

**Camera traps and activity signs to estimate density and population trends in wild pigs**Massei, G.<sup>1</sup>, Cowan, D.<sup>1</sup>, Lambert, M.<sup>1</sup>, Coats, J.<sup>1</sup>, Watola, G.<sup>1</sup>, Fox, S.<sup>1</sup>, Ward, A.<sup>1</sup>, Pietravalle, S.<sup>1</sup><sup>1</sup>Food and Environment Research Agency, Sand Hutton, York, YO41 1LZ, United Kingdom, giovanna.massei@fera.gsi.gov.uk

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Wild boar are often associated with damage to agriculture, traffic incidents and spread of diseases to humans and livestock. Controlling numbers of wild boar requires estimating local densities to measure the impact of any population management plan on actual numbers. However these densities are notoriously difficult to assess as wild boar are predominantly nocturnal, rely on dense vegetation for cover and avoid people, particularly when hunted. In many instances, indices of abundance based on activity signs such as tracks, pellet groups and rooting could be used instead of absolute numbers to monitor population trends. Animal population surveys based on camera trap surveys are increasingly employed in wildlife management due to the availability of recently developed, relatively inexpensive equipment suitable for field trials. This has been complemented by a growing literature aimed at establishing a conceptual framework for the optimal use of camera trap surveys. A novel approach using camera traps to estimate population density without the need for recognising individual animals has recently been developed and calibrated against known sizes of ungulate populations. The aims of this study, carried out at five sites in England, were to evaluate and compare the use of several activity indices to monitor population trends of wild boar and to estimate wild boar densities based on camera traps.

The results of this study showed that the method based on camera trap surveys could be used to detect differences in wild boar population abundance indexes between and within sites and to estimate absolute densities of wild boar in English woodlands. Surveys based on activity signs proved to have a low precision in estimating abundance indexes and were restricted to winter due to the persistence of activity signs which were more detectable in winter than in summer. Conversely, camera trap surveys were less likely to be affected by season and could be used any time of the year. The relatively small variation associated with the estimates derived from the camera trap surveys resulted in detectable differences, at least between some seasons or sites, in the relative indexes of abundance and in the estimated densities of wild boar.