

Using Aerial Photography as a Tool to Better Understand Ecological Communities Liette Vasseur and Jessica Pike

Aerial photographs are valuable when understanding ecological communities and monitoring changes in land uses over time. Since the 1930s, these aerial photographs have become increasingly available, providing documentation at both spatial and temporal scales. These photographs are manually interpreted by analyzing the tone, shape, size, pattern, texture, shadows, sites and context. Valuable information from these photographs can be obtained ranging from recognizing a single tree species to the spread of a particular disease or the changes in land use (e.g. from forest to agricultural land).

Costs associated with aerial photographs are greatly reduced compared to traditional land surveys. An important aspect to consider when acquiring aerial photographs is the appropriate scale, dependent upon a study's objectives. For an example, if a study requires general land cover information, a scale of 1:40 000 would be appropriate compared to a study using a change in land use where a scale of 1:20 000 to 1: 4800 would be suitable. This could be furthermore compared at a finer scale if a study was looking at a single tree species and thus a scale of 1:2 400 to 1: 1 200 would be needed.

It is also important to note that nowadays, satellite imagery is also increasingly readily available, adding to the ability to systematically revisit information over an even wider array of areas. Together, aerial photography and satellite imagery can prove to be most useful in terms of maintaining a historical database and providing baseline data for long term ecological monitoring.

For further information:

Morgan, J.L., Gergel, S.E., Coops, N.C. 2010. Aerial Photography: A Rapidly Evolving Tool for Ecological Management. *Bioscience*, 60: 47-59.