

Title:

Revolutionising Wildlife Management with Multi-Track Aerial VHF Telemetry and AI-Based Animal Recognition

Authors:

Muller, C. G.

Addresses:

Altitude Conservation, www.AltitudeConservation.com

Abstract:

New innovations combining proven technologies with intelligent automation are transforming wildlife monitoring. VHF telemetry has long been valued as a small and inexpensive tracking option, especially in forested habitats. However, traditional receivers are limited by requiring sequential frequency scanning, triangulation, and labour-intensive workflows. The Multi-Track system addresses these challenges by tracking 500 VHF frequencies simultaneously, determining positions without triangulation, and enabling dynamic tracking from uncrewed or piloted aerial platforms.

Recent breakthroughs in Artificial Intelligence systems can automatically detect, identify, and count animals directly from aerial imagery, including mammals, birds, and other species. This functionality enables wildlife managers to rapidly assess population distributions, detect invasive species, and monitor animal movements more efficiently. By removing requirements for manual image review or ground-based surveys, this technology significantly reduces processing time and operational costs, while increasing survey frequency and geographic coverage.

AI-based counting complements traditional electronic monitoring techniques by providing a non-invasive alternative to animal capture and collaring, particularly for species or individuals where handling is impractical, high-risk, or ethically constrained. Managers can now assess population-level data across broad landscapes quickly and with minimal disturbance. When combined with VHF telemetry, it provides additional data on focal animals, including intra- and inter-specific interactions, habitat use, and threats.

We present case studies highlighting the Multi-Track system's effectiveness across diverse environments and species. Integrating radio-tracking and AI counting offers efficient, accurate, and practical tools delivering faster, safer and smarter monitoring for wildlife research, pest control, and conservation management – providing new solutions for 21st century conservation problems.

Statement:

This presentation directly supports effective wildlife management by introducing practical, science-based tools to improve the accuracy, efficiency, and safety of wildlife monitoring. Aerial tracking combining radio-tracking and artificial intelligence for animal recognition and counting enables managers to rapidly collect reliable data on species presence, distribution, and abundance across challenging terrain and broad landscapes. By reducing reliance on inefficient, time-consuming, and potentially hazardous ground tracking methods, and by automating previously labour-intensive processes, the technology allows for more data-focused and responsive management actions. These capabilities are particularly valuable for

designing, implementing, and reviewing management plans in complex social, environmental, and political contexts – such as monitoring threatened species, tracking pest incursions, or managing human-wildlife interactions. The presentation discusses case studies illustrating techniques to get the most out of emerging new technologies, and it contributes directly to AWMS's mission by demonstrating how applied science and innovation can lead to more informed, efficient, and scalable wildlife management strategies.