

# Autumn-winter breeding by Cream-coloured Coursers *Cursorius cursor* is more common than previously reported

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Until the end of the 20th century there were only limited numbers of autumn-winter breeding records of the Cream-coloured Courser *Cursorius cursor*. Here, we compile several autumn-winter breeding observations obtained mainly by amateur birders (citizen scientists) and we show that this phenomenon is more common when local conditions (especially rainfall) are favourable. These observations are from several parts of the species' range, as far apart as Socotra Island (Yemen), Oman, and the Canary Islands (Spain), although the majority are from the region of Oued Ad-Deheb, S Morocco.

## INTRODUCTION

The breeding range of the Cream-coloured Courser *Cursorius cursor* is wide and extends from the Atlantic archipelagos of Cape Verde and the Canary Islands to North Africa and continues patchily eastwards along the Sahel zone through the Middle East, Arabia and the Socotra Islands to Central Asia and NW India (Maclean 1996). Recently, it has also colonized Europe with four pairs breeding in S Spain in spring 2001 (Gutiérrez 2001). The closely related Somali Courser which is resident in Ethiopia, Somalia and E and N Kenya is now regarded as a separate species, *Cursorius somalensis* (Gill & Donsker 2014, Pearson & Ash 1996).

Generally, three subspecies are recognized which differ in colouration and biometrics, but their breeding phenology does not differ markedly (Maclean 1996). So far as is known, the species' main breeding period extends from February to September, according to population and location. It is thought that this extended breeding season occurs as a result of the laying of second broods or replacement clutches, or laying in response to the occurrence of rain in arid areas (Heim de Balsac & Mayaud 1962, Maclean 1996, Perrins & Cramp 1998). Breeding outside February to September is poorly documented in the literature with the exception of the following cases: one chick between Ndiaye and Tidem in Senegal on 12 January 1994 (Triplet & Yésou 1994), two small chicks on 29–30 November 1994 at 70 km east of Akjoujt in Mauritania (Balança 1996) and the observation of small chicks in NW India in February (Maclean 1996). As the main rainy season is August–October in Cape Verde, the breeding season of the endemic *exsul* subspecies appears to be either prolonged (August–May) or double with a first clutch between August and October–November during the monsoon and a second clutch between January and April (Koch & Hazevoet 2000, Naurois 1983). To our knowledge

these are the only references in the literature to winter breeding of Cream-coloured Coursers from its entire breeding range. Moreover, apart from Cape Verde, there is no other mention of winter breeding in the Western Palearctic or in the Arabian Peninsula including Socotra.

The region of Oued Ad Deheb (also spelt as 'Oued Dahab') in S Morocco (ca. 23°S, 15°W) used to be one of the least bird-watched regions in the Western Palearctic. But since the beginning of the present century, it has become a favoured birding destination due to the discovery of some desert and subtropical species that are either absent or difficult to observe elsewhere in the Western Palearctic (e.g. Cricket Warbler *Spiloptila clamans*, Dunn's Lark *Eremalauda dunnii*, and Sudan Golden Sparrow *Passer luteus*). The rainfall in this region is extremely low and especially unpredictable, but sometimes a good amount of rain can fall, mainly in August–September and December–March.

Following good rains in early autumn 2010, two of us participated in an expedition to the region of Oued Ad-Deheb in late October. One purpose was to search for and record any evidence of breeding by desert birds, and many species were found to be in different phases of the breeding cycle (alarming adults, adults collecting nesting materials, nests with eggs, broods, fledged juveniles). Some of these autumn-breeding records had never before been documented in the Western Palearctic (Amezian *et al.* 2011, Qninba *et al.* 2011). Among the birds recorded were several Cream-coloured Coursers, with at least three pairs noticeably alarming at two different locations (Qninba *et al.* 2011). Several very young juveniles were recorded by other birders the following January and February (2011), thus confirming that breeding had occurred in the autumn-winter of 2010.

In late December 2012, following another exceptionally rainy autumn in the same region, members of the Association 'Nature-Initiative' photographed almost fully grown



**Fig. 1.** Juvenile Cream-coloured Courser at Oum el Hajj, near Merzouga, SE Morocco, on 14 December 2010 (photo: Alexandre Beauquenne / [www.voyageschezlesoiseaux.eu](http://www.voyageschezlesoiseaux.eu)).



