

Late egg-laying and fledgling in a polyandrous trio of Bearded Vultures *Gypaetus barbatus* in the Pyrenees

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The Bearded Vulture's long breeding cycle requires that, in the Pyrenees, egg-laying must occur during the period from the last week of December to the first week of February. Fledging takes place during the second half of June or the first week of July. This note documents a case of late egg-laying and fledging in a polyandrous trio of Bearded Vultures. In 2002, a clutch of one egg, was laid between February 13th and 16th. Hatching occurred between April 6th and 10th, and the chick left the nest between August 18th and 20th, at 130-134 days of age. This case is one of the latest successful clutches observed and the latest documented fledging on the southern side of the Pyrenees.

Key words: Bearded Vulture, *Gypaetus barbatus*, breeding biology, egg-laying, fledging.

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Received: 28.11.02; Accepted: 10.01.03 / Edited by S. Mañosa.

Birds lay their eggs at the time when the chances of maximizing their reproductive success are highest (Immelman 1971, Perrins & Birkhead 1983). The Bearded Vulture's *Gypaetus barbatus* long reproductive cycle of about 177 days forces it to lay its eggs rather early, right in the middle of winter (Heredia 1991, Margalida *et al.* 2003). In this way, the end of the reproductive period coincides with the time of year with highest prey availability and mildest weather. In the Pyrenees the Bearded Vulture usually begins nest-building in September-October (Margalida & Bertran 2000a) and its period of sexual activity in November (Bertran & Margalida 1999), egg-laying taking place between the second half of December and the first half of February (Heredia 1991, Margalida *et al.* 2003). After about 54 days of incubation and four months of rearing, the first flight of the chick occurs in June-July (Heredia 1991, Margalida *et al.* 2003). After leaving the nest, the chick still depends on parental care for two or three months (Brown 1990, Sunyer 1991).

Data on the breeding phenology of the Bearded Vulture in the Pyrenees are scarce. Margalida *et al.* (2003) found the mean date of egg-laying in the Catalan Pyrenees to be 6th January (range 11th December to 12th February, $n = 69$); but more extreme dates such February 17th-24th (Heredia 1991) or March 23rd (Margalida *et al.* 2001) have been recorded on the south slopes, and February 25th or even March 3rd (Razin 1998) on the north slopes. The latest documented dates for first flights are August 6th on the south side (Heredia 1991) and August 24th on the north side (Razin 1998). A replacement clutch has only been reported once each on both the north (Margalida *et al.* 2001) and south sides (Margalida & Bertran 2002). Only the former case ended successfully, and the chick left the nest between 22nd and 25th August. The reason why replacement clutches are so rare in the Bearded Vulture has been determined to be the high costs that they involve in relation to future breeding seasons (Margalida & Bertran 2002).

This note documents the case of a polyandrous trio of Bearded Vultures in which the dates of egg-laying and first flight were unusual; indeed, the latter is the latest documented first flight for the species in Spain. This particular nest is located in Catalonia (NE Spain), in the Alta Ribagorça county district at an altitude of 1,420 m above sea level. In this territory, monitored since 1984, a pair remained settled until 1992. In 1993, a trio was formed after an adult bird (probably male) joined the territory already occupied by a pair and a few months later a fourth individual adult (also probably male) joined, forming a polyandrous quartet (García *et al.* 1996, Margalida *et al.* 1997). One of the members of the quartet disappeared in 1998, leaving the territory occupied by a trio again.

In 2002, monitoring consisted of a weekly visit to the territory between November and August. The frequency of visits increased to three per week between March and August with the objective of determining as accurately as possible both the hatching date and the age of the chick upon leaving the nest. Observations were carried out with a 20-60 X telescope, 200 m from the nest on a nearby cliff situated at 1,650 m from which it was possible to see its contents. The sole egg was laid between 13th and 16th February. Hatching took place between 6th and 10th April. The first flight of the chick occurred between 18th and 20th August, at 130-134 days of age.

Bearded Vulture breeding success decreases as the laying date moves away from the mean (Margalida *et al.* 2003). Thus, it is rather surprising that such a late clutch managed to succeed. In this respect, the sharing of parental tasks among the three members of the group (Bertran & Margalida 2002) may have contributed to the successful outcome. The chick's late departure from the nest was not only the result of a late laying date, but also of a delay on the age at which it performed its first flight. The mean age for first flights in the study area has been determined to be 123 days (range 105-133, n= 20, Margalida *et al.* 2003), which is similar to ages documented by other authors (119 days, n= 7, Sunyer 1991; 120-130 days, n= 4, Brown 1990b). The variability of age at first flight may be due in part to accidental jumping out of the nest, as has been suggested for the Griffon

Vulture *Gyps fulvus* (Leconte & Som 1996) and for the Bearded Vulture itself (Margalida & Bertran 2000b, Margalida *et al.* 2003), or perhaps in part due to sexual differences: it seems that males tend to leave the nest earlier than females (Weinzettl 1998). However, in this case, the lateness might also have resulted from the slow growth of the chick, in connection with unfavorable conditions resulting from the late breeding or to parental inexperience (Bavoux *et al.* 1998, Lequette & Weimerskirch 1992).

Acknowledgements

We acknowledge to Jennifer Boudet, Tere Donés, Marta Gil, Rafael Heredia, Fernando Saura and Willy Suetens for their co-operation during the field work. José A. Donázar, S. Mañosa and an anonymous reviewer provide some comments that improved the manuscript.

Resum

Posta i envol tardans en un trio poliàndric de Trencalòs *Gypaetus barbatus*

El dilatat cicle reproductor del Trencalòs fa que les dates de posta d'aquesta espècie als Pirineus es concentrin entre la darrera setmana de desembre i la primera de febrer. L'envol del poll té lloc entre la segona quinzena de juny i primera setmana de juliol. La present nota documenta una posta i envol tardans en un trio poliàndric de Trencalòs. L'any 2002 la posta, d'un sol ou, va tenir lloc entre el 13-16 de febrer. L'eclosió es va produir entre els dies 6-10 d'abril i el poll va abandonar el niu entre els dies 18-20 d'agost, quan tenia 130-134 dies. Aquest cas esdevé una de les postes exitoses més tardanes observades i l'envol més tardà documentat a la vessant sud dels Pirineus.

Resumen

Puesta y vuelo tardíos en un trío poliándrico de Quebrantahuesos *Gypaetus barbatus*

El dilatado ciclo reproductor del Quebrantahuesos hace que las fechas de puesta de esta especie en los Pirineos se concentren entre la última semana de diciembre y la primera de febrero. El primer vuelo del pollo se produce entre la segunda quincena de junio y primera semana de julio. La presente nota documenta una puesta y vuelo tardíos en un trío

poliándrico de Quebrantahuesos. En el año 2002 la puesta, de un solo huevo, tuvo lugar entre el 13-16 de febrero. La eclosión se produjo entre los días 6-10 de abril y el pollo abandonó el nido entre los días 18-20 de agosto, cuando tenía 130-134 días. Este caso supone una de las puestas exitosas más tardías observadas y el vuelo más tardío documentado en la vertiente sur de los Pirineos.

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