoon in April 1924 (Hazevoet 1992, 1995), and two observations in June 1993 at Ribeira Principal, of which the upper part is now inside the buffer zone of the Serra Malagueta Natural Park (SMNP) (Hazevoet 1995). However, the recent construction of a dam and reservoir not far from the Banana colony has resulted in many observations away from the breeding sites in 2006–7 (C.J. Hazevoet pers. comm.).

The Cape Verde Purple Heron was described as a new subspecies by Naurois (1966) and has been variously treated as subspecies or independent species since then. This has resulted in difficulties regarding its threat status. As a race of *A. purpurea*, it is designated as Least Concern (www.redlist.org, accessed 2007). However, as a full species it should be considered Critically Endangered and is so regarded nationally (Hazevoet 1996, 2003). Hereafter we refer to the Cape Verde Purple Heron as *A. (p.) bournei*.

#### Study Area

Most of the observations presented here are from the recently established SMNP (774 ha) and its buffer zone, in the northern interior of Santiago Island, which includes the



Figure 1. Santiago Island, showing the Serra Malagueta, former breeding sites at Sao Domingos, Boa Entrada and Trinidade, and observations of A. (p.) bournei away from these locations.

upper part of the Homonymous mountain group (Fig. 1), with the second highest point of Santiago (1064 m). The area is characterised by steep relief with cliffs, rocky peaks and deep valleys. Geologically it is part of the Pico de Antonia eruptive complex, mainly composed of basaltic rocks.

The dry tropical environment of Cape Verde and local climatic conditions (in particular mist and fog which occur regularly throughout the year), together with the mountainous geography of the area, create a microclimate with slightly lower mean temperatures and slightly higher precipitation (annual mean 600 mm) than that of the rest of the island. These conditions result in a proliferation of vegetation, including many endemic species, particularly in northeastern exposed areas. The general environment of the SMNP is characterised by a core forested area (mainly *Eucalyptus* and *Pinus* spp.) and a surrounding mosaic of cultivated fields (mainly maize, beans and sweet potatoes) with uncultivated marginal areas, very small settlements and few scattered houses (Fig. 2). The rainy season (from July–August to October) is when many bird species breed.



Figure 2. Landscape in Serra Malagueta Natural Park.

#### Methods

As no surveys of the avifauna of the SMNP had been undertaken previously, surveys were carried out in order to establish which species were present. These surveys were based on viewpoints, ground transects and night-time observations, to maximize the probability of counting all the species present. Casual observations and information from local people were also collected. From these preliminary data, specific research on individual species was designed.

Specific surveys for *A*. (*p*.) bournei were conducted between June 2006 and February 2007, in order to determine the status of its population and its distribution in relation to the boundaries of the SMNP. After finding the nest site, watches were made there at least once every two days for a minimum of two hours each over the period when the nest was being used. The time of day when watches were carried out was staggered on successive observation days. After the young fledged, watches were conducted less intensively but on a regular basis. Overnight stays were made when necessary. Observation was carried out from a distance using binoculars and telescopes. During other surveys in the SMNP, researchers were asked to note encounters with the species. Local people and other members of the project staff were also made aware of the bird's identification and asked to report any sightings.

#### Results

Table 1 summarises records away from the breeding site during the study period. These observations culminated in the identification of a breeding site at Ribeira Cuba (SMNP) on 11 Oct 2006. Ribeira Cuba is a steep sided valley formed by opposing vegetated cliff faces, *c*. 80 m apart, surrounded by steep slopes (Figs 3 & 4). Due to its elevation, the southern cliff face was in permanent shade (which may be a contributory factor in it being selected as a nest site), and characterised by more vegetation and pools of water retained in ledges. Semi-permanent pools also existed in the bottom of the narrow gorge at the base of the cliffs. The nest was positioned on the southern cliff, facing north and hidden by bushes of *Lantana camara* growing from the lower vertical face. It contained two young estimated to be around one week old.

