

# **SavView**

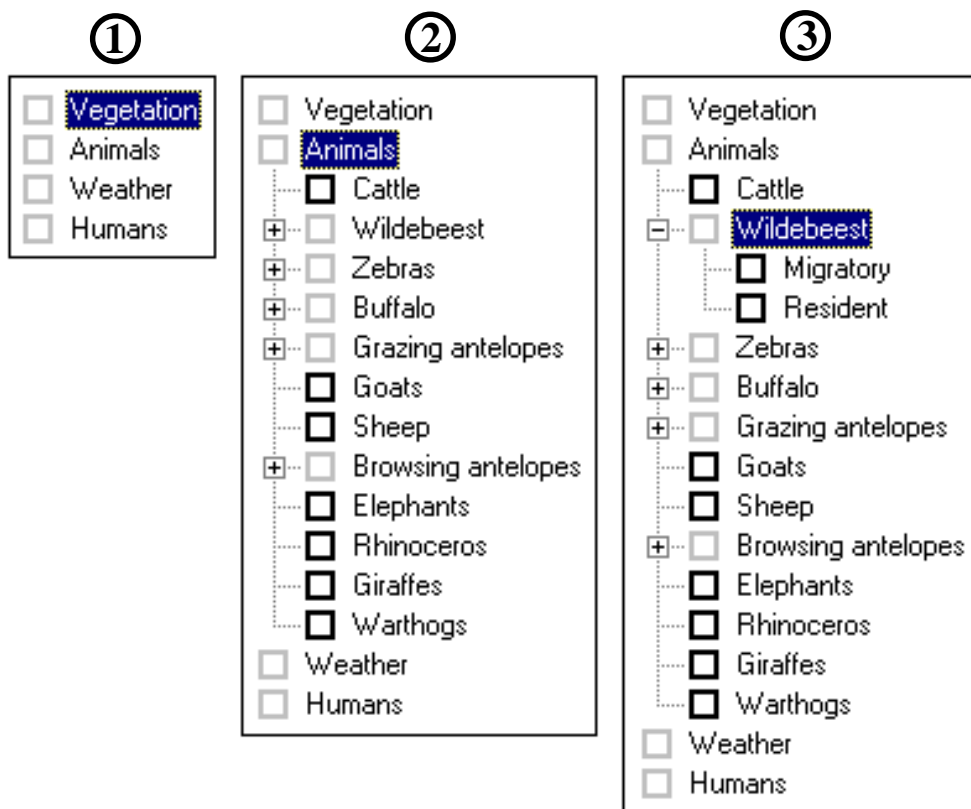
Using SavView

## ‘Explorer’ Style Trees in SavView

SavView presents a considerable amount of information both as model input and model output. The wealth of information is organized hierarchically, to help users understand how the information relates, and to avoid overwhelming users.

The tool used to relate information is an *explorer style tree*, named for the Windows Explorer program used by most Windows users to look at and manipulate files.

When an explorer tree is first viewed, such as the map tree shown below, only the top level of the hierarchy is visible (1).



When the user double-click upon the topic of interest, perhaps “Animals”, the tree expands to show the detail underneath. In this case, the tree shows the main animal groups.

