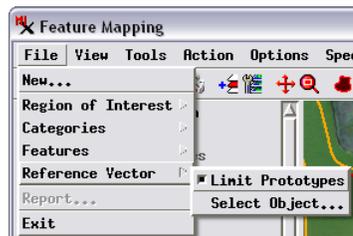


# Using a Reference Vector

Feature Mapping is an interactive aid for interpreting and classifying multiband images that supplements your visual interpretive skills with automated image analysis tools. Using Feature Mapping, you can progressively subdivide a multiband image into areas assigned to different spectral categories, or *feature classes* (see the Technical Guide entitled *Feature Mapping: Interactive Image Classification*).

You can use a reference vector object to guide this semiautomated classification when you use the Define Samples tool. With this tool you designate any number of sample cells that are representative of a single feature class, then run a Classify procedure that automatically finds unclassified cells with similar sets of band values throughout the image area, producing a set of class *prototypes*. You then examine the individual prototype cell clusters (prototype features) and decide which ones to assign to the current feature class (see the TechGuide entitled *Feature Mapping: Define Samples and Mark Features*).



If you have a vector object with polygons indicating the boundaries of a particular type of feature at some past date (for example, wetlands, ponds and lakes, or forest patches), you can select that object as a Reference Vector (using the Reference

Vector / Select Object option from the File menu in the Feature Mapping window). Once you have selected the reference vector, you can turn on the Limit Prototypes toggle item on the same menu. With this option turned on, the classify operation used with the Define Samples tool identifies prototype cells only within the reference vector polygons, but allows these prototypes to extend outside to include spatially contiguous matching cells. Using a reference vector can help you limit the number of scattered extraneous prototype cells produced by the classification operation, while accommodating temporal changes in the extent of the features or misregistration between the reference vector and the image being analyzed.

The illustrations on this page show an example use of reference vector polygons indicating the past outline of ponds and wetlands for an area in North Dakota, USA (from the National Wetlands Inventory).

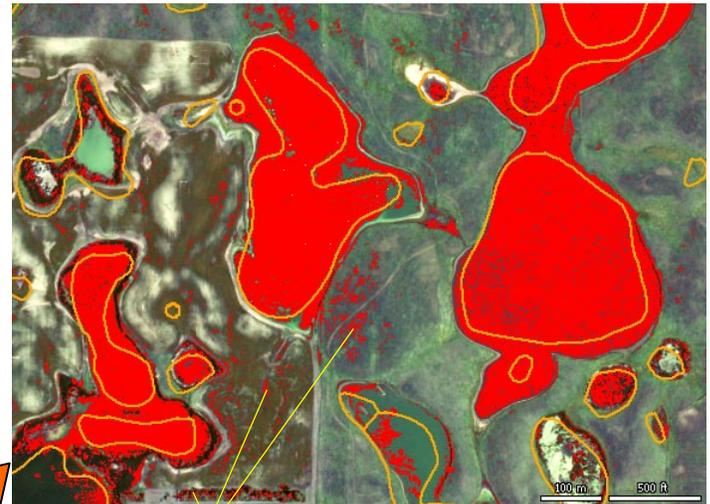
Color Orthoimage with reference pond polygons (orange)



Natural-color orthoimage with a number of ponds with differing depths and water color. Reference vector polygons are shown with the orange outlines. The Define Samples tool was used to identify a number of sample cells within one pond polygon (enlarged at left).

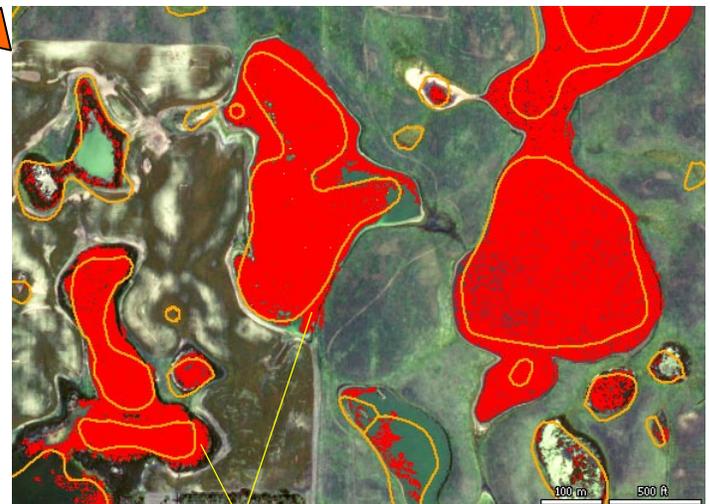
Sample points (yellow) within single pond polygon.

Prototypes (Red) Not Limited by Reference Vector Polygons



Scattered disconnected feature prototype cells outside polygons.

Prototypes Limited by Reference Vector Polygons



Prototypes extend outside polygons only where contiguous.