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## Population monitoring and management

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### Nocturnal raptors for vole control: studying their populations

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Common vole (*Microtus arvalis*) population outbreaks generate important damage in croplands of northwest of Spain. In order to work on the control of this pest, a study area was established in the province of Segovia. The area was equipped with 103 nest boxes for avian predators: barn owl (*Tyto alba*), little owl (*Athene noctua*), and common kestrel (*Falco tinnunculus*). Literature and phototrapping have previously demonstrated that these two owl species are effective predators of common vole. They both have a poor conservation status in Spain.

A specific monitoring study was developed in the period 2021-2024, to individualize all the nocturnal raptors which breed in these nest boxes. The goal was to get knowledge and demonstrate the importance of fixing populations of these raptor species in croplands where rodents frequently cause damage. The study demonstrated that it is possible to recover and fix populations of nocturnal raptors for a period of many years. This requires the installation of a considerable number of nest boxes to offer enough breeding sites for future generations of owls. Thanks to this inexpensive tool, we have obtained important information on the kinship, breeding pairs, local movements, and habitat selection of two main feathered allies of Spanish farmers: barn owl and little owl. This information is very useful to know how to orientate new projects or local actions of biological control of the common vole. Finally, we have shown that our monitoring method poses no risk to these birds at such a delicate time as the breeding season.