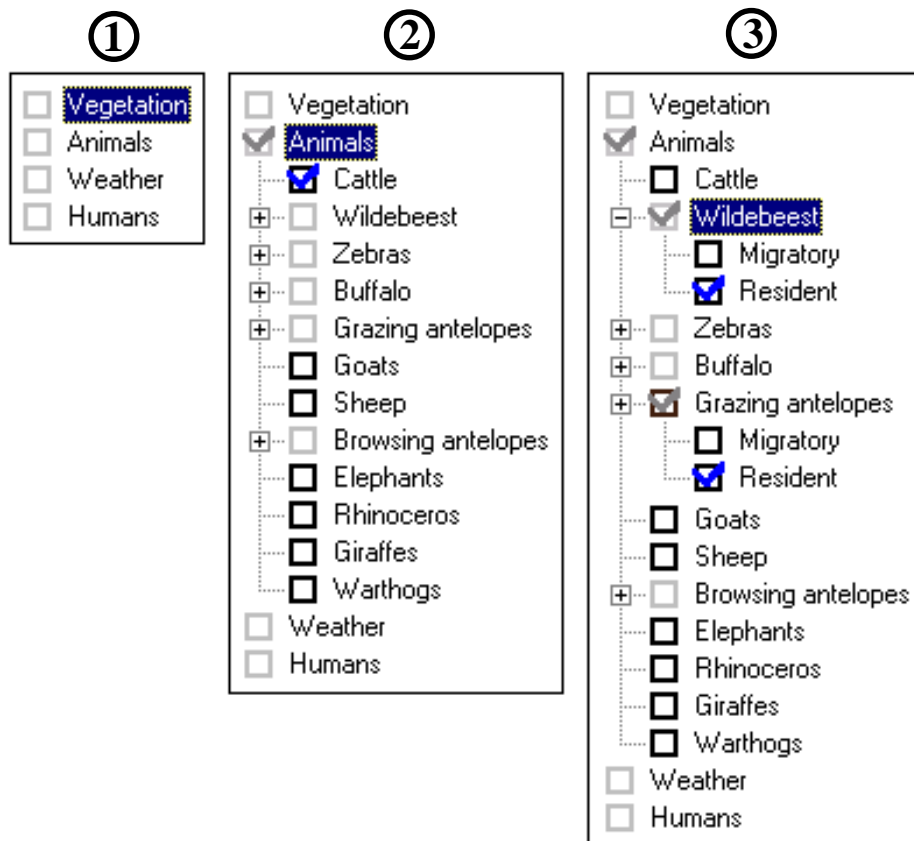




## Making Selections in Trees in SavView

Visual clues are given for users to know just what may be selected in SavView, and what is currently mapped.

Each item in the SavView trees has a small box to the left of the name. In some cases, these boxes are gray, and clicking upon them will have no effect (except to expand or collapse the tree if double-clicked). Some of the tree entries have black boxes. Clicking upon those boxes will change the information shown in the large window on the right.



In addition, a large blue check will be placed in the selected item, such as in (2) above. To keep the user informed of selected items, even if the tree is collapsed, a gray check is placed at all the levels above the currently selected item. When viewing parameters or maps, only one kind of information may be viewed at one time (although not strictly true for maps; more later). Because of that,





## Menu Items in SavView - File

Like most programs, the menus in SavView offer more choices than are available on the button bar. The main menu entries are typical as well: File, Edit, View, Run, and Help. The details of the entries are shown on the following pages.

File	
New ...	Ctrl+N
Open	Ctrl+O
Save	Ctrl+S
Save as ...	F12
Revert	
Export results ...	
Print setup ...	
Print ...	Ctrl+P
Options ...	
Exit	Ctrl+Q

The *File* menu contains entries to open and save files, output results, and exit SavView.

*New* reads parameters from a default file, which must be saved under a new name. In general, *New* is not used, because existing files are opened, modified, and saved under the same or a new name. CTRL-N is a shortcut for *New*.

*Open* shows a dialog window allowing the user to select a file from which to read parameters. CTRL-O is a shortcut for *Open*.

*Save* saves the changes made to parameters, replacing the file opened. If changes have not been made, *Save* is grayed-out. CTRL-S is a shortcut for *Save*.

*Save as* opens a window that allows the user to select a new file used to store the current parameters. Pressing F12 is a shortcut.

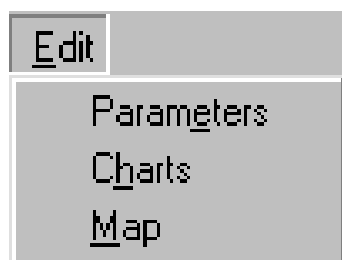
*Revert* restores the current parameter set to the values stored within the parameter file. If changes are made and then the user wishes to discard them, they may use *Revert*. This button is not available until parameters are changed.

*Export results* opens a window that allows the user to save Savanna output to text files easily imported into spreadsheet programs, and





## Menu Items in SavView - Edit, View



The *Edit* menu allows a user to edit or view parameters, charts, or maps. ALT-E is a shortcut for *Edit*.

