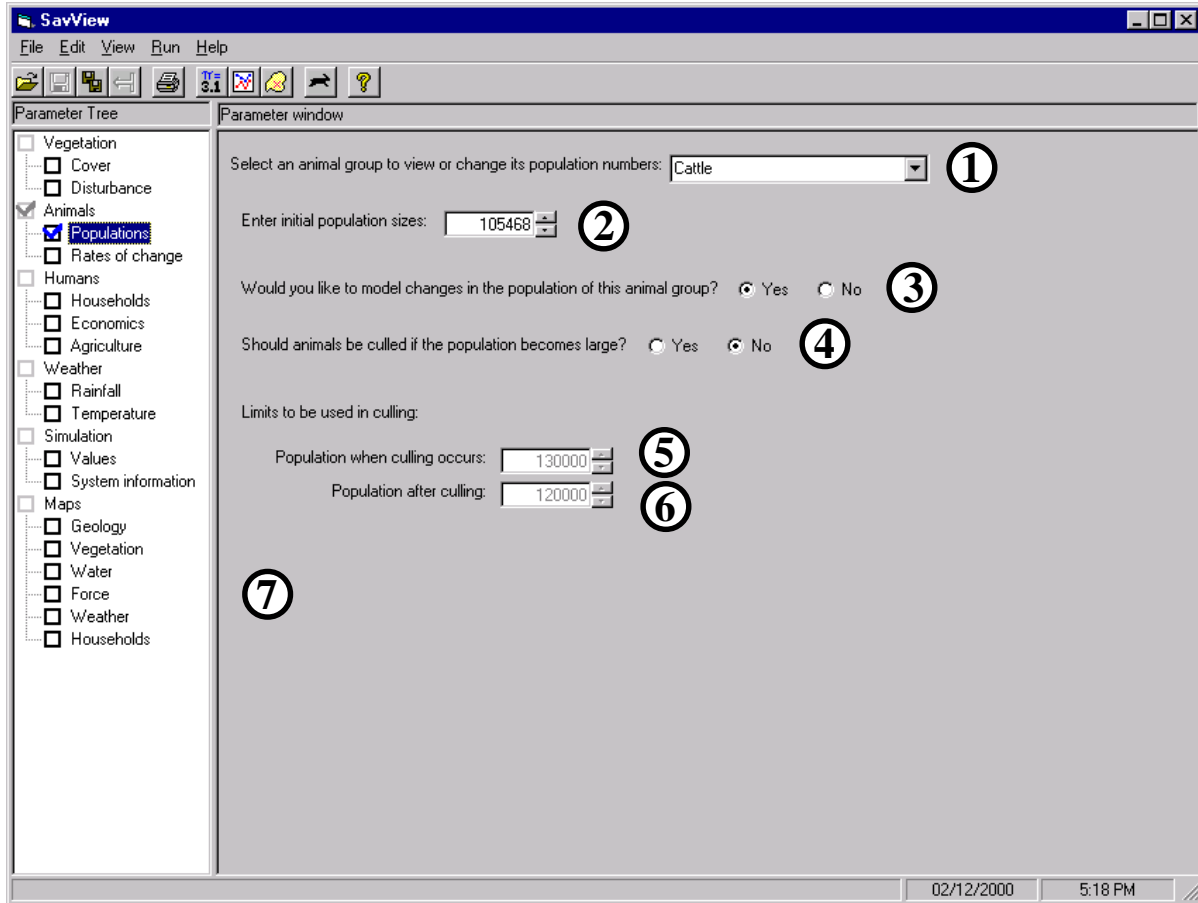# SavView

Parameter pages

Animal Populations in SavView

Initial animal populations may be adjusted in this window, as well as whether their populations should be constant, and if culling should be used.

1: Select the animal group to view or change.

2: The population size. Type a new value or use the arrow-buttons.

3: Select whether populations should be constant or change over time. Changing populations cannot be modeled for migratory animal groups.

4: Select whether culling should be used. Only livestock animal groups may be culled.

5: The animal population size when culling starts is set. For example, if set to 130,000 for cattle, if more cattle are present they will be culled.

6: The animal population size when culling ends. For example, if the cattle population exceeds the value in (5), they will be culled to the value in (6), and the culled population summed.

7: Information or warning messages will appear here if the beginning cull value is lower then the ending cull value, for example.

Exercise: Look at the animal populations window in the "Parameters" section of SavView.

Method: Use the methods listed on page 17 to open a set of parameters in SavView. With the parameter window shown, double-click upon "Animals" and click upon "Populations".