The nest was made mostly of dry stem sections of *Hyptis pectinata*, possibly with a finer lining material, and both sexes fed the young by regurgitation. One chick was slightly larger and more dominant, indicating asynchronous hatching. The adult birds appeared particularly cautious when arriving at the nest, always making a few preliminary passes over the area before landing, and they consistently arrived from the same easterly direction. During the breeding period, adult birds were recorded away from the nest site on two occasions, each instance being east of the nest site (Table 1). It seems likely these sightings were of the parent birds.

The time when the juveniles left the nest is not known. The last observation of the young at the site was on 9 Nov 2006, by which time they were well developed and had previously been seen to fly a short distance. We assume they successfully fledged shortly after this observation. However, two additional immature birds were consistently seen to roost at the site (possibly offspring of the same adults from a previous



Figure 3. Cliff face in lower ribeira and nest site of Ardea (p.) bournei, in SMNP.



Figure 4. Ribeira containing nest site. Note the permanent shade afforded to the site.

### Table 1. Records of Ardea (p.) bournei away from the breeding site during the study period.

#### Records prior to discovery of the nest site

- 29 Jun 2006, Serra Malagueta (SMNP). A sub-adult on the highest (forested) ridge (1000 m a.s.l.) caught and ate a skink Scincidae.
- Early Jul 2006, Cabeça Carrera village. One flying high over the village, 7 km south of SMNP and *c*. 1.5 km from the former colony at Boa Entrada. The bird flew in almost a straight line between Serra Malagueta and Boa Entrada, although any connection between the sites is speculative.
- Early Jul 2006, Posto village (in SMNP). Identifiable remains, including tarsi and feathers, located. Enquiries confirmed the bird had been hunted and killed in the area, probably for food.
- 18 Jul 2006, Serra Malagueta (SMNP). A sub-adult seen foraging in the upper part (c. 1000 m a.s.l.), within sparse woodland of *Eucalyptus* sp.
- 24 Jul 2006, Posto village (in SMNP). One flying close to the village.
- 30 Aug 2006, Curral d'Asno (in SMNP). An adult landed in a cultivated field *c*. 200 m from the village (*c*. 600 m a.s.l.) and spent *c*. 30 min. foraging.
- 26 Sep 2006, Curral Velho (SMNP buffer zone). One flying around the village, *c*. 2.5 km north of the Serra Malagueta main ridge.
- 27-28 Sep 2006, Ribeira Cuba (SMNP). An immature present 18h00-9h00 (Fig. 5).

#### Records during presence of nestlings at the Ribeira Cuba nest

- 16 Oct 2006, Ribeira Cuba (SMNP). An adult flying from the direction of Ribeira Cuba, landed on a rock outcrop. It remained for 20 min. during which it preened and made a few strikes at prey before continuing to fly to the east. It was lost from view over the eastern limit of SMNP.
- 20 Oct 2006, Chan de Casa (SMNP). An adult flew from an area near the breeding site at Ribeira Cuba and landed in a maize field (*c*. 600 m a.s.l.).

#### **Records after fledging**

7 Dec 2006, Ribeira Gago (SMNP). One flying over a maize field (c. 500 m a.s.l.).

- 16 Jan 2007, Locotano village ( on the border of SMNP). One flying over the village, apparently coming from the Ribeira Cuba breeding site towards the forested main ridge of Serra Malagueta.
- 16 Feb 2007, Kutelo de Barata (SMNP). One in flight over a cultivated area (< 1 km from the breeding site).
- 22 Feb 2007, Ribeira Cuba (SMNP). One adult and two sub-adults resting on a cliff *c*.200 m from the breeding site. A fourth individual seen flying from Kutelo de Barata in the direction of the roost site.

breeding attempt) and it may be possible that the site was used as a roost site after this time. Similarly, while no evidence of a second breeding attempt was observed, four

subsequent sightings at the site (Table 1) suggest that breeding adults and their offspring may not abandon such areas completely.