*Parameters* displays the tree and window that allows the user to change parameter values in preparation for running Savanna. After entering the *Edit* menu, ALT-E is a shortcut for *Parameters*. The first time the parameters window is selected, the animal population file is selected.

*Charts* displays the section of SavView that allows the user to view changes over time in the ecosystem modeled. Up to four charts may be displayed. After entering the *Edit* menu, ALT-H is a shortcut for *Charts*. When first displayed, a blank chart (or charts) is represented by dashes centered on the chart area.

*Map* displays the mapping portion of SavView, with up to 12 individual maps displayed. After entering the *Edit* menu, ALT-M is a shortcut for *Maps*. As for charts, when first displayed, a blank map (or maps) is represented by dashes centered on the map area.



The *View* menu changes the items displayed by SavView.

*Detail* will open a submenu allowing users to change the level of detail shown in SavView.

*Parameters* displays the parameter window, and has the same effect as selecting *Parameters* under *Edit*.

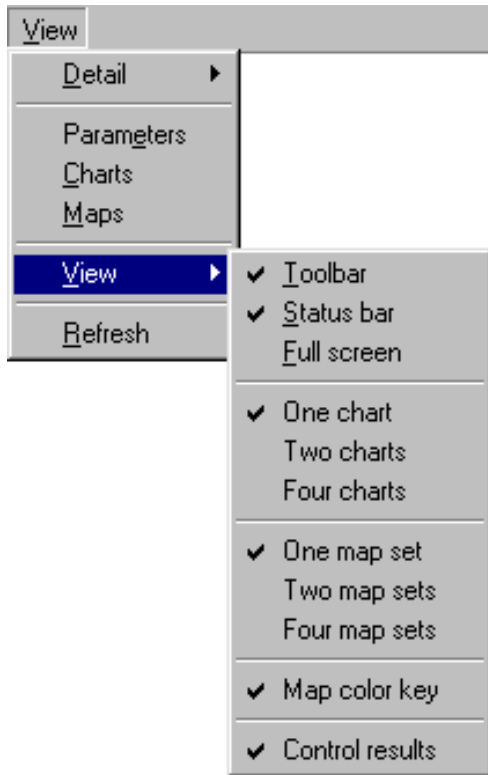
*Charts* displays the chart window, and has the same effect as selecting *Chart* under *Edit*.







## Menu Items in SavView - View in View



The *View* menu contains another *View* submenu, listing a series of choices changing the way SavView displays information.

*Toolbar* is a toggle switch - select it once to turn-off the toolbar across the top of SavView (and remove the check next to the menu item). Select it again to have the toolbar displayed.

*Status bar* is a toggle switch - select it once to turn-off the status bar across the bottom of SavView (and remove the check next to the menu item). Select it again to have the status bar displayed.

*Full screen* serves as a shortcut, turning both the toolbar and status bar off when first selected. Selecting *Full screen* again will turn both elements back on.

*One chart*, *Two charts*, *Four charts* controls how many charts are being displayed. Each chart is independent of the others, with its own tree listing data and set of mapped items. A user may thus plot animal populations on one chart, and animal conditions on a second, for example. Note that the current setting for the number of charts shown may change without using this menu. If a user attempts to add data to a chart that already has data, and the two data types have different units, the user will receive a warning and SavView will ask what they wish to do. The user may then select “More charts”, which will increase the number of charts displayed, from one to two, or two to four.





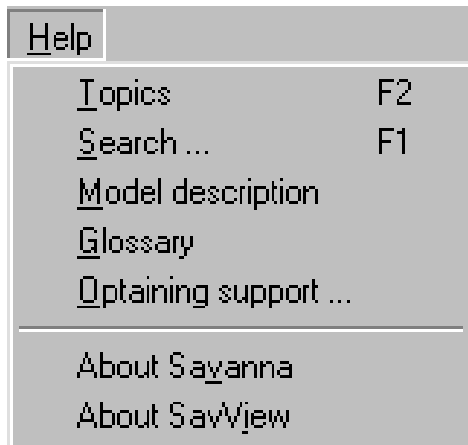
## Menu Items in SavView - Run, Help



The *Run* menu allows a user to run the Savanna model. ALT-R is a shortcut.