Notes: Changes to these parameters are written to the SIMCON.PRM, DENS.DAT, and CULL.PRM parameter files.
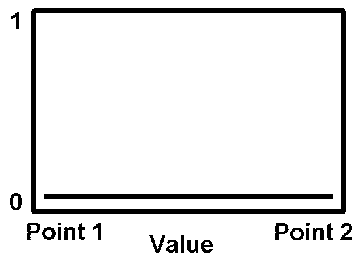
Animal Rates of Change in SavView
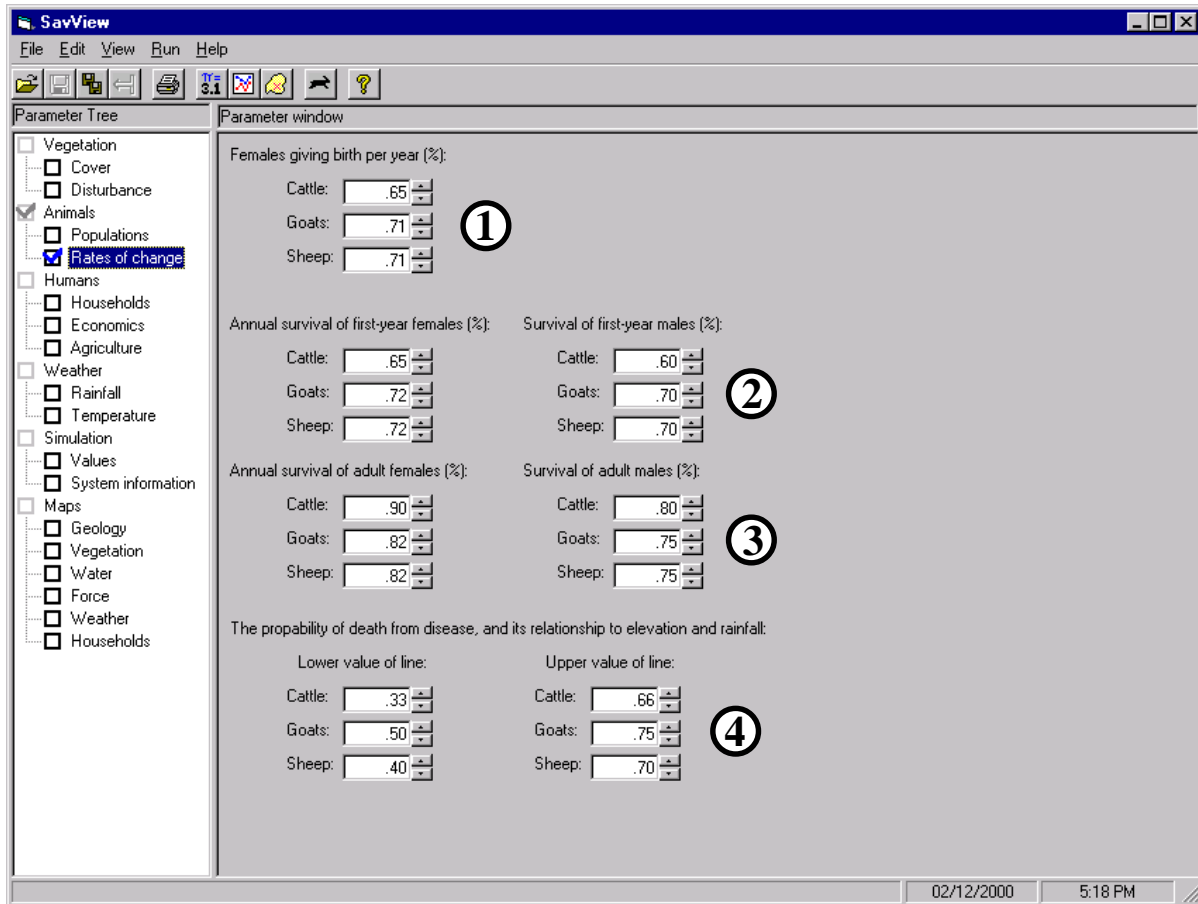
Changes in population rates, such as birth rates and annual survival, can be made in this window. The importance of disease may be adjusted as well.
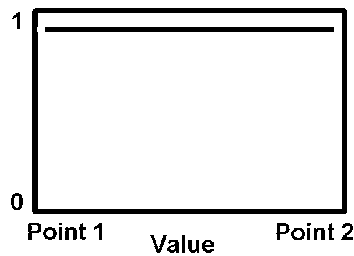
1: Set the birth rate for female livestock, considering both those that don't breed in a given year, and the length between births.

2: The survival of first-year female and male livestock may be set.

3: The survival of adult female and male livestock may be set.

4: The importance of disease in killing livestock may be set. These pairs of values set the points in a line relating disease likelihood to elevation and precipitation. (This is a temporary treatment, until we complete the disease submodel.) See the example for its use.
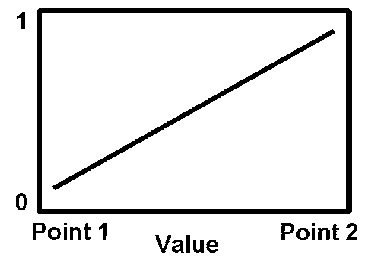
The relationship between disease values and the likelihood of illness.

