DELVING INTO THE STUDY OF THE SURVIVAL OF A DONOR POPULATION IN THE KING OF BONES

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INTRODUCTION

The **bearded vulture** (*Gypaetus barbatus*) is an endangered species specialising in a strictly osteophagous diet and that inhabits mountain ranges characterized by steep topography and rocky nesting sites (Margalida & Martínez, 2020). The bearded vulture is a large and long-lived species, with a clutch size of two eggs, of which only one chick survives due to inter-sibling aggression (Margalida et al. 2020).

In wild populations, **survival** is one of the demographic parameters governing population dynamics, among other parameters such as dispersal or colonization, this is why continuous monitoring is essential (Jankowiak et al. 2016).

The main objective of this study is to define the status of the bearded vulture population in the **Aragonese Pyrenees**. The management decisions of a donor population, as is the case of the Aragonese Pyrenees population, must take into account possible fluctuations in demographic and reproductive parameters, making a continuous and **updated analysis** of these parameters necessary (Anders et al. 1997).

MATERIAL AND METHODS

- **Data collection**

CMR (Capture-Mark-Recapture) data have been collected over a long-term study. For this purpose, 227 birds of known age were marked in the Aragonese Pyrenees over a period of 33 years (1987-2020).

- **Survival analyses**

The estimation of the probability of survival of bearded vultures was carried out by means of a **multistate Cormack-Jolly-Seber (CJS) model** (Kéry & Schaub, 2012). The CJS model used is an **age-dependent** model.

For a survival analysis grouped by age classes, we defined three classes according to plumage characteristics (Margalida et al. 2020). We have defined **juvenile** birds as those under 2 years of age, **subadults** as birds between 2 and 6 years of age, and **adults** as those over 6 years of age.
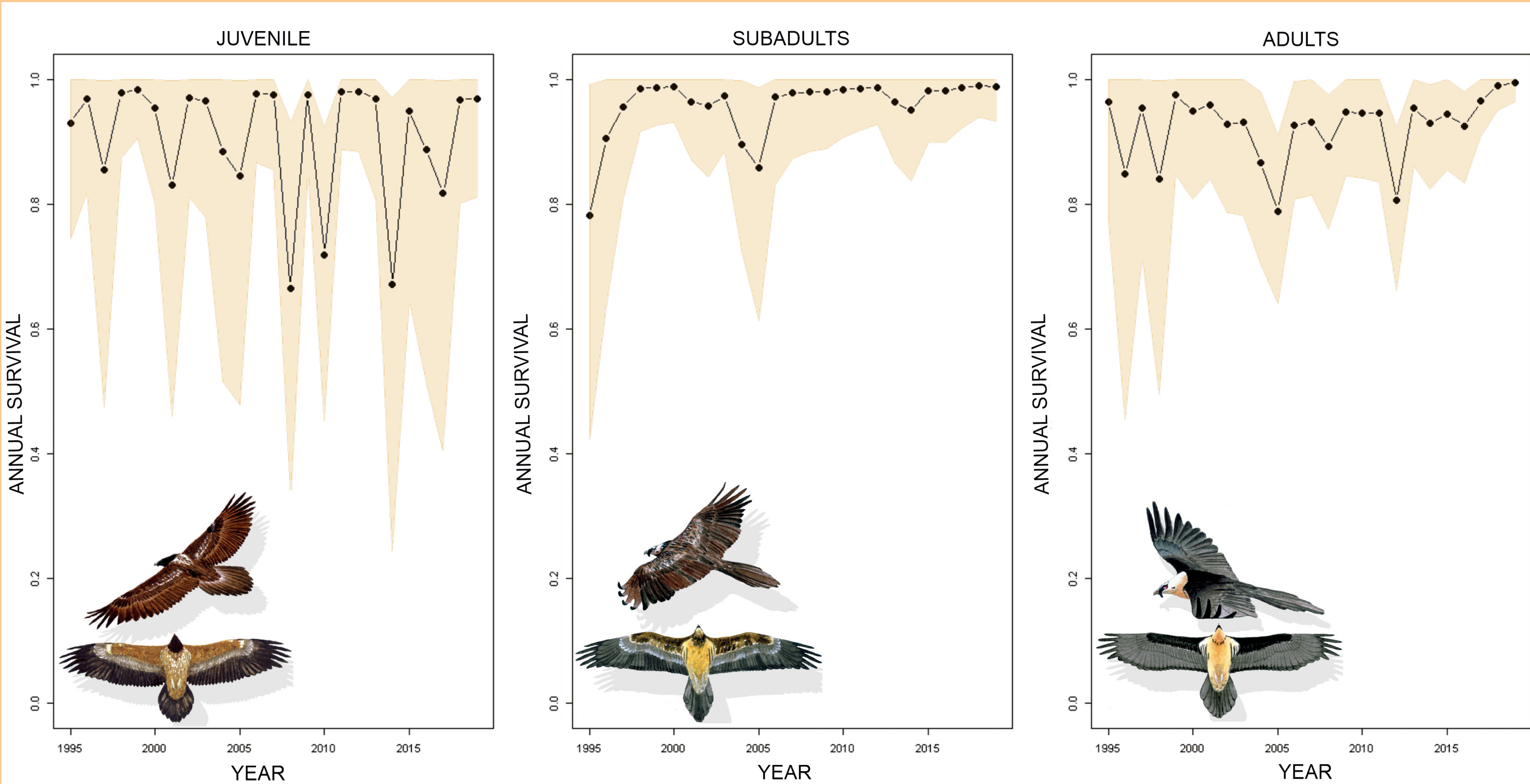
RESULTS