*Normal* writes the values set by the user to the locations Savanna needs them for its use, then opens a window that allows the user to start Savanna. A colored bar will show the progress of the model as it completes the simulation. After entering the *Run* menu, ALT-N is a shortcut for the *Normal* run.

*Wizard* is not yet implemented. It would present the user with a series of questions, rather than having them use the Parameters section of SavView. The Savanna model would then run using their responses as input.



The *Help* menu provides assistance, information, and ways to contact Savanna and SavView authors. ALT-H is a shortcut to enter the help menu.

*Topics* opens the help file associated with SavView, showing the top-level help topic. F1 is a shortcut for the topics

*Search* opens a window that allows a user to search the help file for specific information. F2 is a shortcut to search the help file.

*Model description* opens another program associated with SavView, which includes a document describing the Savanna model. Check





## Buttons on the Toolbar in SavView

Toolbar buttons provide a shortcut to entries that usually appear in program menus. SavView has one toolbar, but buttons are added to it when viewing charts or maps.

Most of the buttons to be shown are also menu entries, which have already been described. Buttons without menu entries will be described in more detail. The following buttons are always visible (but may be grayed-out, because they cannot be used at a given moment):



Open - Opens a file.

Save - Saves a parameter file.

Save as - Saves a parameter file to a new name.

Revert - Restores changed values to those in the original file.

Print - Prints charts or graphs.

Parameters - View and change parameter values.

Chart - View and change charts.

Maps - View and change maps.

Run - Run the Savanna model

Help - Open the SavView help.

If you move the mouse pointer over one of these buttons and pause, a *tooltip* is shown, reminding you of the button's function.



When working with charts, a button is added to the starting toolbar.

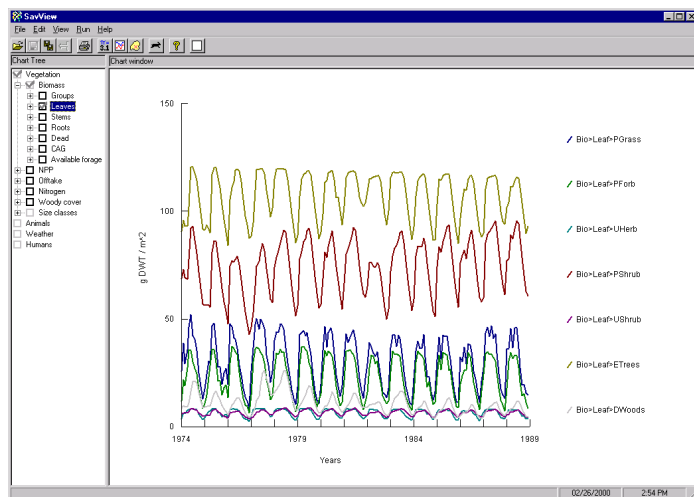
Pressing the blank chart will clear the active chart of all lines plotted. This has the same effect as unselecting each of the currently selected lines, but is faster.



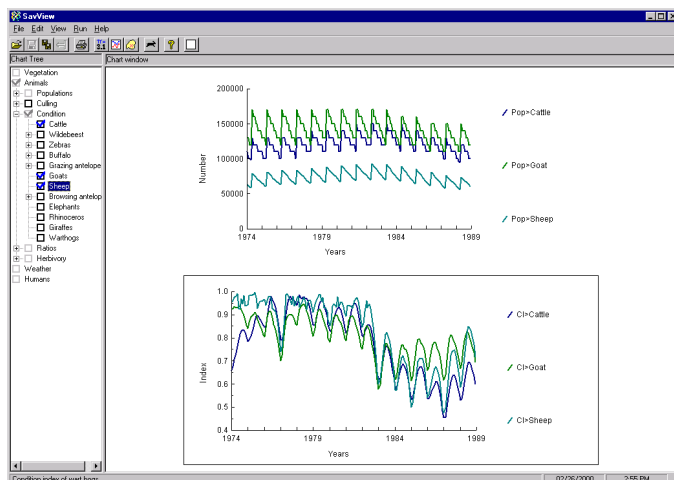


## Charts in SavView

Displaying trends over time in SavView is straightforward, once a few ideas are understood. As mentioned, trees showing how the things that can be charted are displayed on the left. On the right can be one, two, or four *separate* charts. Note that each chart has *its own tree* of variables. When SavView is used the first time, there should be one chart shown. Expanding that chart's tree for "Vegetation", then expanding "Biomass" and clicking upon "Leaves" will create a chart like that shown. Notice that for some variables, like "Leaves", several lines can be plotted by clicking just one box. Individual lines could be removed by unchecking their individual entries.