Always little disease, regardless of environment.	Always much disease, regardless of environment.	Little to much disease, as elevation and rainfall increases.

Exercise: Look at the animal rates of change window in the "Parameters" section of SavView.

Method: Use the methods listed on page 17 to open a set of parameters in SavView. With the parameter window shown, double-click upon "Animals" and click upon "Rates of change".

Notes: Changes to these parameters are written to the POP*.PRM files, and DISEASE.PRM.

Households in SavView

```
SavView                                                          [_][□][X]
File  Edit  View  Run  Help

┌─────────────────┬──────────────────────────────────────────────────────┐
│ Parameter Tree  │ Parameter window                                      │
├─────────────────┼──────────────────────────────────────────────────────┤
│ □ Vegetation    │ Do you want to include households?  ○ Yes  ⦿ No    ①  │
│   □ Cover       │                                                      │
│   □ Disturbance │ If so, please set the following values:              │
│ □ Animals       │                                                      │
│   □ Populations │ The number of households in the area:  [  4500][⇵] ② │
│   □ Rates of change │                                                  │
│ ✓ Humans        │ The size of households, in numbers of people:        │
│   ☑ Households   │        For a low income household:  [  10][⇵]        │
│   □ Economics   │     For a middle income household:  [  10][⇵]   ③    │
│   □ Agriculture │       For a high income household:  [  10][⇵]        │
│ □ Weather       │                                                      │
│   □ Rainfall    │ The proportion of households in each wealth catagory: │
│   □ Temperature │        For a low income household:  [ .35][⇵]        │
│ □ Simulation    │     For a middle income household:  [  .4][⇵]   ④    │
│   □ Values      │       For a high income household:  [ .25][⇵]        │
│   □ System information │                                              │
│ □ Maps          │ These proportions should total 1.0:  [     ]    ⑤    │
│   □ Geology     │                                                      │
│   □ Vegetation  │ The human population growth rate:  [ 3.0][⇵]    ⑥    │
│   □ Water       │ The maximum numer of houses in a                     │
│   □ Force       │             square kilometer:  [ 2.0][⇵]       ⑦    │
│   □ Weather     │ The variation in the number of houses                │
│   □ Households  │     within a square kilometer:  [  .8][⇵]       ⑧    │
│                 │                                                      │
└─────────────────┴──────────────────────────────────────────────────────┘
                                          02/12/2000      5:18 PM
```

Household modeling may be turned on and off in this window. If turned on, the values below the first line turn black and can be adjusted.

1: Select whether to include households in the model or not.

2: Set the number of households to be included in the model.

3: The size of each household, in the three wealth categories shown. These settings would only affect the total human population - households are the objects modeled.

4: Set the proportions of wealth categories. For example, enter .33 if one-third of the households are poor.

5: The proportions in the wealth categories must sum to 1.0.

6: Set the growth rate of the human population, as a percentage.

7: The mean number of houses in each grid cell that contains households. Increasing this value will make the households more clumped. Decrease the value to have cells with fewer households, but more cells occupied.

8: A large value will lead to clumped distributions of houses.

Exercise: Look at the households window in the "Parameters" section of SavView.

Method: Use the methods listed on page 17 to open a set of parameters in SavView. With the parameter window shown, double-click upon "Humans" and click upon "Households".

Notes: Changes to these parameters are written to the AGRIC.PRM parameter file and to SIMCON.PRM.

