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Chris Muller, Massey University

The Future of Wildlife Monitoring – Evaluating the Usefulness of Drone and Aerial Wildlife Tracking Methods

Accurate and efficient data collection will be required to meet the goals of Predator Free 2050, and for conserving taonga species in the future. Ecological studies often require locating animals and monitoring their movements, including endangered species and invasive pests.

VHF-radio tracking is widely-used for locating and monitoring wildlife, but the equipment has changed little since the 1980s. New multi-frequency receiver technology can revolutionise conservation research, especially when paired with aerial tracking technology.

Tracking from the air offers many advantages over traditional ground-based survey and research techniques. As well as making fieldwork faster, safer, and more efficient, aerial searches can follow an automated flight plan for repeatability. Unmanned Aerial Vehicles (UAVs, or drones) are cheaper and more portable than manned aircraft, making them more accessible to biologists. However, there are a number of technical considerations to get best results from this emerging tool.

We developed a multi-frequency VHF receiver offering many advantages over traditional single-frequency receivers, especially for aerial tracking. Benefits include simultaneous monitoring of 500 frequencies (instead of sequential scanning), and dynamic searching (while moving). Unlike standard receivers, this new technology also stores position data for easy spatial analysis, and comparisons over time.

Here we discuss the evolution of technology and the successes and failures of various methods of using drones, including the performance of different sensors such as thermal imagery and multi-frequency VHF for applied conservation. Using case-studies we present results comparing the efficiency of different tracking methods for locating animals.