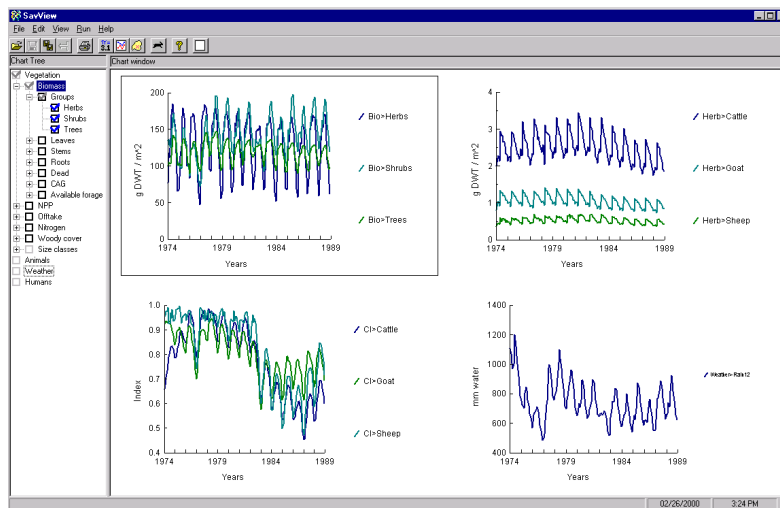


You may wish to look at more than one type of information. If so, you might go to the "View" menu, then select "View" and "Two charts". Two charts will be displayed, with the chart currently selected having a black box around it. Each chart has its own tree, so as you click one chart or the other, the tree will change (unless the trees look the same at the moment). With this arrangement, we can now plot two related pieces of information, such as animal populations and conditions:





The maximum number of charts that can be shown is four. Again, each chart will have its own tree and can chart a unique set of variables. Here, for example, biomass information for general plant groups, livestock populations and conditions, and rainfall are plotted.



**Exercise:** Using SavView, open the control model for NCA-Savanna, using the methods described on page 17. Practice charting variables that interest you. Use one, two, and four charts. Which variables have no information (are zero or do not make a line)? Why?

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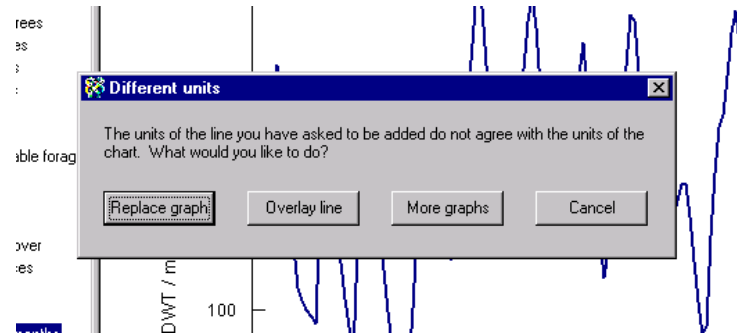
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## Charts in SavView (Continued)

SavView is aware of the units of each variable, and will not allow data with different units to be placed upon the same axis of the chart. If you attempt this, a window like that on the right shows, asking for your input.



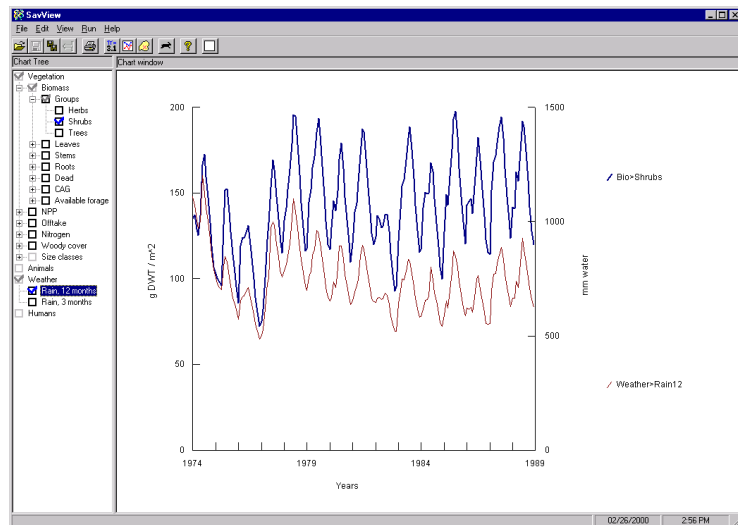
If you select “Replace chart”, the data in the current chart is replaced with the data you have just selected.

