Mapping insect-induced pine mortality in the Daniel Boone National Forest, Kentucky using Landsat TM and ETM+ data

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Abstract

A decision tree classifier was used to create a three-species conifer map of the Daniel Boone National Forest, Kentucky using Landsat TM images and ancillary data. The resulting map had an overall classification accuracy of approximately 82%. In the second part of the study, Landsat TM and ETM+ images acquired in 1995 and 2002, respectively, were used to evaluate five change-detection techniques for mapping conifer damage caused by southern pine beetle (SPB). PCA and SARVI2 change-detection techniques resulted in the highest classification accuracies. Over 60% of the conifer species were killed as a result of SPB infestation.