Figure 5. Immature Ardea (p.) bournei at roost site in Ribeira Cuba (SMNP).

#### Discussion

Sightings of *A.* (*p.*) bournei foraging in the highest, isolated areas of SMNP confirm that dry hill slopes and cultivated land are preferred feeding habitat (Bourne 1955, Naurois 1988, Hazevoet 1992, 1995) while the timing of the breeding attempt is within the period given by Hazevoet (1995). The environmental characteristics around the breeding site and particularly the presence of semi-permanent water nearby seem to confirm the preference of *A.* (*p.*) bournei for nesting in humid ribeiras.

Although the birds may be rather tolerant of human presence, as all former colonies were situated near villages (Hazevoet 1992), the breeding site in Serra Malagueta was located in one of the less frequented areas of SMNP and away from human habitation. Santiago has a relatively high human population density (238 inhabitants per km<sup>2</sup>: INE 2000), which is widespread in the countryside. Areas of

habitat fulfilling all the feeding and breeding requirements of this bird are few, so it is difficult to ascertain if this tolerance is optimal behaviour or a consequence of its severely restricted options. The isolated nest site at SMNP and cautious inspection flights of the adults when approaching the nest were certainly different from the breeding location at Banana, which is close to human habitation and at which birds seem particularly at ease in their surroundings (pers. obs.). While the substantial size of the colony at Banana may have afforded greater security, the abandonment of the colony at Boa Entrada due (probably) to human disturbance suggests that the species is not immune to such detrimental effects. We therefore suggest that *A*. (*p*.) bournei demonstrates adaptive tolerance of human presence, but may prefer to avoid it.

Although this is the first breeding record of *A. (p.) bournei* in Serra Malagueta, the species has been previously reported in the area in 1969 (Naurois 1988) and 1993 (in Ribeira Principal close to Serra Malagueta: Hazevoet 1995). Older inhabitants assert that Ribeira Cuba has been used by this bird for more than 15 years, when apparently the population was more abundant. Naurois (1988) suggested the possibility of a colony "in the north of Santiago", and the discovery of a population in Serra Malagueta confirms this. Other as yet unknown breeding sites may become apparent, and could be detected from movements outside the breeding season, and the sighting of an individual flying from the centre of the island (Assomada/Boa Entrada) towards the north (Serra Malagueta) in early July (Table 2) should be explored further.

This study highlighted a lack of knowledge concerning the foraging areas of A. (*p.*) bournei during the breeding season. If the observation of 16 Oct 2006 (Table 1) concerned one of the parents, then adults may well forage at considerable distances from nest sites. The consistent arrival and departure of adults to and from the same direction indicates the existence of favoured foraging areas. An increased knowledge of the movements of A. (*p.*) bournei both outside and during the breeding season is essential for a greater understanding of its ecology and conservation needs, particularly in regard to the protection of its habitats.

Hazevoet (1995) cites increasing desiccation in Cape Verde when predicting a depressingly short future survival of A. (p.) bournei. Our study does little to belie this prediction. Although the impact of invasive introduced species on A. (p.) bournei is unknown, both Vervet Monkey Cercopithecus aethiops and rats Rattus rattus and R. norvegicus are present in SMNP and may cause detrimental effects. However, direct human pressures appear to be the most immediate threat, as the instance of an individual being hunted by a community located within a protected area illustrates. The taking of eggs and killing of herons are known to have occurred at other breeding sites (Naurois 1987, Hazevoet 1999, 2001, 2003). These illegal activities can only further hasten the demise of this heron. Shortly after the hunting incident, SMNP staff initiated a conservation awareness programme within local communities, with emphasis on the need to preserve endemic and endangered species and A. (p.) bournei in particular. Leaflets and posters were produced to disseminate the Decreto-

153

*Regulamentar* No. 7/2002 (concerning endangered species conservation) and visits to primary schools were made. Illegal hunting was one of the main issues in a cycle of community awareness meetings during October 2006. Practical measures regarding the monitoring and conservation of *A*. (*p.*) bournei within the SMNP were identified and are currently under evaluation for inclusion in a management plan. Crucially, even though the breeding site at Ribeira Cuba was not included inside the originally planned SMNP limits, the discovery of the breeding site and results of additional research in the area have led to its inclusion within the SMNP. This measure gives stronger legal protection to the nesting area, but will not be enough to safeguard this site unless the local population fully accepts the need for the conservation of the species.