If you select “Overlay line”, SavView will place the new data as a thin red line over the top of the existing lines, using the axis on the right for a label. I will often use the ability of SavView to overlay a line to plot

precipitation over the responses I am examining. Only one line can be overlaid on a chart; if you ask to show data with a third type of units, the “Overlay line” button will be grayed-out.

Each of the four charts that can be

shown at one time may have a different variable overlaid upon it, as shown in the figure on the right. Of course, using four charts, especially with overlaid information, can be overly confusing.

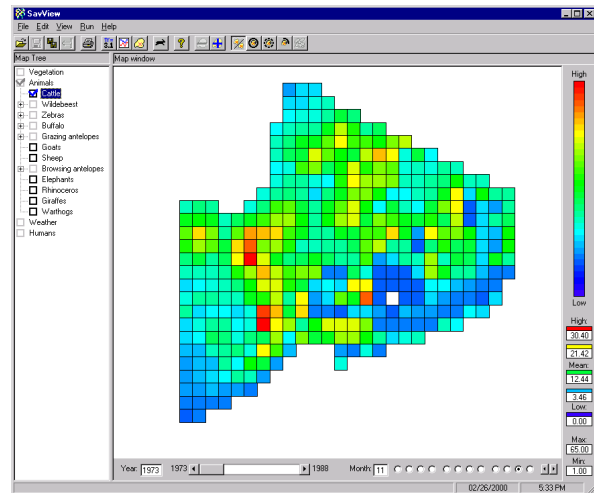




## Maps in SavView

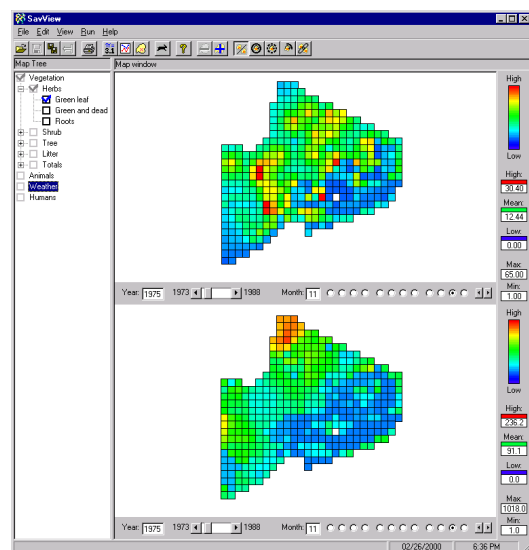
Maps in SavView are handled similarly to charts, with four sets of maps that can each have a different thing being mapped. Unlike charts, each set of maps can have only one type of information mapped. You'll notice the difference when you click on an entry in the tree of variables. Any other checked variables will be unchecked, as the new variable is mapped.

There can be one, two, or four sets of maps, adjusted in the same menu as charts (“View”, “View” and a given number of map sets). For example, when SavView first is used, a single map set is shown, as on the right. Setting the number of map sets to two would yield a display like that shown in the lower right.



An important difference in SavView is between map sets and individual maps. As mentioned, SavView can display up to four map sets - four different types of information.

