

How to restore steppe birds' habitat and recover its population?

Abstract

A win-win relationship looks as the only successful way to implement a sustainable and competitive model for crops and livestock in steppe areas of Castile-La Mancha. The LIFE project Estepas de La Mancha its aims to preserve the territory's mosaic structure and their value as habitat for steppe birds without losing productivity. This project supports farmers through land stewardship agreements in the implementation of agri-environment measures that allow them to improve the profitability of their farms, to have access to Rural Development funds or to join any initiative of differentiated marketing, where the project coordinator, the environmental spanish NGO Fundación Global Nature, provides the technical support and works to find potential organic markets. Nowadays, a voluntary land stewardship network has been formed with more than 3.000 ha and more than 50 farmers where those that are not in organic production are reducing the amount of pesticides and mineral fertilisers and those farmers that are in organic production are working on improve the ecological infrastructures, something that will contribute not only to their crops but also with steppe birds habitat. Beyond these agri-environmental measures, in general, a big strategy to educate and sensitize the entire local population is running off, so that they assume that the conservation of these bird species and the traditional structure of the landscape benefit them in social and economic terms.

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Extensive grazing by cattle and traditional cereal crops, in rotation with lying fallow, legumes and other herbaceous crops, has over the centuries altered the landscape of the plateaux and large valleys of the Iberian Peninsula. In this way, habitats similar to natural steppes have arisen. Steppe birds, originally from the great plains of Asia and Central Europe, have adapted to these agrarian systems with high natural values since the Neolithic Age. Nowadays, Spain is home to the last and most important populations of these birds following their extinction in a large part of the rest of the Continent. Specifically, Castile-La Mancha is one of the last refuges for these species. It hosts 40% of the European population of great bustard and Iberian sandgrouse and between 10 and 20% of stone curlew. Over a third of the world population of little bustard lives in Castile-La Mancha. This is also the region with the largest populations of species of hunting interest associated with these crops, such as partridge and quail. The changes in and intensification of traditional farming practices is one of the most important reasons for the decline of these species. The loss of hedgerows, fallow lands and the cultivation of legumes, the advances in irrigation, or the use of chemical fertilizers and pesticides cause poisoning, food shortage through a smaller number of invertebrates and the destruction of refuges. The introduction of short-cycle cereals has shortened the farming calendar and triggered the destruction of clutches by the use of combined harvesters.

Land stewardship is a set of strategies and instruments aimed at involving the owners and users of the territory in the conservation and proper use of the natural, cultural and landscape values and resources. It promotes agreements and collaboration mechanisms among owners, stewardship bodies and other public and private agents. Land stewardship bodies are public or private not-for-profit organizations. Land stewardship is embodied in voluntary agreements

among owners and land managers and territory stewardship bodies to maintain or recover the natural medium and the landscape. With the LIFE project "Estepas de La Mancha" (www.estepasdelamancha.es), a voluntary land stewardship network has been formed with more than 3.000 ha and more than 50 farmers. Also, farmer and hunt societies, and shepherds are part too of this network. The goal of this action is to accompany the farmers in the implementation of the measures to reduce the impact on steppe birds population.



In those lands where a stewardship agreement has been signed, biodiversity improvement plans is implemented on farming plots with the intention of reducing their environmental impact by applying different agronomic measures in order to extend the experience among the rest of the farmers in the district. This is allowing creating a Sustainable Production and Sourcing Code for Cereals and Legumes for the Conservation of Steppe Birds. This Code will be the basis for differentiated marketing and can be assumed as a procurement protocol for those agrifood and processing companies wishing to

differentiate themselves in this sense. The goal is for these farms to show other farmers in the region the advantages and the savings implied for them by the application of the many of these measures. These measures include, among others, a higher rotation of grain legumes, fertilization optimization, reduction of pesticides, set-aside and biodiversity reserves.

In addition, the project also put a lot of focus on helping farmers to brand and sell their produce. Fundación Global Nature bought up farmers' harvests, packaged and marketed these crops at national and international trade fairs and with major supermarket chains. Fundación Global Nature installed a packaging plant in Toledo and created an almond production cooperative to commercialise the products further. It also designed a special packaging label to brand the produce, which uses the logo of Natura 2000 and an image of the great bustard as a symbol for ecological production. At the end, LIFE Estepas de La Mancha supports farmers through land stewardship agreements in the implementation of farming measures that allow them to improve the profitability of their farms, to have access to Rural Development funds or to join any initiative of differentiated marketing, where the project provides the image and potential markets.

But not only agri-environment measures are a key element to implement sustainable and competitive models for crops and livestock. To preserve the territory's mosaic structure and their value as habitat for steppe birds without losing productivity other strategies are being implemented: groves, boundaries and hedgerows are recovered through the plantation of local species of herbaceous plants, scrub and low bushes with plants of local provenance. Until now, more than 20,000 plants have been distributed as hedgerows in croplands, most of them have been planted by farmer of the "LIFE Estepas de La Mancha" land stewardship network.

Water points are created, restored or adapted to favor steppe birds by serving as drinking areas. It is an important element to encourage the conservation of populations of frogs and insects. Architectural elements such as kestrel shelters (a kind of dovecot for housing breeding colonies of lesser kestrels –*Falco naumanni*) have been restored too.



In order to minimize the problem of collisions or fragmentation of the populations of steppe birds due to the incompatibility of the presence of birds beside certain barriers, barbed wire fences will be replaced, fences will be signalled with long-lasting elements and, in particular, the tensors on espaliers used in vineyards. In order to provide greater support to the farmers joining the land stewardship network created within the project, the pre-existing strategy of differentiated marketing for legumes already implemented by the Global Nature Foundation will be extended. The agri-environmental products from the four areas in the Natura 2000 Network included in the project will be promoted by ensuring their sustainability, traceability and transparency.

Also, the Regional Government (JCCM), a partner in the Steppes of La Mancha LIFE project, has extended the "SCA Laguna de El Hito" special conservation area to almost 24,000 hectares, and will draw up a Regional Plan for the Conservation of Steppe Birds and a new draft of the Agri-Environmental Programme for the upcoming programming of the CAP to be applied from 2020 on.

This initiative takes place between 2016 and 2019 in 57 municipalities of four Special Bird Protection Areas and Special Conservation Areas in La Mancha District. It is co-financed by the European Union's LIFE programme and its partners include Fundación Global Nature (project coordinator) and the Regional Government of Castilla La Mancha.

When LIFE project Estepas de La Mancha finished, Fundación Global Nature will keep working with the land stewardship network created for this initiative, further works to reduced impact on biodiversity related with crop lands is needed and is expected to have a bigger number of farmers working together to achieve it.

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Conflict of interest

Author declares that there is no conflict of interest.