

Public raises alarm about ineffectiveness of some Montagu's harrier conservation measures

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Montagu's harrier (*Circus pygargus*). Credit: Instituto de Investigación en Recursos Cinegéticos

A citizen science programme reveals the protection measures for the

Montagu's harrier in the cereal crop season in France to be ineffective if nests are not protected to decrease predation after harvesting. A study has been published as a result of this voluntary fieldwork, with the participation of the Hunting Resources Research Institute, which proposes fencing off the nests as a way of mitigating the damage and optimising conservation efforts in different areas.

Over the last decade there has been an explosion in the so-called [citizen science](#) programmes, in which people (without a scientific background) voluntarily gather useful information for research programmes.

A study published in the *Journal of Applied Ecology*, for which the scientist Beatriz Arroyo from the Hunting Resources Research Institute has collaborated with researchers from the University of Helsinki (Finland) and the National Centre for Scientific Research (CNRS) (France), presents an example of the use of citizen science to evaluate and optimise the effectiveness of conservation programmes.

The scientists used data gathered over six years by a volunteer protection programme of the Montagu's harrier (*Circus pygargus*) across France (more than 1,000 nests a year). This fair-sized bird of prey is linked to cereal crops (wheat and barley) and lives in large open and treeless spaces.

"An average of 500 people a year work as volunteers in France on this objective. They have to look for nests and once located, search for the owner of this land and convince them to put up a fence or protect the nest without a fence when the crop is being harvested (depending on what they decide), then monitor the nest and pass this information on (nest details, fledglings, etc.) to a regional coordinator," Arroyo explains to SINC.



Montagu's harrier (*Circus pygargus*). Credit: Instituto de Investigación en Recursos Cinegéticos

The study shows that the productivity of the nests which are protected only during the crop harvest is strongly reduced by predation after the harvest, except where the nests are temporarily protected by a fence.

"The fence helps to decrease the predation post harvest, as uncut wheat in a 'sea' of stubble is easily detected by predators. Each fence costs between 10 and 15 euros, and can be reused for other nests the following year," notes the expert. This significant labour force is, in any case, limited and distributed irregularly given that it depends on the number of volunteers that there are in each area.

The scientists combined the information on the density of Montagu's harriers such as, for example, the proportion that would fail to thrive in the absence of conservation measures, and the availability of volunteers, to map the potential benefits for the species (estimate of chicks saved per km²) if the most effective measure was applied. According to the study, the areas of greatest potential benefit are not necessarily those where there are most volunteers.

"The areas which would benefit more from an increase in the conservation are in the north-eastern France, above all those in Champagne-Ardenne, Lorraine and France-Comté. We chose France for the study because this citizen involvement has been in place there for years, but nobody had evaluated the implications of what is being done or if this effort could be optimised," says Arroyo.

An unsuitable solution for partridges or bustards

This specific example of how to protect [nests](#) in crops could be extrapolated to other harrier species in other areas. However, it could not be applied to other ground-nesting birds, such as partridges or bustards that also die during harvesting, because they would suffer stress from having a fenced-in nest.

"The main conclusion is that the impact of the conservation programmes would increase exponentially if efforts were concentrated in areas where the imbalance between potential benefits and availability of volunteers is greater," stresses the researcher.

The study also highlights the importance of citizen science in obtaining large-scale data, which can be used to obtain management recommendations based on scientific evidence, in an adaptive management framework.

More information: Santangeli, A., Arroyo, B., Millon, A. & Bretagnolle, V. "Identifying effective actions to guide volunteer-based and nation-wide conservation efforts for a ground-nesting farmland bird". *Journal of Applied Ecology*, 26 May 2015.

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