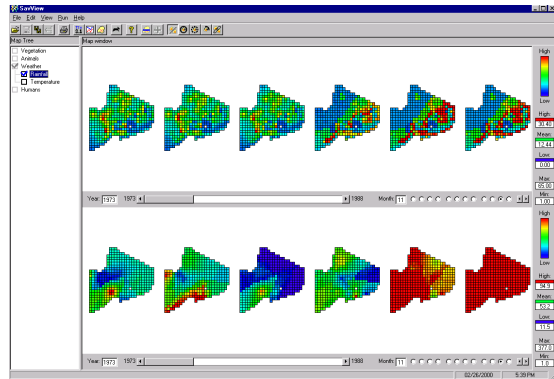
But, up to 12 individual maps may be displayed, depending upon the settings. When one map set is shown, 1, 2, 4, 6, or 12 maps may



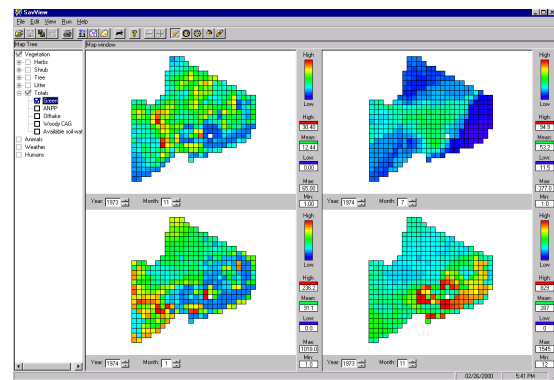


## Maps in SavView (Continued)

Whereas a full year may be displayed when a single map set is selected, when two map sets are selected, each can show up to six months (1, 2, 4, or 6 maps).



When four map sets are being shown, the screen would be too crowded to show many months for each map set. When four map sets are shown, only one map is shown for each.



At the bottom of most of the map sets you'll notice the following bar:



The bar controls the time period mapped. The year is shown in the left window, followed by a scroll bar used to set the year. The month is shown in the next window, followed by buttons that set the month to be displayed. Lastly, two buttons allow the map shown to be advanced one month at a time, or moved back one month at a time.

SavView knows the size of its windows, and will change the display if things fit poorly (in some cases).

If the bar just discussed will not fit well, it is replaced by a small bar.

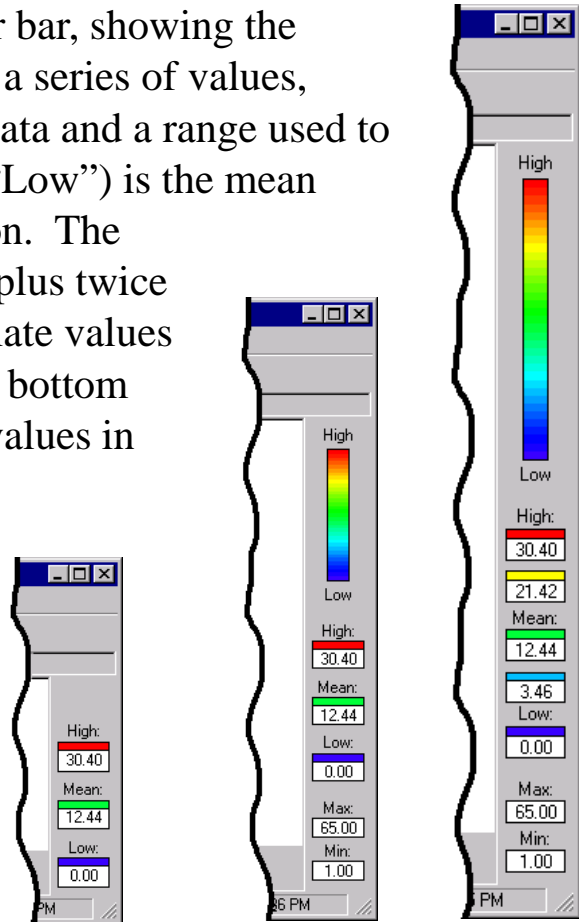


Here the year and month are set using buttons.



Each map is accompanied by a color bar, showing the values of colors. Windows show a series of values, including the mean value of the data and a range used to color the map. The lower limit (“Low”) is the mean minus twice the standard deviation. The upper limit (“High”) is the mean plus twice the standard deviation. Intermediate values are shown as well. Finally, at the bottom are the maximum and minimum values in the data.

Like for the bar controlling the time period mapped, the color bar will shrink if there is not enough room in the window. First, the intermediate values disappear, then the color bar and maximum and minimum values disappear.




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