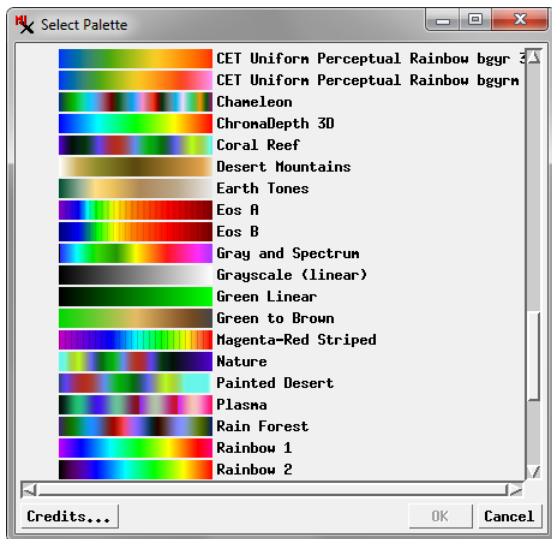
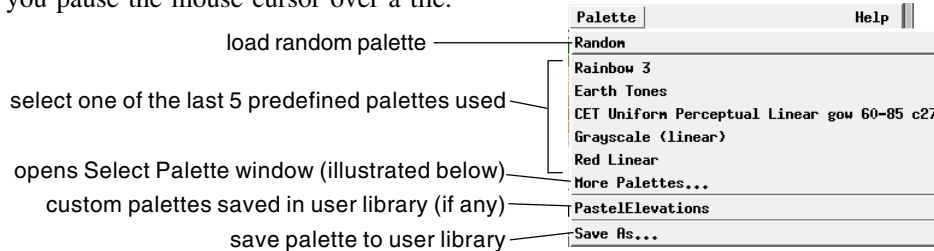
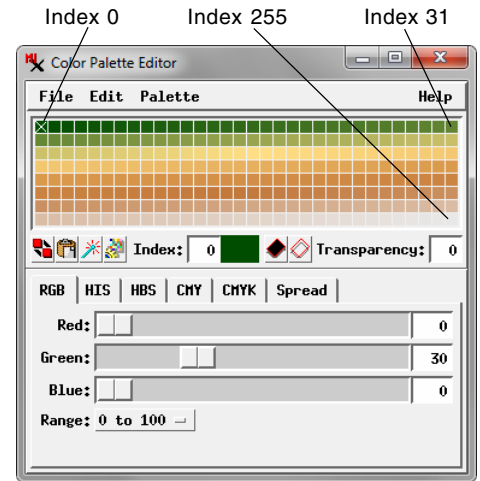
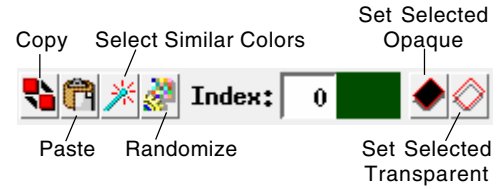


Raster Color Palette Editor

The Color Palette Editor window for raster objects allows you to select from a large number of predefined color palettes, to modify local copies of these palettes, and to create new custom palettes. You can manually edit individual palette colors using a variety of color models and create color spreads between selected colors to provide smooth color gradations. You can save a palette for use with the raster object being displayed and/or save it in your own library of palettes, from which it can be selected for use with any grayscale or categorical raster object.

Color Palette Sample Array

The Color Palette Editor window shows an array of square tiles or samples for the colors in the palette (see illustration to the right). The array usually has 8 rows with 32 color tiles in each row. Each tile corresponds to a palette index number from 0 (the upper-left tile) to 255 (the lower right tile); index numbers increment from left to right in each row of the array. A pop-in ToolTip shows the index number when you pause the mouse cursor over a tile.



Raster Color Palettes

A raster color palette stores a set of colors that are mapped to particular cell values when the raster is displayed. Most raster color palettes record 256 color values, each of which has a color index number in the range 0 to 255. A palette index number associates a color with a raster value or range of raster values (or, if contrast is applied, to the adjusted brightness values). For grayscale raster objects with an 8-bit data range (or less), a unique color can be assigned for each cell value. For grayscale raster objects with larger data ranges, the set of cell values within one of 256 histogram bins are assigned the same color.

A raster color palette is stored as a subobject of the raster it applies to. Color palettes with smooth gradations in color can be used to create a color display for grayscale rasters representing a smoothly various surface, such as an elevation raster. Color palettes are also used to record colors for rasters created in the classification operations and for 8-bit "color-composite" images; because the cell values in this case are arbitrary identifiers, the associated color palettes usually do not show any obvious order or gradation in the colors.

Working with System Palettes

TNTgis provides a library with a large number of predefined raster color palettes that you can use as-is or modify as needed. (Some of the available system palettes are described in the Technical Guide entitled *Uniform Perceptual Contrast Color Palettes*.) The Palettes menu on the Color Palette Editor (illustrated above) provides entries for the last five palettes that you have used from the system library. Choosing the More Palettes entry from the menu opens the Select Palettes window, which lists and illustrates each available predefined system palette; left-click on an entry in the list and press the OK button on this window to add the palette to your Palettes menu. You can also choose to load a random palette.

If you create a custom palette that you would like to reuse with other raster objects, choose Save As from the palette menu to save the palette in your own palette library. Your custom palettes are stored in a file named *colormap.usr* that is stored with the other TNTgis settings for your user name. Any palettes you have saved to your palette library are provided with entries on the Palettes menu in a section delimited by horizontal separators above the Save As entry. They are also added to the Select Palette window in a User-Defined Palettes group.

