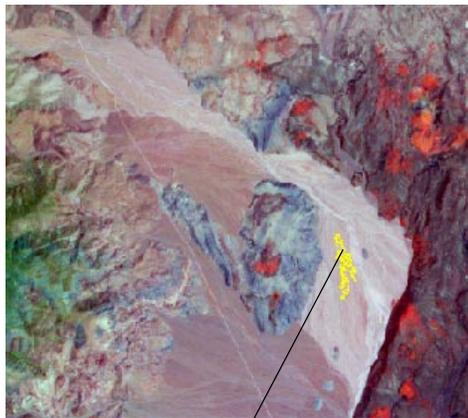


Grow Feature Prototypes

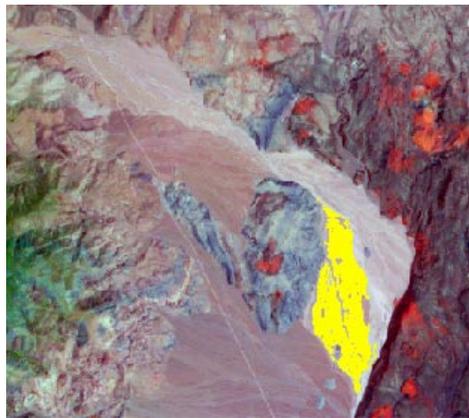


Feature Mapping is an interactive image classification process in TNTmips that provides you with several tools for assigning image areas to different spectral feature classes. The Define Samples tool lets you identify spectrally similar but discontinuous patches over the entire image, then decide which ones to assign to a class. In contrast, the Grow and Mark Features tool (icon illustrated above left) lets you define one feature area at a time and use the mouse wheel to vary the size and spectral variability of the area to assign to a class.

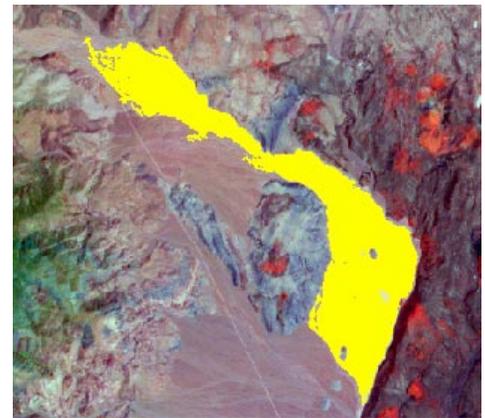
To use the Grow and Mark Features tool, you left-click in a representative area of a feature you are trying to map. The process first looks at the local neighborhood around the click point to determine initial cell value ranges in each image band. It then expands these value ranges and identifies all contiguous image cells around the click point with values within the new ranges. These cells are identified on screen in color as a feature prototype.



Initial Feature Prototype (yellow)



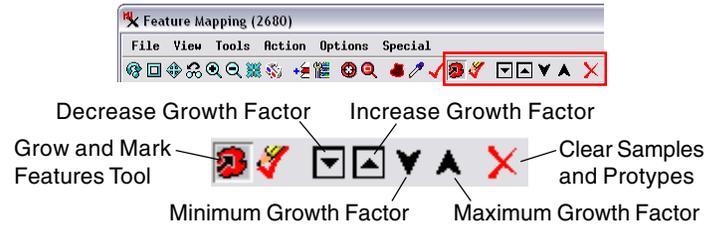
Prototype expanded using mouse wheel



Prototype expanded further; right-click to mark (assign to feature class)

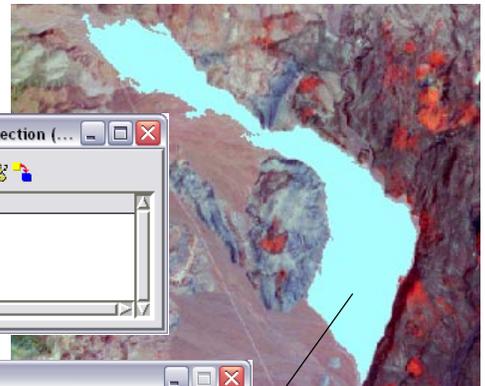
Using the Grow and Mark Features tool: left-click within the desired image feature to create a prototype consisting of contiguous cells similar in spectral properties to the neighborhood where you clicked. Use the mouse wheel to grow or shrink the prototype area. Right-click to assign the prototype to the currently-selected feature class ("marking" the feature). If the hole-filling option is turned on, fully-enclosed holes within the prototype are filled when the feature is marked. In this example, distinctive alluvial fan deposits are mapped using 9 bands of an ASTER satellite image scene. A false-color reference image consisting of middle-infrared, color-infrared, and visible green bands is shown.

of the value ranges (and size of the prototype area) is limited by a growth factor. You can use the mouse wheel to vary the growth factor and thus the size of the prototype area found. Roll the mouse wheel toward you to increase the growth factor and grow the prototype area; roll the mouse wheel away from you to decrease the growth factor and shrink the prototype area. Alternatively, you can use the Increase Growth Factor and Decrease Growth Factor buttons on the Feature Mapping window toolbar (illustrated in the top right corner of this page) to adjust the prototype size. You can also quickly reset the growth factor to either its minimum or maximum value using the Minimum Growth Factor and Maximum Growth Factor buttons. When you are satisfied with the size of the prototype, right-click to assign its cells to the currently-selected feature class ("marking" the feature). You can instead clear the current prototype by pressing the Clear Samples and Prototypes

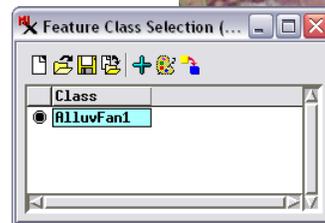


icon button, or simply left-click elsewhere in the image to clear the prototype and start a new one.

When growing prototypes, The Grow and Mark Features tool only considers cells that are not already assigned to a feature class and that have not been set as protected using the Draw Features tool. By default Feature Mapping automatically fills holes that are wholly enclosed within a prototype area when you mark it. This behavior can be turned off /on using an entry on the Options menu.



Marked feature using hole filling



If a prototype feature is still growing after a specified number of seconds has passed, a window (illustrated above) opens that asks if you want to continue growing the feature or if you'd like to retry with a reduced growth factor. You can also click on Cancel to clear the prototype. The Options / Growth Verify Time menu lets you set the growth time limit to 1 second (the default) or 2, 5, 10, 30, or 60 seconds.