

PRESS RELEASE

Agricultural policies cause cascade effects affecting the reproduction of the endangered vulture species in the Canary Islands

- Researchers from the Miguel Hernández University and the Doñana Biological Station – CSIC has concluded that livestock, vegetation and climate modulate the breeding success of the Canary Egyptian vulture
- The study has used data collected during 22 years of monitoring of the Canary Egyptian vulture population on the island of Fuerteventura.



Guirre canario (Neophron percnopterus majorensis). Foto: Manuel de la Riva

Sevilla, 11 de diciembre de 2023. Researchers from the Miguel Hernández University of Elche and the Doñana Biological Station - CSIC concludes in a new study that the increase in the breeding success of the Canary Island wren in recent years could be related to a decrease in the pressure of livestock on the ecosystem and an increase in primary productivity, associated with the level of vegetation. Specifically, this work has shed light on the complex interactions between environmental conditions, available resources and community livestock policies that affect the reproductive success of this endangered species. The study has been possible thanks to 22 years of intensive monitoring funded by the Government of the Canary Islands, Cabildo de Fuerteventura, two European LIFE projects and the Ministry of Science and Innovation.

The Canary Egyptian vulture, known as "guirre", is a subspecies of Egyptian vulture endemic to the Canary Islands. It was widely distributed throughout the archipelago until the end of the 20th century, when it suffered a steep decline that brought it to the brink of extinction. Despite having quadrupled its population since then, today it is classified as an endangered species with about 400 individuals. Currently they only persist on the islands of Fuerteventura and Lanzarote, where their populations seem to be recovering thanks to conservation plans that try to tackle their two main historical problems, power line accidents and poison.

"In this study, we have shown how variations in the number of livestock motivated by changes in the Common Agricultural Policy have caused cascading reactions in the food chain," explains Lola Fernández-Gómez, a researcher at the Miguel Hernández University. Overgrazing is often identified as one of the greatest threats to biodiversity by seriously altering the functioning of ecosystems by increasing the pressure they exert on pasture. However, there is a contradiction in scavenger bird conservation programs. On the one hand, excess livestock disturb ecosystems, but they also provide an important source of food for scavenging birds, many of which are threatened. However, contrary to what might appear to be the case, the scientific team detected a different trend: a decrease in livestock had a positive influence on the breeding success of the Egyptian vulture.

The island of Fuerteventura is known for the number of goats, the majority livestock species. However, due to changes in the subsidies of the Community Agricultural Policy (CAP), the number of livestock was reduced in 2013 from 100 heads per km² to 50 heads. During the first study period, from 2000 to 2012, when the island presented a high density of cattle, the primary productivity and reproductive success of the Canary Egyptian vulture were reduced. On the contrary, during the second period, from 2013 to 2021, when cattle density was lower, an increase in the level of primary productivity was observed, as well as an increase in the reproductive success of the scavenger bird.

"Thus we found that the vegetation that serves as shelter and food for many species of vertebrates on which this species feeds, positively influences the reproductive success of the Canary Egyptian vulture," concludes the UMH researcher. "The results suggest that this scavenger species is highly dependent on the natural dynamics of the ecosystem and not so much on the abundance of livestock carrion that has been observed for other scavenger species."

New impacts threaten the Canary Egyptian vulture

The guirre population is one of the few Egyptian vulture populations in the world that is on an upward trend. Historically, the factors that have reduced the mortality of this subspecies have been accidents on power lines and poison. Both have been corrected thanks to ambitious LIFE projects that have managed to modify many power lines and reduce mortality. However, other mortality factors are emerging in recent years. "The main one is the risk of collision with wind turbines that are being installed on the island and are expected to grow exponentially in the coming years," says José Antonio Donázar, CSIC research professor at the Doñana Biological Station and co-author of the study.

The results of this study have shown that this scavenger population is connected to the dynamics of the ecosystem. The scientific team stresses the importance of understanding how these interactions between the different elements that make up the trophic chains work, since minimal changes in ecological conditions can have direct consequences in stages that are crucial for the development of the population, such as reproduction. "The future of the Canary Egyptian vulture depends on the consolidation of the current population by tackling emerging risks and adequately managing its numbers in relation to the environment and traditional human uses, such as livestock farming. To this end, it is necessary to continue working along the lines proposed in this study," explains the researcher from the Doñana Biological Station. This work will allow the design of tools for the management of this subspecies, as well as the design of effective conservation strategies. "In the medium and longer term, we will have to study the feasibility of its reintroduction on other islands," he concludes.

Lola Fernández Gómez, José Antonio Sánchez Zapata, Jomar Barbosa and Xabier Barber, from the Miguel Hernández University of Elche, and José Antonio Donázar, from the Doñana Biological Station (EBD-CSIC) have participated in this study.

REFERENCE:

Lola Fernández-Gómez, José A. Sánchez-Zapata, José A. Donázar, Xavier Barber, Jomar M. Barbosa. *Ecosystem productivity drives the breeding success of an endangered top avian scavenger in a changing grazing pressure context*. Science of the Total Environment. <https://doi.org/10.1016/j.scitotenv.2023.168553>

CONTACT:

outreach@ebd.csic.es