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Detection of leafy spurge infestations through imaging spectroscopy using the compact airborne spectrographic imager

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Abstract:

Leafy spurge (*Euphorbia esula*) is one of the most aggressive and hard-to-control invasive plant pests in the upper Midwestern United States, from the Mississippi River to the Northern Rocky Mountains. TEAM (The Ecological Area-wide Management) Leafy Spurge (http://www.team.ars.usda.gov/), sponsored by the U. S. Department of Agriculture Agricultural Research Service, is evaluating the capabilities of numerous remote-sensing platforms for the regional mapping of leafy spurge. As part of a larger study, Compact Airborne Spectrographic Imager CASI-II data were collected over a part of the South Unit of the Theodore Roosevelt National Park and neighboring U.S. Forest Service National Grasslands; the purpose is to test the effectiveness of low-altitude hyperspectral data with approximately 5 m spatial resolution for detecting and mapping leafy spurge. Preliminary results were compared to ground surveys and previous leafy spurge maps generated through the manual interpretation of 1:24,000-scale aerial photographs. This study can help in describing future strategies for further applications of CASI in mapping leafy spurge on a region wide basis.