

3. Landscape scale surveying by the Lachlan Catchment Management Authority for Malleefowl nest sites in western NSW

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The use of helicopter surveying has proven to be the most cost effective method available to accurately survey large areas of Mallee woodland for the presence of nesting Malleefowl. The aim was to rapidly assess the vast tracts of Mallee woodland in the western sections of the Lachlan catchment for the presence of Malleefowl.

In April 2009 aerial surveys were conducted using grid based techniques on privately owned and leasehold properties in western New South Wales. Transects were flown in north south directions as recommended by the NHT National Malleefowl Survey protocol (Victorian Malleefowl Recovery Group 2007) to avoid difficulties caused by the sun at low angles to the horizon. Pathways for the survey were coordinated and plotted using Garmin Mapsource 2.58 and supplied to the helicopter pilot prior to departure. All coordinates were recorded in GDA, in accordance to Lachlan CMA GIS protocols, using three handheld Garmin eTrex Summit HC GPS units. Flight speeds during the survey were about 106 km/h (n=500 flight legs, mean = 106.21 km/h, std = 34.20 km/h) at an altitude of 178 m (n = 500 flight legs, mean = 177.81 m, std = 9.41 m). Distances between transects were 100 m (n = 50, mean = 97.74 m, std = 12.98 m) to allow a surveyor-viewing envelope of 50 m either side of the helicopter. When nesting mounds were located the helicopter would circle back to the site and hover over the mound while three waypoints were recorded and a photograph was captured. As a comparison a ground crew of 10 volunteers were coordinated to walk transects with a 10m gap between each person and search for nest mounds.

Staff of the Lachlan Catchment Management Authority surveyed a total of 51,000 ha over a period of 8 working weeks (48 days or 384 hours) at a cost of \$97,184.00. This cost included all flying time, helicopter hire and ground-truthing as well as on-ground costs such as vehicles and insurance. To survey the same area using ground staff at \$20.00 per hour (8 hour day for 3 staff = \$480.00 per day) would cost about \$1.5 million over a period of 638 weeks.

Dealing with the decline of threatened species and the processes that lead to the decline of these species often requires immediate action but the initial cost is difficult to justify to funding authorities. The Lachlan Catchment Management Authority was required to manage a threatened species that was distributed within widespread habitat across the catchment and difficult to traverse. Cost-benefit analysis revealed that although the use of helicopter surveying was initially expensive, large areas could be covered quickly and accurately. When this was tested against the monetary cost and time expenditure in surveying with ground crews there were clear advantages to aerial surveying.