The distribution of the yellow bittern *Ixobrychus sinensis* in Seychelles

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Abstract: The Seychelles islands support the most westerly populaiton of yellow bitterns. Slight morphometric differences exist between the Seychelles birds and other populations, but samples are too small to allow reliable comparison. The species has a restricted distribution in Seychelles with signficant popualtions on Mahé, Praslin and La Digue.

Keywords: marsh, morphometrics, Mahé, Praslin, La Digue

The yellow bittern *Ixobrychus sinensis* (Gmelin) is a widespread species in south Asia, extending from India to China, the Philippines and parts of Micronesia. The population in the Seychelles islands is the most westerly and is isolated from all others by some 3,000km of open ocean. Although this population may seem to be a biogeographical anomaly there is a strong Asian influence on the Seychelles and western Indian Ocean avifauna (Benson 1984), due in part to the predominance of a southern African-Asian migratory route (Feare & Watson 1984; Phillips 1997). Indeed, a number of migratory species have been recorded in Seychelles and nowhere else in the entire Afro-Malagasy region including three other water birds, white-breasted waterhen *Amaurornis phoenicurus* (Pennant), Indian pond-heron *Ardeola grayii* (Sykes), (Skerrett 1994) and cinnamon bittern *Ixobrychus cinnamomea* (Gmelin) (Lucking 1995). In addition, northern populations of yellow bittern are long distance migrants, which may explain colonisation of remote islands including not only Seychelles, but also some Pacific islands, such as Palau, Guam and the Caroline Islands.

It has been suggested that the colonisation of the islands Seychelles by yellow bitterns is believed to be relatively recent (Benson 1970) as there are no significant morphological differences between Seychelles and Asian specimens (Benson 1970) although the Seychelles specimens have been suggested to be paler on the neck (Hartert 1920) and females do have slightly shorter tarsi than Asian birds (Benson 1970). These morphometric differences are relatively minor and colouration may be too variable to be a useful taxonomic character (Salomonsen 1934). It is notable that although Benson (1970) was unable to detect signifi-

cant differences between the Seychelles birds and the 31 Asian specimens available to him, comparison with larger series shows the Seychelles birds to be at the upper limit of the size range (Table 1). This is to be expected from a highly isolated population with a strong founder effect. Future genetic drift may be expected to result in the development of more distinctive differences. On the other hand it should be noted that there may have been continued gene flow from occasional vagrants to Seychelles since the first colonisation. Vagrant records from Australia and Christmas Island, Indian Ocean, illustrate the propensity for this species to stray from traditional migration routes. Occasional new arrivals might be partly responsible for the apparent lack of morphological divergence between Seychelles birds and those of Asia. If this is the case, the length of time Seychelles has been colonised by yellow bitterns might conceivably be considerably greater than generally assumed.

Distribution

The species was first collected on 26th January 1867 on Mahé (Newton 1867; as '*Ardeola lepida*') in an extensive marsh on the north-west coast (corresponding to Beau Vallon). Further specimens were collected on Maheé in 1877, without precise locality (Salomonsen 1934; Benson 1970). Since then the species has been recorded regularly in marshes around Mahé and in the Mare Soupape marsh on La Digue. The first studies of the bird were made in 1975-78 (Watson, 1980) when data were collected largely incidentally during a study of the endemic avifauna. Bitterns were observed at twelve sites on four islands (including the first reports from La Digue and Curieuse) and the population was estimated at "certainly fewer than 100 pairs". There are no subsequent records from Curieuse and this is believed to have been a temporary record. Similarly transient visitors were recorded in 1999 on Aride (at least 3 individuals) (Bowler & Hunter 2000).

Over recent years we have accumulated records of bitterns and have used these to estimate the total population (Gerlach & Skerrett 2001). Further details of the populations are given below.

Distribution

7 marshes were found to be inhabited on Mahé; North-east point, Beau Vallon, Roche Caiman Bird Sanctuary, Anse Gouvernment, Anse Intendance, Police Bay and Anse a la Mouche. This last site was not included in Gerlach & Skerrett (2001) as it was only

Table 1. Summary of morphometric data on Seychelles and Asian yellow bitterns

Origin	Collector	Sex or number	Wing (mm)	Culmen (mm)	Tarsus (mm)	Source
Seychelles	Newton	m	146	57	52	Benson, 1970
		f	130	53	44	Benson, 1970
	Lantz	m	130	58	49	Benson, 1970
		m	134	58	49	Benson, 1970
		f	133	56	44	Benson, 1970
Asia		18 m	128-131.9-136	53-56.0-63	42-48.6-53	Benson, 1970
		13 f	125-131.7-146	53-57.2-61	46-48.4-51	Benson, 1970
India			129-134-143	49-52-57	44-51	Ali & Ripley, 1968
SE Asia		41	125-141	50.2-56.9	44-51	Wells, 1999

