

Mapping Invasive Species using Hyperspectral Imagery

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Non-native plant species cause huge ecological and environmental impacts from the local to global scale. Remote sensing can aid land managers' efforts to control and monitor invasive plants by providing detailed information on their location and extent of spread. Our research takes advantage of information generated from high-resolution spectra and represents an advance beyond traditional remotely-sensed classification methods. We are applying it to develop techniques for mapping the spatial extent and density of two invasive species at Vandenberg Air Force Base on the central coast of California: iceplant (*Carpobrotus edulis*) and jubata grass (*Cortaderia jubata*). So far, this research has generated two research papers intended for publication:

1. Mapping Non-Native Plants Using Hyperspectral Imagery. Emma Underwood, Susan Ustin, and Deanne DiPietro (in press, in *Remote Sensing of Environment*)

This paper evaluates three different methods of processing hyperspectral imagery to identify the presence and absence of iceplant.

2. Mapping the Invasion of Jubata Grass (*Cortaderia jubata*) in a California's Mediterranean Shrubland Using Hyperspectral Imagery. Emma Underwood and Susan Ustin (in preparation.)

This research compares the accuracy of mapping jubata grass using hyperspectral imagery, which captures the whole reflectance spectrum, with more traditional multiband imagery.

This research is part of a broader project with Dr. Susan Ustin's Center for Spatial Technologies and Remote Sensing (CSTARS), which maps selected invasive species across seven military bases in the US <http://www.cstars.ucdavis.edu>.

