

Oryx

Watch out for the nest! Conserving a grassland species on arable lands

By Ádám Kiss, Ákos Monoki, Fanni Takács & Tamás Székely, 29th January 2024

Over the past few decades, natural habitats have been disappearing across Europe at a worrying rate, often being replaced by intensively farmed agricultural landscapes. As native grasslands have been transformed into arable land, countless grassland species have suffered as they struggle to find suitable breeding areas, leading to population declines or even local extinctions. Many of these species, including birds that traditionally breed in open, grassy habitats, are having to adapt by nesting in these human-modified landscapes instead—putting them at risk from agricultural machinery and pesticides. Fortunately, teams of dedicated conservationists, scientists and farmers are helping to create new breeding habitats and reverse the effects of this decline by putting in place by targeted conservation measures.



A collared pratincole *Glareola pratincola* on its nest. Photo: Ákos Monoki.

The collared pratincole *Glareola pratincola*—an elegant shorebird that looks a little like a cross between a swallow and a plover—used to have its European stronghold in Hungary, where it nested

in alkaline grasslands known as *puszta*. These grasslands are the westernmost outcrop of the vast Eurasian Steppe that ranges from the Ukraine to Kazakhstan, Mongolia and Xinjiang, China. In the early 1900s the breeding population of collared pratincoles was estimated to be around 500–600 pairs in the Carpathian Basin of Central Europe, but by the 1970s this number had plummeted by 90% to a meagre 50–100 pairs. The exact reason for this catastrophic decline is still debated, but changes to grazing regimes, habitat loss, hunting on their migration route and lower groundwater level resulting in reduced prey—flies, dragonflies and damselflies—are thought to be the main culprits. Increasingly, the species has switched its breeding habitat from intensely grazed pastures—typically grazed by cattle—to arable land, particularly maize and sunflower fields. But nesting in arable fields that are cultivated by heavy farm machinery in early spring has resulted in almost 100% of the collared pratincole’s clutches being destroyed. To avoid a seemingly inevitable, catastrophic population crash in Hungary, a handful of conservationists have decided to act.



Eggs in a collared pratincole nest in a cropland. Photo: Ákos Monoki.

In 2013, with the support of Hortobágy National Park, we began a targeted conservation programme with four main elements. First, we carry out direct nest protection at the birds’ known breeding grounds in arable fields. A few days after arriving at the farmlands in the spring, pratincoles begin exploring for suitable nesting sites. Our team follows their movements and scans the area for any nests that have been made, which we can spot by the behaviour of the birds or the presence of laid eggs. When we find a nest, we stake out a buffer zone around it using wooden poles, to prevent any agricultural machines from getting too close, allowing the pratincoles to safely incubate their eggs and raise their chicks.

The second step is to create new nesting areas by collaborating with local farmers and land owners. Pratincoles tend to choose arable land that is near rice paddies, as these fields provide plentiful prey for them to feed on. So, to create more potential nesting habitat for them, we engage with rice field farmers and ask them to consider using only a portion of the land for rice production, leaving the rest as fallow land. By alternating ploughing in this way, the rice paddies attract the pratincoles and the untouched fallow land gives them some space to nest nearby.



Long-term protection of the species can only succeed with the cooperation of local farmers and conservationists. Credit: Ákos Monoki.

Thirdly, we control predator populations in the area by working with local hunting associations. Pratincole predators include hooded crows, red foxes, Eurasian badgers and golden jackals. Selective hunting methods, such as trapping, help to keep the populations of these animals at a level that allows pratincoles to thrive.

In the fourth and final step, we monitor the success of these combined conservation measures, continuously observing and collecting data on the pratincole's breeding behaviour, nesting success and demography. Excitingly, over 10 years, these targeted actions have led to an increase in nest survival from less than 11% to over 84%, and the number of breeding pairs has grown from just 13 to 56. Through the combination of our field methods, we are not only building up a healthy breeding population, but also collecting essential data that are key for securing the long-term persistence of this remarkable species. By carefully ringing a small number of the birds during our field work, we have been able to keep track of their movements and verify that the same individuals return to breed at our study site year after year.



A protective buffer zone around pratincole nest; two wooden poles are set 12 m either side of the nest while the fields are cultivated so that farmers can avoid ploughing to close to the marked nests Photo: Ákos Monoki.

To help this growing pratincole population even further, we need to tackle three main challenges. First, we don't know where pratincoles spend the winter and which route they use for migration. This information would be useful to know so that we can assess any threats the birds face in these areas and implement protective measures. Tagging pratincoles with transmitters to track their movements could help solve this mystery, while also showing us any connectivity between different breeding sites. Secondly, we don't yet fully know how pratincoles choose their nest sites. To improve how we adapt arable landscapes to work in favour of the birds, we need to understand the specific vegetation features and geographical characteristics, such as distance from water and extent of disturbance, that are important for pratincoles picking their perfect nest site. Finally, long-term monitoring of individual birds is needed so that we can accurately assess factors such as survival and breeding success. Shorebirds can live for a fairly long time, so this will require many more years of ringing birds, as well as detailed data collection and field monitoring. This information will ultimately enable us to start building population viability models, which help in designing effective conservation strategies.

Our project proves that targeted conservation actions can be effective when there is active collaboration between conservationists, landowners and scientists willing to work together towards securing a future for threatened wildlife.

The article '[Breeding in an agricultural landscape: conservation actions increase nest survival in a ground-nesting bird](#)' is available open access in *Oryx—The International Journal of Conservation*.





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