reported subsequently, breeding has been reported at this site (G. Berke pers. comm.). Bitterns were recorded in the *Polygonum senegalense* thickets at North-east point. This site was visited on several occasions and the number of bitterns observed varied from 1 to a maximum of 8. Bitterns were located in two areas of the Beau Vallon marsh system; the *Eleocharis dulcis* reedbed by the Fisherman's Cove Hotel (up_to 6 birds) and a small woodland pool fringed by *Polygonum senegalense* in the Riviere Mare Anglaise (a single sighting of one bird). Roche Caiman Bird Sanctuary was colonised by bitterns in 1995, nests were located in 1996 and up_to 3 birds were recorded. At Anse Gouvernment bitterns have been observed feeding along the edge of *Acrostichum aureum* fringing a deep marsh. Access to the *A. aureum* is difficult and no detailed surveys have been made. A maximum of 4 birds have been seen. At Anse Intendance, 2 bitterns were located on one occasion north of the beach access road at a small woodland pool. Subsequent searches failed to locate further birds, but access to the area is difficult due to the density of vegetation and the marshy ground. Police Bay is the largest surviving wetland on Mahé and one of the few with no water lettuce *Pistia stratiotes* or water hyacinth *Eichornia crassipes*. The margins of the marsh are dominated by *Acrostichum aureum*. An extensive search of the area was made for bitterns and 6 birds located. Despite the size of the marsh, density appears to be lower than elsewhere partly because much of the total area is open water. Salinity, due to invasion of the marsh by high tides may also reduce the value of the marsh to some extent.

The previous study of bittern distribution recorded their presence in 7 marshes (North-east Point, Barbarons, Anse aux Pins, Baie Lazare, Anse Forbans, Anse Takamaka and Police Bay). Of these, four are included in the present study. The other three have been visited but without detecting any bitterns. Reed marsh areas of Barbarons and Anse aux Pins have been drained since Watson's study and are no longer suitable for bitterns. Anse Forbans is a significant area of *Eleocharis dulcis* reedbed. It has been visited and explored thoroughly on several occasions but without locating bitterns. The site is heavily disturbed by agriculture and by dogs from surrounding suburban areas. These factors may currently exclude bitterns from what would be expected to be a good site.

A single locality has been found on Praslin, the Anse Kerlan marsh. Only a small part of the extensive *E. dulcis* reedbed could be examined at any one time and much of the marsh was inaccessible. The only bitterns observed were those flying up from the marsh, all of these were casual movements and would represent a small proportion of the total population. Between 2 and 6 birds were seen on each visit. Part of this area has been developed for a golf course and most of the marsh has been in-filled. However, since late 2000 bitterns have returned to inhabit artificial wetlands created by this development. Bitterns nave been recorded at Anse Madge, this site has now been drained and is unsuitable habitat.

On La Digue bitterns were recorded in clumps of *Typha javanica* in and around the Mare Soupape on La Digue. No more than two individuals were seen at any one time. Bitterns have been recorded at Grand Anse. The site contains a small area of *Achrostichum aureum* marsh which could support a small population, although none have been recorded recently. The back of the marsh which will have supported reedbeds in the past is now agricultural.

References

Ali, S. & Ripley, S.D. 1968. *Handbook of the Birds of India and Pakistan*. Oxford University Press, Oxford. 380pp.

Benson, C.W. 1970. The Cambridge collection from the Malagasy Region. *Bull. Br. Orn. Club* **90**; 168-172

Benson, C.W. 1984. Origins of Seychelles land birds. In Stoddart, D.R. (ed.) *Biogeography and ecology of the Seychelles Islands*: 469-486. The Hague: Dr W. Junk Publishers.

Bowler J. & Hunter J. 2000. *Aride Island Nature Reserve, Seychelles. Annual Report 1999*. RSNC Internal Report.

Feare, C.J. & Watson, J. 1984. Occurrence of migrant birds in the Seychelles. In Stoddart, D.R. (ed.) *Biogeography and ecology of the Seychelles Islands*: 469-486. The Hague: Dr W. Junk Publishers.

Gerlach, J. & Skerrett, A. 2001 (in press). The distribution, ecology and status of the yellow bittern *Ixobrychus sinensis* in Seychelles. *J. Afr. Ecol.*

Hartert, J. 1920. *Vog. Pal. Fauna* **2**; 1251

Lucking, R.S. 1995. Cinnamon Bittern *Ixobrychus cinnamomeus* in Seychelles, first for the Afro-Malagasy Region. *Bull ABC* **2**(2): 107-108.

Phillips, J. 1997. Migrant landbirds in Seychelles. *Phelsuma* **5**; 27-42

Salomonsen, F. 1934; Notes on some Lemurian birds. *Proc. Zool. Soc. Lond.* (**1934**); 219-224

Skerrett, A. 1994. Seychelles Bird Records Committee. *Birdwatch* **9**; 15-19

Watson, J. 1980. Distribution and nesting of the Yellow Bittern in Seychelles. *Ostrich* **51**:120-122.

Wells, D.R. 1999. *The Birds of the Thai-Malay Peninsula - Vol. 1.* Academic Press, London. 648pp.