

IMAGE-BASED CHANGE ESTIMATION (ICE): MONITORING LAND USE, LAND COVER AND AGENT OF CHANGE INFORMATION FOR ALL LANDS

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Abstract—The Image-based Change Estimation (ICE) protocols have been designed to respond to several Agency and Department information requirements. These include provisions set forth by the 2014 Farm Bill, the Forest Service Action Plan and Strategic Plan, the 2012 Planning Rule, and the 2015 Planning Directives. ICE outputs support the information needs by providing estimates of land use and land cover area and change, together with agent of change.

ICE data is collected by interpreting two years of NAIP imagery and identifying areas of land cover and land use change (LCLUC). Forest Inventory and Analysis (FIA) plot locations are used for the sample design, and LCLUC is quantified using dot grids over each FIA plot. When no change occurs on a plot, land cover and land use are attributed on a subset of the dot grid. When change occurs, however, a denser grid of dots is attributed and agent of change is also interpreted. Currently, the states of Colorado, Georgia, Washington, Texas, Utah, Nebraska, Maryland, Vermont and New Hampshire are being interpreted to support ICE objectives.

Estimation procedures have been developed to analyze the ICE data. These statistical summaries result in tables, graphs, or matrices to support State and National Forest land area and change estimates. This presentation will provide information about the ICE data collection and estimation methods, and a sample of estimation outputs.

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