JUVENILE SURVIVAL
0.907
(0.821-0.993)

SUBADULT SURVIVAL
0.958
(0.915-1)

ADULT SURVIVAL
0.924
(0.924-0.979)

DISCUSSION

The sharp decline in survival in all age classes in 2005 could be due to the sanitary regulations in Spain from 2005 to 2011 due to **Bovine Spongiform Encephalopathy**, as trophic resources decreased. This drop in survival during health restrictions highlights the need to strike a **balance between protecting public health and conserving biodiversity**.

The **higher survival values in subadults than in adults** open two possible scenarios: an underestimation of adult survival by the models due to the higher re-sighting rate in subadults, or an increase in subadult survival due to their higher trophic availability by frequenting **SFS** more than territorial adults (Margalida et al. 2020).

Based on our results, we believe that the **SFS strategy in the Aragonese Pyrenees should be carefully reformulated** to address the problems identified, and that there should be **continuous monitoring** to provide optimal **science-based management**.
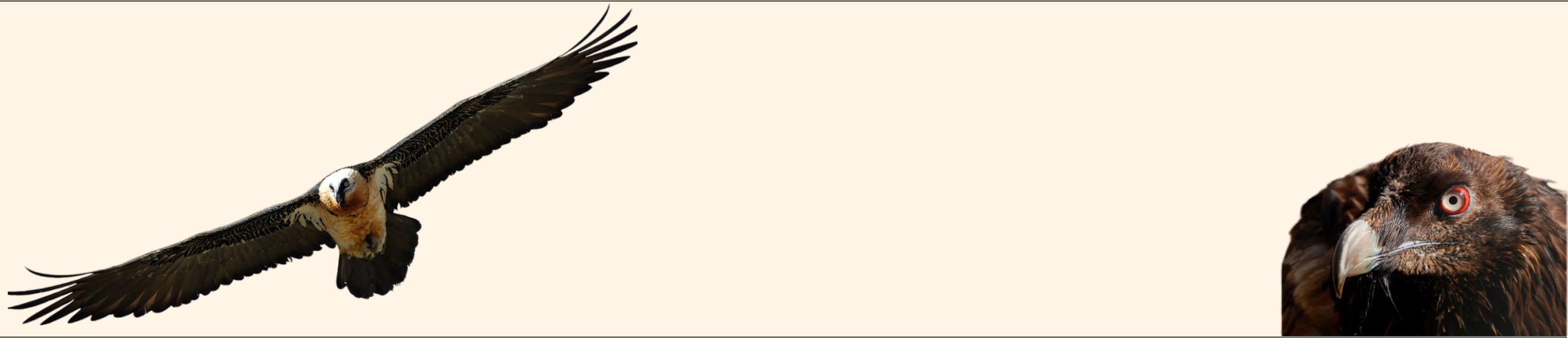
COMMENTS/SUGGESTIONS

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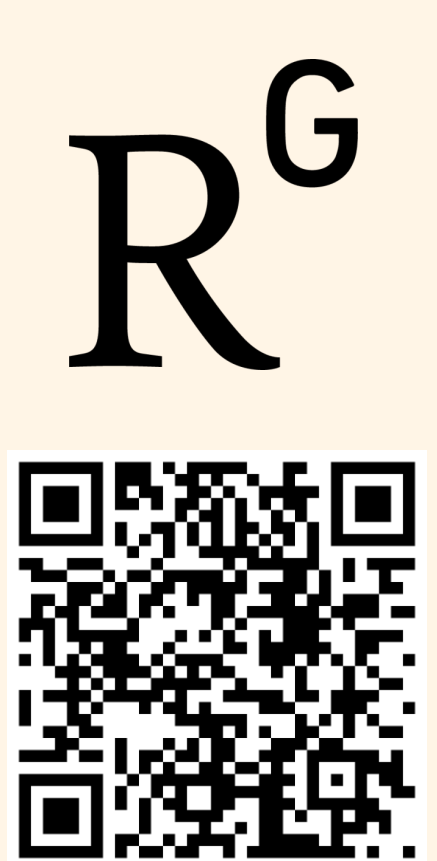
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