

Short communications

Observation of a breeding trio in the Cory's Shearwater *Calonectris diomedea* on Selvagem Grande

J.-L. MOUGIN, Chr. JOUANIN and F. ROUX

Muséum national d'Histoire naturelle, Laboratoire de Zoologie
(Mammifères et Oiseaux), 55 rue Buffon, 75005 Paris, France

Among several seabird species usually heterosexual and monogamous, Larids, Stercorariids, Chionidids, Alcids, many unusual reproductive associations have been noted, female-female pairs, polygyny, polyandry, brood parasitism, not to mention extra-pair paternity (Bonner 1964, Bried *et al.* 1999, Conover 1983, Conover *et al.* 1979, Hemmings 1989, Ryder 1978, Ryder and Somppi 1979, Wagner 1991, 1992, Williams 1980). Among Procellariiformes, such atypic behaviours seem to be far less common. Two-egg clutches, very rare, may be a variant of brood parasitism (Mougin, in prep.) and extra-pair paternity has been observed in two species only, the Short-tailed Shearwater *Puffinus tenuirostris* (Austin and Parkin 1996) and the Antarctic Petrel *Thalassoica antarctica* (Lorentsen *et al.* 2000), although searched vainly among others (Hunter *et al.* 1992, Mauck *et al.* 1995, Rabouam *et al.* 2000, Swatschek *et al.* 1994). In the present note, we expose the exceptional occurrence of a trio observed in the Cory's Shearwater *Calonectris diomedea* of Selvagem Grande (30°09'N, 15°52'W).

The work has been carried out in one of our study colonies visited yearly since 1978. As all the birds breeding in these colonies, the three birds involved have been checked every year (except 1993) since their first breeding. The age of both males, born in the colony where they will breed later and ringed as chicks, is known. That of the female, born outside the study colony and ringed as adult, is not. The sex of the three birds - and also, for more certainty, that of all the other birds with whom they have been mated - has been determined by the beak index (Mougin *et al.* 1986) and by the call, very dimorphic in that species (Bretagnolle and Lequette 1990).

The breeding life of the three birds of the polyandric trio since their first breeding attempt is detailed in table I. During 1992, and after a failed attempt by two of them during the previous year, the three birds have

successfully fledged a chick before their separation and the disappearance of the female.

Trios are obviously exceptional in the Cory's Shearwater population of Selvagem Grande: a more than 20 year study, taking into account more than 3000 ringed birds, has supplied only one observation of that type. In that case, involving a supernumerary male, a young bird having never yet nested, added to an established pair, such a trio is likely to have been the direct consequence of the exploratory visits paid to the colonies by young non breeding birds looking for a nest site and a mate. Usually these birds are evicted of the nests colonised by paired birds - and possibly killed, the struggles of the pre-egg period for the ownership of a nest site being, on Selvagem Grande, the main cause of adult deaths ashore. Why this one has been accepted remains a mystery.

Shall we speak of cooperative breeding in that case? We know nothing about the exact part played by the supernumerary male in egg brooding and chick feeding, but he has played a part, not nefarious since the trio has been successful, which was not the case for the pair during the previous year - we shall note here that no consensus seems to exist between the authors on the respective breeding success of trios and pairs (Hemmings 1989, Williams 1980). Cooperative breeding often concerns young males not yet breeding helping related adults (Campbell and Lack 1985). In our trio, the supernumerary bird was a young male, but by no means related to his mates. Moreover, his parents were still breeding 6 m from there on his birth nest - they have bred there every year between 1982 and 1999, the female occupying the nest (with another male) since 1980 at least - but he has helped another pair.

Let us add finally that if trios are exceptional in the population of Selvagem Grande, no female-female pair has ever been observed during our study.

Tabl. 1. Chronology of the breeding life of the three birds involved in the trio observed in 1992 on Selvagem Grande. – : bird not observed.

Sex Birth	Male 1 1977	Female –	Male 2 1986
1984	First breeding of the bird on nest 92 with a first mate	–	–
1985	Sabbatical	First breeding of the bird on nest 92 with a first mate	–
1986	Breeder on nest 89 (2.7 m distant from nest 92) with a second mate	Same mate, same nest site	–
1987	Same mate, same nest site	Same mate, same nest site	–
1988	Same mate, same nest site	Same mate, same nest site	–
1989	Same mate, same nest site	Same mate, same nest site	–
1990	Same mate, same nest site	Same mate, same nest site	–
1991	Their former mates absent or divorced, both birds are paired together on nest 89. Unsuccessful breeding (chick dead)		–
1992	First «breeding» of male 2. The three birds frequent nest 89 where a chick is fledged		
1993	No observations		
1994	Breeder on nest 89 with a fourth mate	–	Sabbatical
1995	Same mate, same nest site	–	Breeder on nest 33 (15.5 m distant from nest 89) with a second mate
1996	Same mate, same nest site	–	Same mate, same nest site
1997	Same mate, same nest site	–	Same mate, same nest site
1998	Same mate, same nest site	–	Breeder on nest 158 (0.8 m distant from nest 33) with the same mate
1999	–	–	Breeder on the same nest site with a third mate

Résumé - Chez le Puffin cendré *Calonectris diomedea* de Selvagem Grande (30°09'N, 15°52'W), un trio a été observé. Sur le même nid, deux mâles et une femelle ont couvé en alternance un œuf qui a éclos et produit un poussin heureusement envolé trois mois plus tard. Un tel comportement est probablement la conséquence exceptionnelle des visites exploratoires effectuées dans les colonies pendant la parade par les jeunes oiseaux à la recherche d'un partenaire et d'un nid.

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