Should *Ardea* (*p.*) *bournei* be recognised as a full species, a higher level of concern would be attributed to it both in Cape Verde and internationally. The future of birds like *A*. (*p.*) *bournei* may ultimately depend on taxonomic decisions, despite the fact that such reproductively isolated and distinct forms are of considerable evolutionary interest (Hazevoet 1992).

#### Acknowledgments

Fieldwork was undertaken as part of the UNDP/GEF Project "Áreas Protegidas". We thank the supporting institutions of the "Areas Protegidas" Project: the UNDP, the GEF and the Direcção-geral do Ambiente of the Environment and Agriculture Ministry of Cape Verde and in particular, the people responsible during the period 2005–7: Abdelkader Bensada, Maria Teresa Vera-Cruz, Emanuel Leão Carvalho, Ivone Lopes, José Levy, Edoardo Zandri. We also thank the project team at Serra Malagueta in 2006: Iacopo Forte, "Vadinho" Nelson Avelino, Paula Monteiro and Melanie Reed. Special thanks go to the local communities of the SMNP area and especially to José Antonio Tavares and Emanuel Victor Tavares. We also thank Aline Randall for sharing her knowledge of ecology and the status of this bird. Richard Porter, Andy Stoddart, Cornelis Hazevoet and Francesco Pezzo reviewed drafts of the manuscript for which we offer our appreciation.

#### References

BOURNE, W.R.P. (1955) The birds of the Cape Verde Islands. Ibis 97: 508-556.

- CLARK, T. (2006) *Field Guide to the Birds of the Atlantic Islands*. Christopher Helm, London.
- HAZEVOET, C.J. (1992) A review of the Santiago Purple Heron Ardea purpurea bournei, with a report of a new colony. Bird Conserv. Internat. 2: 15–23.

- HAZEVOET, C.J. (1995) *The Birds of the Cape Verde Islands*. Check-list 13, British Ornithologists' Union, Tring.
- HAZEVOET, C.J. (1996) Lista Vermelha para as aves que nidificam em Cabo Verde. *Cour. Forsch.-Inst. Senckenberg* 193: 127–135.
- HAZEVOET, C.J. (1999). Fourth report on birds from the Cape Verde Islands, including notes on conservation and records of 11 taxa new to the archipelago. *Bull. Zoöl. Mus. Univ. Amsterdam* 17: 19–32.
- HAZEVOET, C.J. (2001) Cape Verde. Pp. 161–168 in FISHPOOL, L.D.C. & EVANS, M.I. (eds) Important Bird Areas in Africa and Associated Islands: priority sites for conservation. Pisces, Newbury.
- HAZEVOET, C.J. (2003) Fifth report on birds from the Cape Verde Islands, including records of 15 taxa new to the archipelago. Arq. Mus. Bocage Nov. Sér. 3: 503–528.
- INE (2000) *Recenseamento Geral da População CENSO 2000*. Instituto Nacional de Estatística, República de Cabo Verde.
- NAUROIS, R DE (1966) Le Heron Purpré de l'archipel du Cape Vert Ardea purpurea bournei ssp. Oiseau Rev. fr. Orn. 36: 89–94.
- NAUROIS, R. DE (1987) Les oiseaux de l'archipel du Cap Vert. Peuplements, adaptations, endémisme. *Bull. Soc. Zool. France* 112: 307–326.
- NAUROIS, R. DE (1988) Ardea (purpurea) bournei endémique de l'ile de Santiago (Archipel du Cap Vert). Alauda 56: 261–268.