Agriculture in SavView
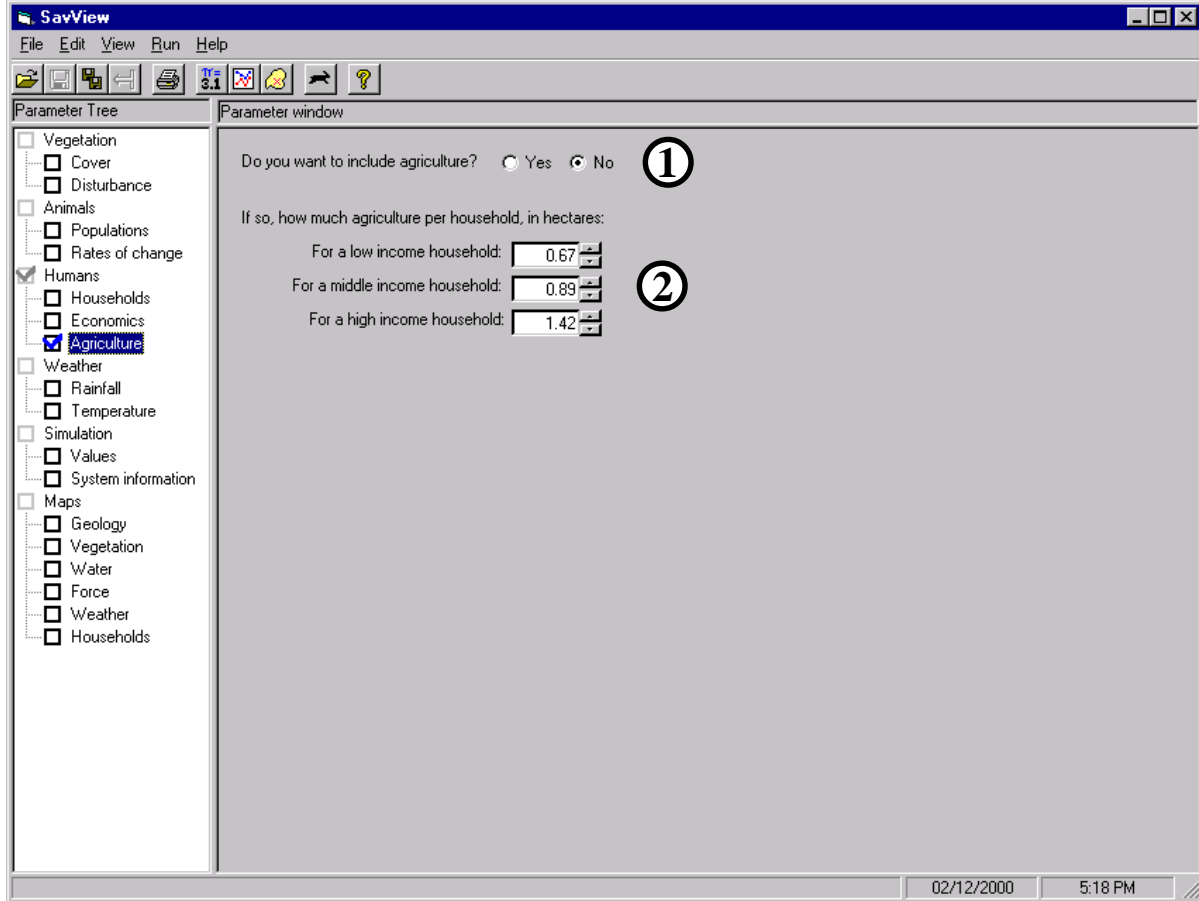
Agriculture may be included in the model using this window. Values for the amount of agriculture per household may be set.

1: Select whether to include agriculture in the model or not. If you selected to include agriculture but households are not included, they will be included automatically and a warning will be given. This is because agriculture is associated with households in Savanna.

2: If agriculture is included, these values will turn from gray to black, and can be changed. Set the amount of agriculture, in hectares, for households in each of the three wealth categories, poor, moderate, and wealthy.

Exercise: Look at the agriculture window in the "Parameters" section of SavView.

Method: Use the methods listed on page 17 to open a set of parameters in SavView. With the parameter window shown, double-click upon "Humans" and click upon "Agriculture".

Notes: Changes to these parameters are written to the AGRIC.PRM parameter file and to SIMCON.PRM.

Rainfall in SavView

The amount of rainfall within each year may be adjusted using the top set of controls. The pattern of rainfall within the year may be adjusted using the bottom set.

1: Selects the year for which you would like to adjust rainfall.

2: Adjusts the rainfall, from 0% to 300% of the normal rain.

3: The pattern currently set for rainfall amounts for the 15 years shown is set here.

4: Selects the month for which you would like to adjust rainfall.

5: Selects the amount of rainfall that should fall in that month.

6: The observed pattern of rainfall throughout months in Ngorongoro

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Conservation Area is shown.

7: After making adjustments, if you would like to restore the observed pattern of rainfall in Ngorongoro, click this check-box.

8: Rainfall throughout the months must sum to 100% for the year. This window will change color if the value is not 100%.

Exercise: Look at the rainfall window in the "Parameters" section of SavView.

Method: Use the methods listed on page 17 to open a set of parameters in SavView. With the parameter window shown, double-click upon "Weather" and click upon "Rainfall".

Notes: Changes to these parameters are written to the precipitation file NEW6392.MRG and to SIMCON.PRM.

