

## Rapid Assessment Of Stream Condition Using Airborne Videography

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**SUMMARY:** For rangelands, agricultural lands and areas of poor access, airborne videography can be a practical method of providing a quick cost effective assessment of stream characteristics and condition.

### MAIN POINTS

- This methodology allows rapid, low cost assessment of riverine condition.
- Video information can be easily converted into GIS coverages.
- Provides baseline information for local and regional planning.

### 1. INTRODUCTION

The "Mid northern" agricultural area is a region that extends north of Adelaide (S.A.) and covers an area of approx. 40,000 km<sup>2</sup>. The three major river catchments in the area (Light, Wakefield and Broughton) show the effects of agricultural development, irrigation, land clearing, grazing, dams, exotic weeds and subsequent erosion events.

Videography is used to determine the density of riparian vegetation, areas of native and exotic tree cover, eroding river banks, large scale erosion heads, pools, rock bars, areas of bed aggradation and degradation, stream works and surrounding land use.

### 2. METHODOLOGY

The Wakefield catchment (as an example) covers an area of approximately 700 km<sup>2</sup> containing 1,500 km of streams. Of these, 400 km of streams (3<sup>rd</sup> order and greater) can be captured within six hours video recording time.

The aircraft used is a "Seeker Seabird" observation plane with a video camera mounted beneath the feet of the pilot. A video recorder records the image as well as the corresponding GPS point.

An onboard laptop computer records the GPS points of the flight path. These GPS points can be downloaded and used as a GIS coverage over a map of the catchment. This used in conjunction with the GPS points on the video footage, provides mapping accuracy up to +/- 100 m.

The video information is then assessed, coded onto maps, ground truthed, converted into GIS coverages and compiled in a report on the river catchment.

### 3. DISCUSSION

As a method of providing detailed information on riverine characteristics, airborne videography is most suitable when applied to:

- grassland and open woodland environments.
- watercourses during low or no flow conditions.

### 4. CONCLUSION

This methodology allows rapid low cost assessment of riverine condition to provide baseline information for local and regional planning, while maintaining the detail and accuracy relevant to assessments on an individual property scale.

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