**Fig. 2.** Adult Cream-coloured Courser feeding a small chick at Hadibo, Socotra Island, Yemen, on 13 January 2006 (photo: Hanne & Jens Eriksen / [www.BirdsOman.com](http://www.BirdsOman.com)).

juvenile Cream-coloured Coursers near Negjir, ca. 130 km east of Dakhla.

These observations encouraged us to search for other winter-breeding records of Cream-coloured Coursers, of which we found several. The aim of this paper is therefore to bring together this information and to show that winter-breeding in what is one of the world's least-studied waders (Thomas *et al.* 2003) is more widespread than previously recognized.

## RESULTS

We list all records of autumn-winter breeding by Cream-coloured Coursers that we have been able to find and that have not hitherto been documented in the scientific literature (Table 1). Most are from the Oued Ad-Deheb region of S Morocco; others are from the region of Tafilalt, SE Morocco (Fig. 1), one from the 1960s near Marrakech (central Morocco), as well as the Canary Islands, Senegal, Socotra Island (Fig. 2) and Oman (Table 1).

We present the 11 records for the Oued Ad-Deheb region of Morocco in chronological order (Table 1). Five were recorded in the winter of 2010/2011 and five in the winter of 2012/2013. The records from other parts of the species' range were obtained between 2001 and 2011 and are listed from east (Socotra Island) to west (Canary Islands) (Table 1).

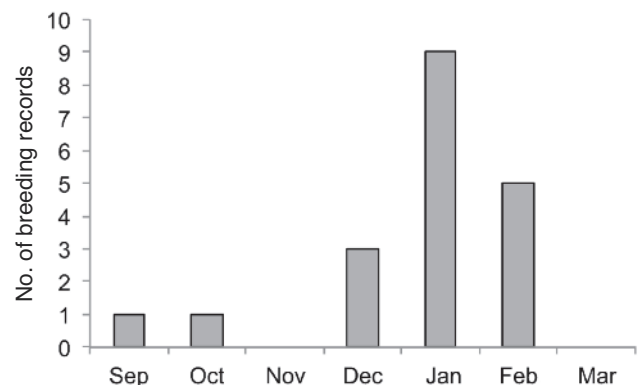
## DISCUSSION

The data collected here, in addition to the limited number of previously published records cited in the introduction, show that autumn-winter breeding by Cream-coloured Coursers is not limited to a particular part of its breeding range, despite the fact that most of the reports come from the Oued Ad-Deheb area of S Morocco. This observation bias can probably be attributed partly to the popularity of the region among the birders who visit it to search for charismatic species that cannot be found elsewhere in the Western Palearctic, and partly to the fact that the authors are more familiar with the birding scene in this region than elsewhere.

The majority of the autumn-winter breeding records obtained for Oued Ad-Deheb were made during 2010/2011

and 2012/2013. This region received an unusually large amount of rain during the late summer and autumn of both seasons (to be precise in late September and again in the first week of October of 2012), with most breeding records being obtained during the following months (December–February, Fig. 3).

In arid regions, many bird species are opportunistic breeders, nesting in response to usually rare and unpredictable rainfall and subsequent abundance of food resources, irrespective of the season (Lepage & Lloyd 2004, Lloyd 1999, Maclean 1970, Qninba *et al.* 2011). Generally breeding begins after a lag period between rainfall and egg-laying that differs in length between species, as has been observed in different arid regions in S Africa (Maclean 1984, Lloyd 1999) and in the Sahara desert, S Morocco (i.e. on similar dates different species have been recorded at different phases of the breeding cycle: Qninba *et al.* 2011). Also, rainfall has to reach a certain threshold in order to trigger breeding (Lloyd 1999). This phenomenon has been observed in several species belonging to different families in different arid regions of the world (Maclean 1984, Qninba *et al.* 2011); and with the data gathered here, the Cream-coloured Courser can now be added to that list. Other wader



**Fig. 3.** Number of autumn-winter breeding observations of Cream-coloured Courser per month for all regions combined (n=19). In February, with the exception of one record (eggs on 2 February 1966 near Marrakech), all other recent records involved juveniles that resulted from egg-laying in January or before. Note that each record may involve one or more individuals as shown in Table 1.

species are known to breed opportunistically, such as Black-winged Stilts *Himantopus himantopus* which breed after rainfall in tropical regions (Pierce 1996). Similarly, the colonial Banded Stilt *Cladorhynchus leucocephalus* travels several hundred kilometres to inland salt lakes in Australia in order to exploit highly unpredictable ephemeral resources which become available after infrequent rains (Pedler *et al.* 2014, and references therein).