Simulation values in SavView
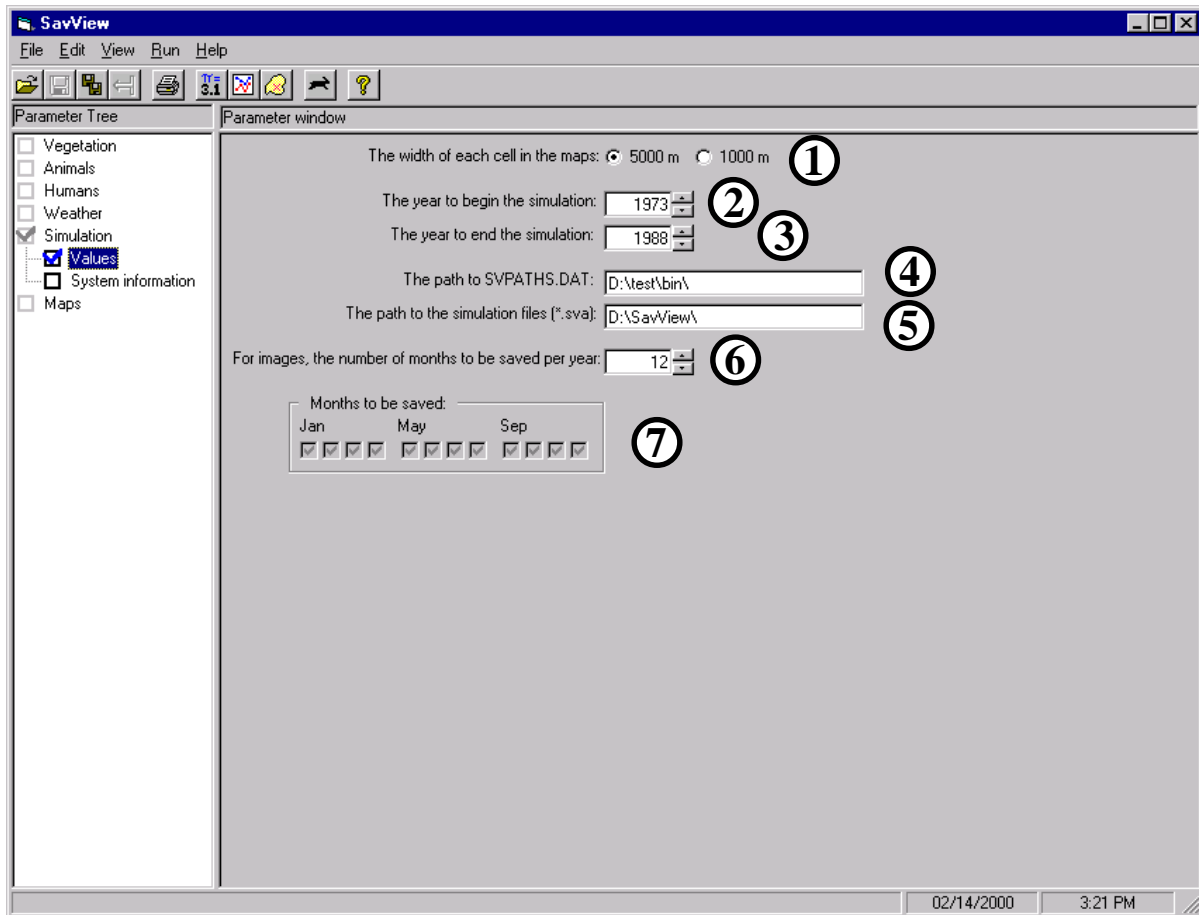
Values controlling how the simulation behaves or its output may be set.

1: Whether to use 5,000 m by 5,000 m or 1,000 m by 1000 m grid cell maps in the simulation may be selected. Using the 1,000 m maps will result in higher resolution output maps, but will use a great deal of computer disk space, and take about 20 times longer to simulation.

2: The starting year of the simulation may be set, with the earliest being 1963.

3: The ending year of the simulation may be set.

4: The pathway to the SVPATHS.DAT may be set. Change this pathway if more than one copy of the NCA-Savanna parameters

are being stored. The copy pointed too in SVPATHS.DAT is used.

5: The pathway to the Savanna simulation files (*.sva files) may be set.

6: The number of monthly images to save per year may be set. Only a specific set of patterns will work with Savanna. When using 1,000 m resolution maps, consider decreasing the number of images saved, to avoid massive output files.

7: The months of images saved for a run.

Exercise: Look at the rainfall window in the "Parameters" section of SavView.

Method: Use the methods listed on page 17 to open a set of parameters in SavView. With the parameter window shown, double-click upon "Simulation" and click upon "Values".

Notes: Changes to these parameters are written to the SIMCON.PRM parameter file, MAPPRM.PRM, and change how SavView operates.

