

Evaluating the Object-based Image Analysis (OBIA) approach for mapping African lovegrass (*Eragrostis curvula* (Schrad.) Nees) in the Bega Valley, NSW, Australia

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Summary The use of remote sensing for weed mapping has well-known tradeoffs between spectral and spatial resolution using current remote sensing platforms. Often restricted spectral capabilities limit the ability to discriminate particular plant types that are often spectrally similar, for example, similar shades of ‘green’, particularly in pastoral settings. Regardless of the spectral capabilities of any sensor, the discrimination of a single plant species remains challenging. Linking particular plant traits to a specific parameter of an image can assist towards discrimination. For example, targeting temporal patterns related to a plant’s growth cycle, or, similarly, acquiring imagery at a time when the background can be separated from the target plant.

In addition, the use of an object-based image analysis (OBIA) approach to image classification, instead of the more typical pixel-based approach, has been shown to make significant traction with mapping

individual species. OBIA seeks to identify spatially and spectrally homogeneous ‘objects’ which are created by grouping pixels of similar traits together, then allows a combination of ancillary data (morphology, contextual) to be incorporated to assist the classification results.

This paper will present preliminary results from the application of the OBIA approach to mapping African lovegrass (*Eragrostis curvula* (Schrad.) Nees) in the Bega Valley, NSW using World-View 2 satellite imagery acquired at a time to maximise contrast between the plant and the background pastoral setting. Focus will be given as to how the various elements of the approach were used to take advantage of plant traits, the different indices tested, and classification success.

Keywords African lovegrass, *Eragrostis curvula*, object-based image analysis, mapping.