In view of the number of records presented here, we suggest that winter-breeding in Cream-coloured Coursers may have been under-reported by both amateur and professional ornithologists for several reasons: (1) the remoteness of most breeding areas, (2) many breeding areas are in regions that are seldom visited during the autumn and winter months, and (3) the species is less studied by ecologists

(Thomas *et al.* 2003), most likely as a result of the first two factors. These factors become less important when a region holds other sought-after species (e.g. Amezian *et al.* 2011, Lees & Moores 2006) which generate a lot of interest from the birding community. This is the case in the Oued Ad-Deheb region of S Morocco which has recently become a birding hotspot for Western Palearctic birders.

In view of the observations gathered here from different regions (of which most occurred after a rainy summer/autumn), with the addition of the records cited in the literature, we can conclude that the phenomenon of autumn-winter breeding in Cream-coloured Coursers is more common than previously supposed, when local conditions, particularly high rainfall, are favourable.

**Table 1.** Summary of autumn-winter breeding records of Cream-coloured Coursers.

Location	Date	Description	Observers/References
<b>Observations from Oued Ad-Deheb region, S Morocco</b>			
Aousserd road	22 February 2009	Two juveniles with two adults	Dan in Bergier <i>et al.</i> 2010
Adrar Settouf	26 October 2010	Three pairs alarming	Qninba <i>et al.</i> 2011
Aousserd road	10 January 2011	Small chick with adult	B. Carlsson & C. Brostam
Derraman, near Aousserd	16 January 2011	An adult protecting two recently hatched juveniles	M. Aymerich in Bergier <i>et al.</i> 2012
Aousserd road	14 February 2011	A pair with two juveniles and 14 other birds	T.A. Olsen <i>et al.</i> in Bergier <i>et al.</i> 2012
Aousserd road	18 February 2011	A big juvenile road-killed and an adult with a fully fledged juvenile	P. & F. Bergier in Bergier <i>et al.</i> 2012
Track to Bougouffa, Adrar Settouf	16 September 2012	A pair with two young	F. Chevalier in Bergier <i>et al.</i> 2013a
Aousserd road	29 December 2012	Two juveniles recently fledged among three adults	H. Dufourny in Bergier <i>et al.</i> 2013a
Negjir (130 Km east of Dakhla)	31 December 2012	Two fully grown juveniles with adults	Association 'Nature Initiative' (Dakhla) in Bergier <i>et al.</i> 2013b
Imlily	10 January 2013	Two fully grown juveniles and two adults	T. Pettersson & K. Mild in Bergier <i>et al.</i> 2013a
Aousserd road	12 January 2013	Three families with fully grown juveniles	T. Pettersson & K. Mild in Bergier <i>et al.</i> 2013a
<b>Observations from other Moroccan regions</b>			
Guémassa, near Marrakech	02 February 1966	Eggs	P. Robin in Barreau & Bergier 2000–2001
Oum el Hajj, near Merzouga (Tafilalt region)	14 December 2010	A juvenile not yet fully fledged with adults	A. & M. Beauquenne
<b>Observations from other regions</b>			
Hadibo, Socotra Island (Indian Ocean)	13 January 2006	One pair with three small chicks among nine other adults	H. & J. Eriksen
Jiddat Al Harasis, Oman	23 February 2001	One small chick	H. & J. Eriksen
Richard-Toll, Senegal	22 January 2008	One small chick	N. Borrow & G. Einon
NW of La Oliva, Fuerteventura, Canary Islands	19 January 2004	One bird on the nest	J. & J. Bowler
South of El Cotillo, Fuerteventura, Canary Islands	20 January 2004	One bird with a tiny chick	J. & J. Bowler
Fuerteventura, Canary Islands	late January 2011	Juveniles	T. Pettersson & K. Mild in Bergier <i>et al.</i> 2013a

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