System information in SavView
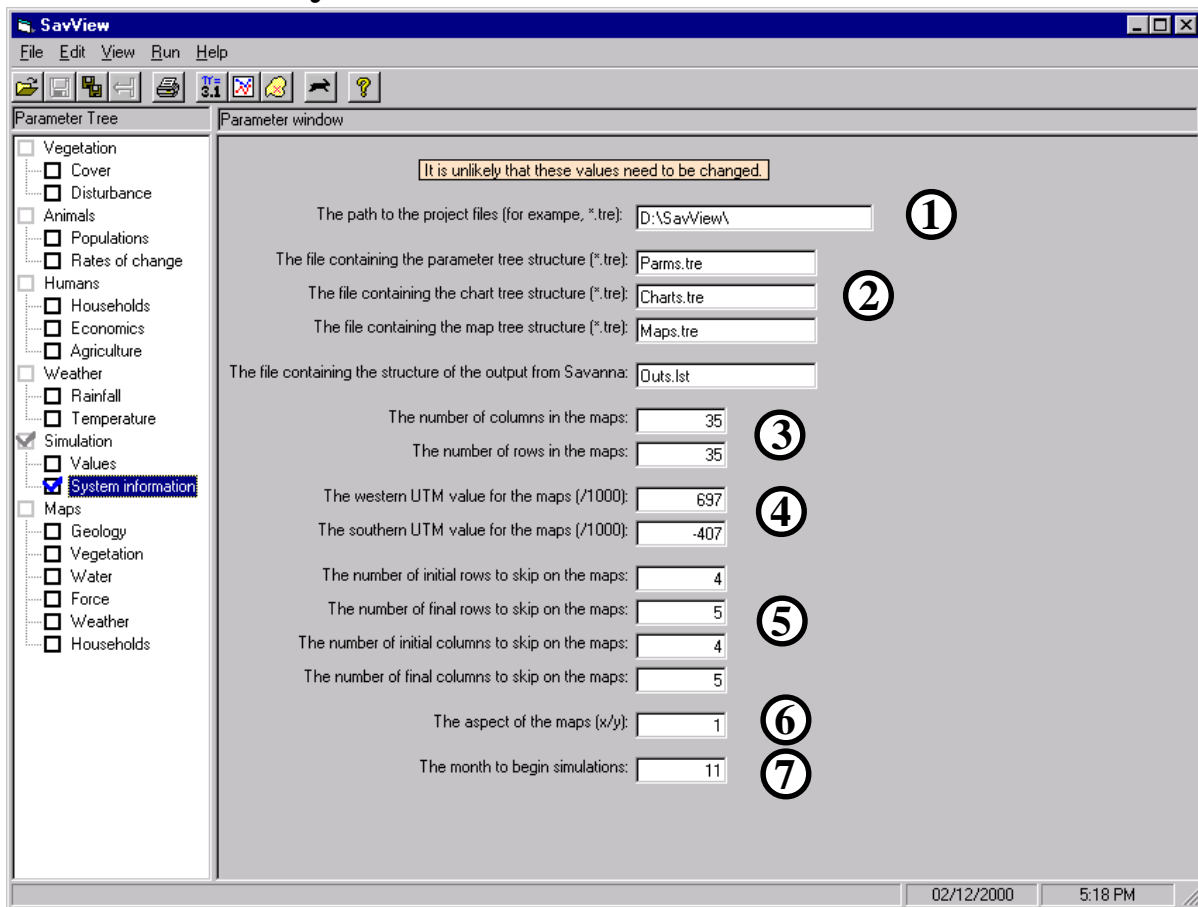
Values controlling how SavView works may be changed using this window. As the comment at the top of the window notes, however, it is unlikely these values need changed for a given study area.

1: The location of system files may be set. This is generally the \SavView\ directory.

2: The names of the files describing the trees at the left of SavView screens are given. These may change if a low-detail and high-detail version of the interface was used, for example.

3: The size of the study area. This will change automatically if the user changes resolutions in the "Values" window.

4: The geographic position, in Universal Transverse Mercator coordinates, of the lower left corner of the study area.

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5: Savanna maps may have a border of cells without valid data in them - a boundary that is ignored by the model. The values entered here tell SavView not to map these border cells.

6: The aspect of the maps, that is, the ratio of the width of the maps to the height of the maps.

7: The month when the Savanna simulation model starts.

Exercise: Look at the system information window in the "Parameters" section of SavView.

Method: Use the methods listed on page 17 to open a set of parameters in SavView. With the parameter window shown, double-click upon "Simulation" and click upon "System information".

Notes: Changes to these parameters are mainly used by SavView directly. Dimensions and the month to start are written to SIMCON.PRM and to SPACEDAT.PRM. Changes the values in the system information window may cause errors in SavView.

