

The effect of camera trap type on the probability of detecting different size classes of Australian mammals

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Abstract

Due to the increasing use and reliance on camera traps as a wildlife survey technique, it is vital to understand the limitations of the technology. While there have been several recent studies comparing camera traps with traditional methods such as live trapping, there have been few studies comparing the effectiveness of different camera types or models. Such information is particularly important for ongoing monitoring, where comparisons may need to be made between different datasets, or where different camera models are utilised in a study. We present the results of a broad scale camera trap survey undertaken across 180 sites in central and eastern Victoria in 2011. Two models of white-flash cameras were assessed against a model with infrared flash, allowing comparison of efficacy in detecting small, medium and large-sized mammals. The camera traps used in our study varied substantially in their capacity to detect mammals, particularly for small species. We also found that the probability of detection of mammals by camera traps decreased with increasing body size.

Introduction

Camera traps have become a preferred wildlife survey and monitoring technique in Australia over the past decade, as they have around the world (e.g. Claridge *et al.* 2004; Nelson and Scroggie 2009; Smith and Coulson 2012; Latham *et al.* 2012; Ariefiandy *et al.* 2013). Camera traps present several advantages over traditional techniques used to study wildlife. Apart from being less invasive, camera traps are particularly useful for detecting cryptic species and species that are wary of entering conventional live-capture traps, and are generally more cost effective (Cutler and Swann 1999; Silveira *et al.* 2003; De Bondi *et al.* 2010; Claridge *et al.* 2010; Smith and Coulson 2012). However, despite their value as a wildlife research tool, it is important for researchers and land managers to be aware of the potential limitations of camera traps. Camera trap technology has largely been driven by the requirements of recreational hunters in the northern hemisphere, rather than by the needs of wildlife research *per se* (Swann *et al.* 2004). The implication is that many camera traps have been designed primarily to detect large game animals;