

Unmanned aerial surveys of sand cay habitats and wildlife on the far northern Great Barrier Reef.

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Keywords:

coral cay, reefs, turtles, seabirds, nesting, unmanned

Abstract:

Coral reef sand cays are unstable accumulations of the calcium carbonate skeletons of marine organisms. These provide important nesting and roosting habitats for endangered species such as the green turtle (*Chelonia mydas*). We describe the use of multi-rotor -unmanned aircraft systems (UAS) to map topography and wildlife on two sand cays on the northern Great Barrier Reef. We compare the UAS techniques with ground-based survey methods and estimates of species abundance. UAS potentially provide an effective way to rapidly survey island habitats and species from the air, particularly in harsh and remote environments and where ground-based observations may disturb wildlife. In this study, UAS complemented and added value to research on changes in island morphology, nesting habitats, population dynamics and mark recapture estimates. We analyse and compare data from alternative methods and suggest protocols for flying in these environments.



Figure 1. Green turtle (*Chelonia mydas*) on coral cay.