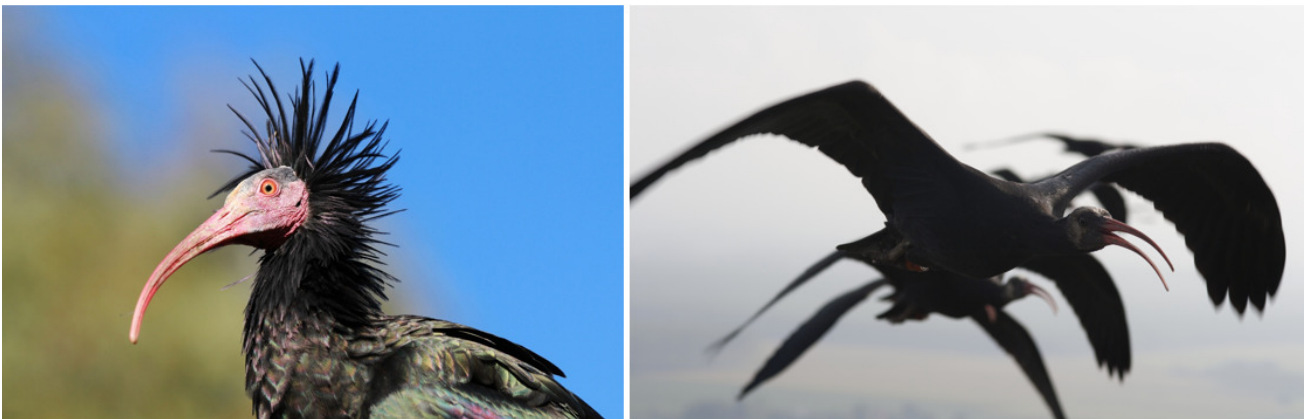


# Oryx

## With a little help—the European northern bald ibis population well on the way to self-sustainability

By Johannes Fritz, Sinah Drenske & Stephanie Kramer-Schadt, 13th February 2023

A bird of austere beauty: this is how you could describe the northern bald ibis *Geronticus eremita*, whose appearance usually only impresses at second glance because of its rather special character. These ibises were intensively pursued as a popular food in the Middle Ages and disappeared from Europe as early as the 17th century. In their whole area of distribution, which once included migratory populations the entire Mediterranean region, only one last wild population remained, on the Moroccan coast, adapted to a sedentary lifestyle.



Left: An adult northern bald ibis. Right: Northern bald ibises during migration. Photos: Johannes Fritz (left) & Markus Unsoeld (right).

The northern bald ibis is considered a threatened species and in 1994 was categorized as Critically Endangered on the IUCN Red List. Thanks to ongoing conservation efforts, however, it was reclassified as Endangered in 2018. The species is usually migratory, mainly insectivorous and reaches an age of up to 30 years in captivity. These fascinating birds are mostly seasonally monogamous and breed in colonies of up to hundreds of individuals. Juveniles learn the migration route by following adults to the wintering ground, where they remain until they are sexually mature, when they, too, begin their annual migration cycles.



Human-led northern bald ibis migration over Tuscany. Photo: Helena Wehner.

In 2002, scientists started a research project for the northern bald ibis, which led to a reintroduction project funded by the European LIFE-program in 2014. This project is focused on using human-led migration as a method of translocation. Northern bald ibis chicks from breeding colonies in zoos are raised by human foster parents and trained to follow a microlight airplane with a human foster parent as co-pilot. This way, the juvenile birds can be guided to the wintering area, a WWF nature reserve in southern Tuscany, where they are released.

In conservation biology, species restoration plays an increasingly important role in counteracting the ongoing dramatic decline of biodiversity. Translocation is a key restoration method that facilitates viable populations, with as little human intervention as possible. There is no general definition of translocation success, but any evaluation should take into account the population growth rate, population size, reproductive probabilities and the frequency of random catastrophic events, such as adverse weather conditions. It is also important to examine the impact of any management interventions.

To find out whether the translocation of northern bald ibises helps conserve this species, we analysed long-term demographic data of 384 individuals and assessed the success of the reintroduction alongside the impact of management measures. The comprehensive 12-year data set, spanning 2008-2019, also allowed us to carry out a population viability analysis and predict the chances of the population surviving in the future, under a range of different scenarios.

During the translocation project, 277 juveniles were released through 15 human-led migrations. The migratory release population currently comprises approximately 200 individuals and has been successfully reproducing since 2011, with 250 young birds raised in the wild so far. First-year survival rate is 52% for wild-born offspring and 73% for released juveniles, and the survival rate for adults is 78%. The fecundity of our study population is remarkable, with a mean of 2.15 fledglings per nest and a tendency for even higher values in all our breeding areas. This reproductive performance is well above the levels of most other wild or released populations and we attribute this to the high quality of foraging habitats.



Left: Northern bald ibis flock at the wintering site in Tuscany, where the population consists of c. 200 individuals. Right: Since 2011 the birds have been breeding successfully in the wild. Photos: Johannes Fritz (left) & Corinna Esterer (right).

Our population viability analysis indicated that the released population is on the way to self-sustainability, but still needs further management. This will be carried out as part of a second European LIFE-project, running to 2028 (LIFE20 NAT/AT/000049). A major focus will be on further improving survival rates, particularly in adult birds, which can be achieved by implementing mitigation measures against the major causes of death: electrocution on unsecured power poles and illegal hunting in Italy.

As part of our research, we simulated scenarios of random catastrophic events with different frequency and severity, all of which had only a small impact on the development of the population, suggesting that the current population can compensate for such catastrophes relatively well. This became very topical in November 2022, when a cyclone claimed the life of 27 ibises in one night.

A more thorough assessment of the impact of climatic change will be important going forward, as the population is becoming increasingly influenced by changing weather conditions. The birds are beginning their autumn migration later, most likely because of increasing mean temperatures in late autumn. This has negative consequences, in particular because it leads to birds failing to fly over the Alps. Incorporating climate change impacts into the assessment and planning of species restoration and translocation projects will be vital in the future.

The article '[On the road to self-sustainability: reintroduced migratory European northern bald ibises \*Geronticus eremita\* still need management interventions for population viability](#)' is available open access in *Oryx—The International Journal of Conservation*.



## Johannes Fritz, Sinah Drenske & Stephanie Kramer-Schadt

Johannes Fritz is a biologist and conservationist. He founded and leads Waldrappteam Conservation and Research, in Austria. He has managed the northern bald ibis reintroduction in Europe for 20 years. As a pilot, he has guided the birds to the winter area 15 times already. He is also a member of the Department of Behavioural and Cognitive Biology, University of Vienna. His research focuses on animal conservation and translocation, biologging, bird flight and bird migration.

Sinah Drenske is a PhD student at the Leibniz-Institute for Zoo and Wildlife Research in Berlin, Germany, in the Department of Ecological Dynamics. Her research focuses on population ecology to understand the adaptive mechanisms of animals to their environment, and to develop measures for species conservation.

Stephanie Kramer-Schadt heads the Department of Ecological Dynamics at Leibniz Institute for Zoo and Wildlife Research and has a professorship at Technische Universität Berlin. Her work is dedicated to understanding species responses to environmental challenges and to improving predictions for conservation and management.