Maps that do not change in SavView
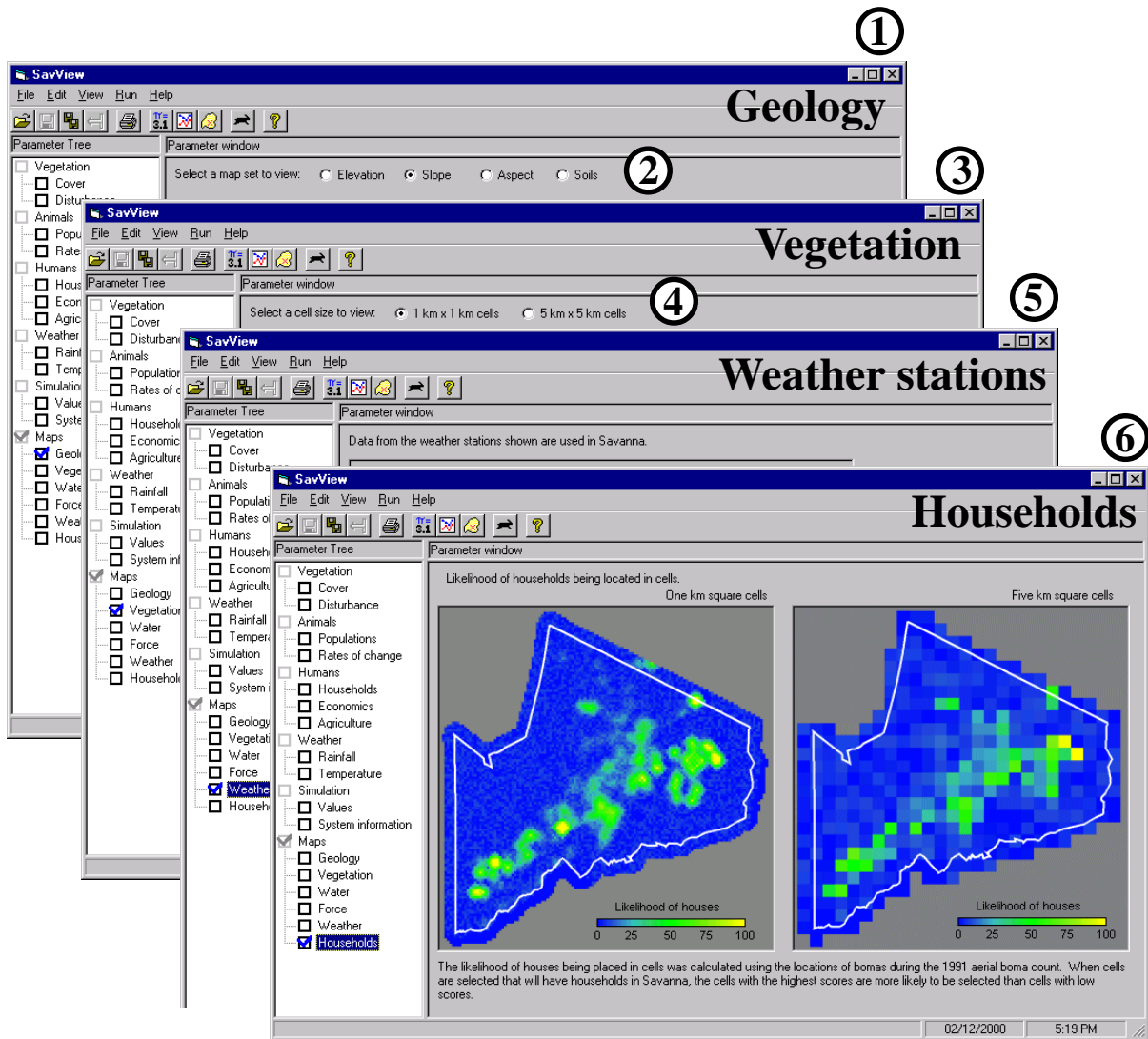
Four of the types of maps used by Savanna cannot be changed using SavView, but they can be viewed.

1: Geology, including elevation, slope, aspect, and soils.

2: The geology map of interest may be viewed by clicking a button.

3: Vegetation, using a map created by Dr. Mohammed Kalkhan using satellite processing techniques.

4: The two resolutions of the vegetation map may be viewed by selected the cell-size of interest.

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5: Weather stations in the Ngorongoro Conservation Area region.

6: The likelihood of each cell containing a household, given that some number of households are to be placed on the map.

Exercise: Look at each of these maps in the "Parameters" section of SavView.

Method: Use the methods listed on page 17 to open a set of parameters in SavView. With the parameter window shown, double-click upon "Maps" and click upon each of the four types of interest.

Notes: These maps are included for you to view. Users of SavView cannot modify the maps these maps that had little relevance for many management plants (vegetation may be able to be changed in the future using SavView). If you must modify these maps to address some question, create the new map, place it in the appropriate map location (e.g., \savanna\sites\nca\map5000), and edit MAPPRM.PRM.

Distance to Water in SavView

Distance to water maps may be changed in SavView. One map is set for each of the wet, transitional, and dry seasons.

1: To view the original water sources, select "Yes". The water source maps will replace the large maps shown below. Select "No" to continue viewing distance to water maps.

2: A small version of the map currently selected, with one shown for each of the three seasons. High resolution maps are always shown, regardless of the resolution of the simulation. Clicking upon the map of interest will also display the same map in the large windows labeled (5).

3: The list of distance to water maps available. Click the arrow on the right to open the list, and select a map of interest.

4: To use the map selected from the list in modeling, click the "apply" button. If the button is not clicked, there will not be a change to the map used in modeling and displayed in (2).

