

Technology tracks the elusive Nightjar

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(Phys.org) —Bioacoustic recorders could provide us with vital additional information to help us protect rare and endangered birds such as the European nightjar, new research has shown.

The study, led by Newcastle University, found that newly developed remote survey techniques were twice as effective at detecting rare birds as conventional survey methods.

Using automated equipment to record the nightjars at dawn and dusk, when the birds are most active, the team found a 217% increased detection rate of the nightjar over those carried out by specialist ornithologists.

Published this month in the prestigious academic journal *PLOS ONE*, lead author Mieke Zwart said the findings suggest that automated technology could provide us with an important, additional tool to help us survey and protect <u>rare birds</u>.

"The results of this research will help conservationists monitor endangered <u>species</u> more effectively," explains Mieke, who carried out the research as part of her PhD, supported by Baker Consultants Ltd and Wildlife Acoustics Inc.

"The European nightjar, for example, is only active at night and is very well camouflaged, making it difficult to detect using traditional survey methods.



"Using bioacoustics techniques we can more accurately build up a picture of where these birds are, population numbers, movement and behaviour."

The nightjar - Caprimulgus europaeus – is a migratory species protected under the Birds Directive (Directive 2009/147/EC) and in the UK by the classification of Special Protection Areas (SPAs).

Nesting on lowland heath such as parts of Sherwood Forest and Thames Basin Heath, it can be affected by development such as housing and as part of the planning process, developers must now provide data on presence and abundance of this species and provide mitigation plans to prevent their disturbance before planning applications will be considered.

Traditional bird survey methods involve specialist ornithologists conducting field surveys to identify and count the birds they encounter. But these are time-consuming, must be performed by experts, and could be inaccurate when surveying species that are difficult to detect.

Bioacoustics is the science of recording of wildlife sounds and processing that data to provide information on species numbers, movement or behaviour.

Using automated audio recorders and analysis software, the technology is 'trained' to automatically recognise the calls of individual species, in this case the nightjar.

Remote recorders were deployed at specific sites and the results were compared against observations from standard human field surveys of the same sites.

Andrew Baker, managing director of Baker Consultants Ltd and a co-



author of the paper, said: "This is a key piece of research that has demonstrated how effective bioacoustics techniques can be for providing ecological data.

"This research has challenged conventional methods and could be applied to a wide range of species to give more accurate, objective data on bird numbers and distribution."

This study has implications for a range of other species, including black grouse (Tetrao tetrix), capercaillie (Tetrao urogallus) and woodlark (Lullula arborea). This is especially important when information on species presence and abundance is used to inform conservation projects or development plans.

More information: "The use of automated bioacoustic recorders to replace human wildlife surveys: An example using nightjars." Mieke C. Zwart, Andrew Baker, Philip J. K. McGowan, Mark J. Whittingham. *PLOS ONE*, July 16, 2014. DOI: 10.1371/journal.pone.010277. dx.plos.org/10.1371/journal.pone.0102770

Provided by Newcastle University

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