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## MONITORING BARN OWL EXPOSURE TO RODENTICIDES: A NEW REGULATORY TOOL

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### ABSTRACT

Exposure of non-target wildlife to second generation anticoagulant rodenticides (SGARs) is widespread in Europe and elsewhere. Until recently, the most acutely toxic compounds (brodifacoum, flocoumafen, difethiolone) have been restricted to indoors in the UK to mitigate against effects in non-target wildlife; outdoor use has only been permitted for the less acutely toxic bromadiolone and difenacoum (to which some rats have become resistant). However, because all five compounds fail their environmental risk assessment, recent UK regulatory review has determined that they should be treated equally. Authorisations are now changing such that all five can be used in and around buildings (enabling control of resistant rats using brodifacoum, flocoumafen or difethiolone) and some may be used in open areas. This relaxation of the indoor-only use restrictions for three compounds requires implementation of a stewardship scheme designed to enhance best practice and thereby reduce wildlife exposure. The outcomes of these changes are uncertain and subsequent effects on non-target exposure need to be assessed and inform the regulatory process. The Predatory Bird Monitoring Scheme (PBMS- [pbms.ceh.ac.uk](http://pbms.ceh.ac.uk)) has been monitoring liver SGARs in barn owls (*Tyto alba*) for the last 30 years. This large unique dataset provides a baseline against which future changes in non-target exposure can be measured. We describe how we can use this dataset to determine whether, and over what time period, 5-50% changes in barn owl exposure can be detected. This involved novel analysis of the data, splitting it into "low" and "high" concentrations for each compound. We predict that, for both data sets, we can detect changes of 10-20% from baseline concentrations by analysing between 50 and 100 birds annually for between 1 and 4 years. Such monitoring will be used to set regulatory targets for stewardship and as a trigger for implementing future changes to regulatory authorisations if necessary.



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