

**Title:** Ten Years of Vegetation Change in Northern California Marshlands Detected using Landsat Satellite Image Analysis

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**KEYWORDS:** Landsat; Marshland; Vegetation; Wetlands; Regrowth; Restoration

**Abstract:** The Landsat Ecosystem Disturbance Adaptive Processing System (LEDAPS) methodology was applied to detected changes in perennial vegetation cover at marshland sites in Northern California reported to have undergone restoration between 1999 and 2009. Results showed extensive contiguous areas of restored marshland plant cover at 10 of the 14 sites selected. Gains in either woody shrub cover and/or from recovery of herbaceous cover that remains productive and evergreen on a year-round basis could be mapped out from the image results. However, LEDAPS may not be highly sensitive changes in wetlands that have been restored mainly with seasonal herbaceous cover (e.g., vernal pools), due to the ephemeral nature of the plant greenness signal. Based on this evaluation, the LEDAPS methodology would be capable of fulfilling a pressing need for consistent, continual, low-cost monitoring of changes in marshland ecosystems of the Pacific Flyway.

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