Aerial detection of the presence of a burrowing marsupial, the greater bilby, using remotely piloted aircraft.

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Remotely piloted aircraft (RPA), also known as drones or UAVs, are fast becoming a cost-effective, alternative technology for the purposes of fauna survey and monitoring. RPAs can provide access to remote areas and enable the survey of large areas more rapidly. The greater bilby (*Macrotis lagotis*) was once found across most of arid and semi-arid Australia; however, since European colonisation bilbies have disappeared from at least 80% of their former range. Bilbies dig for food and burrow extensively, and have been described as ecosystem engineers. They are cryptic and not easily observed or trapped, are sparsely distributed across large areas, and populations can move across the landscape, therefore, detection has relied on sign, such as tracks, scats, diggings and burrows. We tested the ability to detect bilby diggings and burrows using video imagery captured by a commercially available multi-rotor drone. Transects were flown using combinations of altitude, speed and camera angle to compare detectability, then ground-truthed. With the rapid development of RPA technology, drones have the potential to become a useful tool in detecting the presence of species, particularly burrowing mammals, in remote locations or across large areas.

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ABSTRACT BOOK