Opening and Saving Color Palettes

A palette you have selected from the library, edited, or created can be saved as a subobject of the current raster object for use in displaying the raster. You can save one or more color palette

(continued)

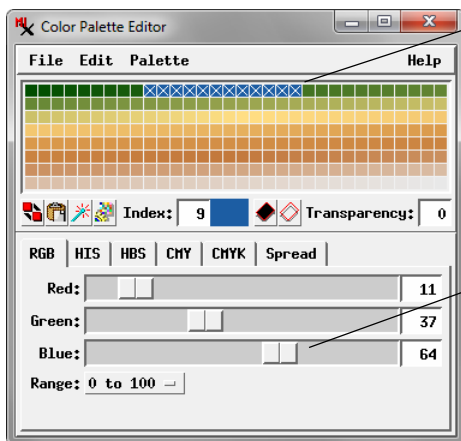
subobjects and choose which one to use for display using the Color Palette menu on the Object tabbed panel of the Raster Layer Controls window.

Options for managing color palette subobjects are on the File menu in Color Palette Editor. The Open option lets you choose a color palette subobject from the current raster object, or navigate to another raster object to choose a palette subobject. The Save option saves any edits to the selected palette subobject, overwriting the original. Choose Save As to save the palette to a new palette subobject. The Import option lets you import a palette specification from a simple text or CSV (comma-separated values) file with one color specification per line and red, green, and blue color values (in that order). The appropriate value range is determined automatically from the values in the file. The Close option closes the Color Palette Editor, prompting you whether to save any changes.

Selecting Palette Colors

You can select any palette tile to edit its color by simply left-clicking on the tile. The selected tile is marked with an X symbol over the color. A larger color sample and the index number of the selected tile are shown below the palette. The 0 index color sample is selected by default when the Color Palette Editor opens.

You can select a contiguous range of palette tiles by first selecting one tile, then holding down the Shift key while selecting another tile; all tiles in between are also selected and marked with the X symbol. The color and index number of the first tile selected are shown below the sample array. You can also select additional colors similar to the color(s) currently selected by pressing the Select Similar Colors icon button (or choosing Select Similar Colors from the Edit menu). Any color adjustments that you make are applied to all selected palette tiles.



Range of palette tiles selected by holding down the Shift key while selecting the ending tile in the range.

Color adjustments using the controls on any of the color model panels are applied immediately to the selected color tile(s).

Editing Palette Colors

The RGB, HIS, HBS, CMY, and CMYK tabbed panels on the Color Palette Editor window show the definition of the current palette color in various color models. Each panel has a set of sliders for setting color values in the respective color model. To edit the color, first choose the tabbed panel for the desired color model, then adjust a slider or enter a value into the numeric field to the right of the slider. Values of Hue in the HIS and HBS models range from 0 to 360; the other values in these

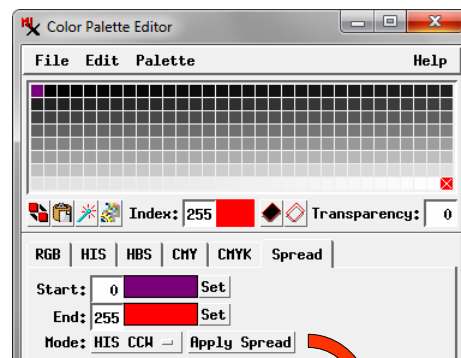
two color models range from 0 to 100 (see the *Getting Good Color* tutorial for descriptions of the color models). The RGB, CMY, and CMYK panels include a Range menu where you can set the component value ranges to be either 0 to 255 or 0 to 100 (percent). Changes you make with any of these controls are immediately applied to the selected palette tile(s).

You can set individual palette tiles or ranges of tiles to be partially or completely transparent. To set transparency for the selected palette tile(s), enter a value between 0 (fully opaque) or 100 (completely transparent) in the Transparency field below the tile array. You can also press the Set Selected Transparent icon button to set full transparency for the selected tile(s), or the Set Selected Opaque icon button to restore full opacity. (Equivalent options are found on the Edit menu.) Colors that have a non-zero Transparency value are marked by a cross in the palette.

The Copy and Paste icon buttons (and equivalent Edit menu options) allow you to copy a selected color and paste it to one or more selected tiles. The Randomize icon button overwrites the current palette tiles with a set of random colors (equivalent to choosing Random from the Palette menu). The Reverse All option on the Edit menu reverses the order of all of the colors in the palette. The Negate All option on the Edit menu also affects all color tiles, inverting the values for the color components on the RGB, CMY, and CMYK panels. For example, a color with components red = 255, green = 100, and blue = 0 would be transformed by the Negate All operation to red = 0, green = 155, and blue = 255.

Creating Color Spreads

You can create a smooth gradation in color between two specified palette colors by applying a *color spread* using the controls on the Spread tabbed panel. The Start and End controls on the Spread panel show the index number and color for the start and ends of the spread. To set either of these, choose the desired tile in the palette and press the Set button. The Mode menu provides a choice of color models for creating the color spread. The options are RGB, HIS CW, HIS CCW, HBS CW, and HBS CCW, where CW indicates the clockwise direction around the Hue circle and CCW indicates counter-clockwise. Press the Apply Spread button to create the spread. You can



repeat with different color models to get the desired affect. You can design complex palettes by specifying a number of intermediate colors, then creating color spreads between them.

Set a Start and End color for a color spread, choose a color model, then press Apply Spread.