5: The currently selected map. The maps shown may be those set to be used in modeling (that is, shown in the three small windows above) or may be the map selected from the list in (3). If selected from the list in (3), the map will not be used in modeling until the button in (4) is pressed.

Exercise: Look at the distance to water window in the "Parameters" section of SavView, and experiment with setting maps to use.

Method: Use the methods listed on page 17 to open a set of parameters in SavView. With the parameter window shown, double-click upon "Maps" and click upon "Water".

Notes: Changes to these settings are written to MAPPRM.PRM, causing it to use different distance to water maps.

Animal Distribution Force Maps in SavView
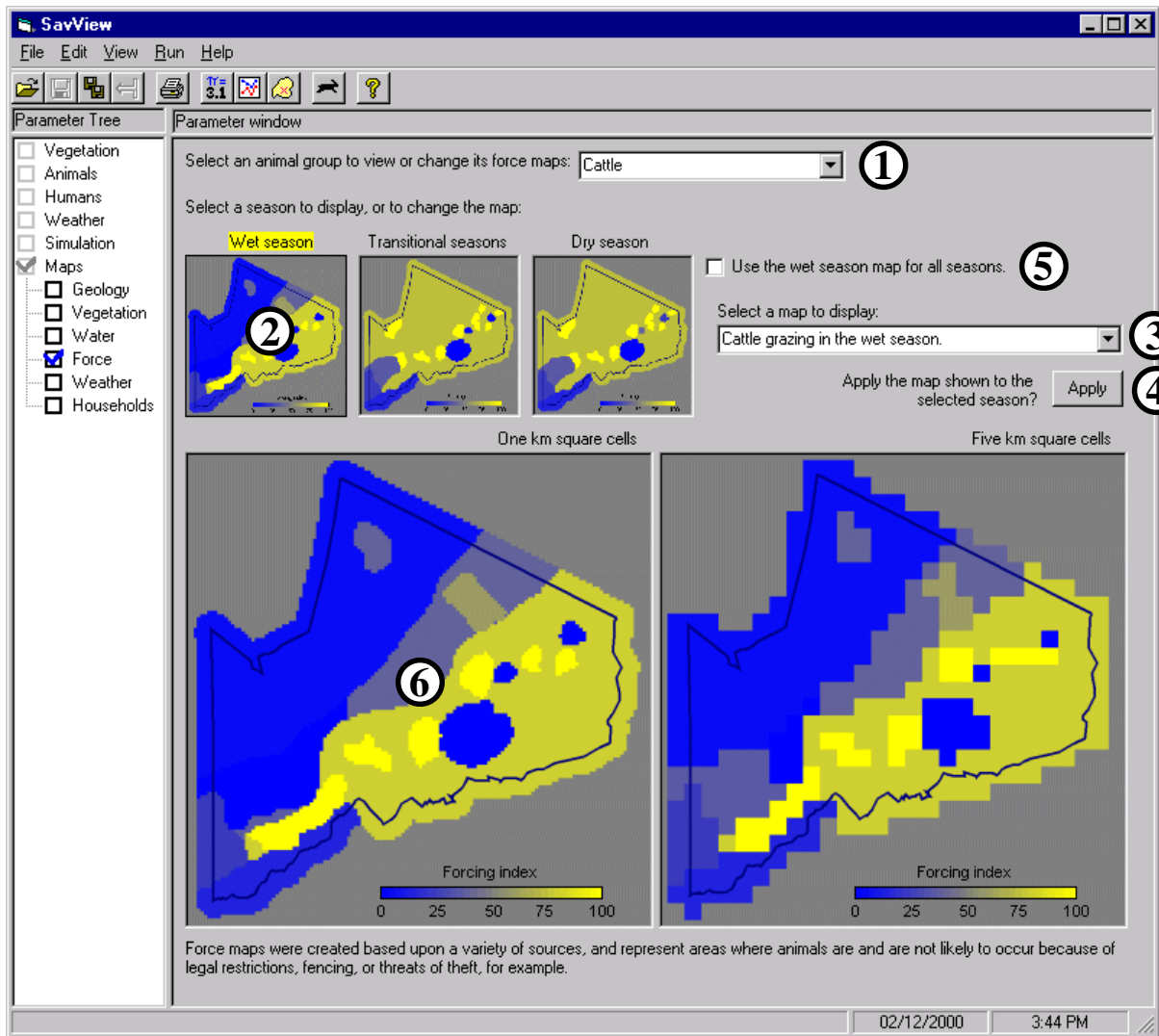
Force maps controlling, in part, animal distribution may be set. One map is set for each of the wet, transitional, and dry seasons.

1: Select the animal group of interest.

2: A small version of the map currently selected, with one shown for each of the three seasons. High resolution maps are always shown, regardless of the resolution of the simulation. Clicking upon the map of interest will also display the same map in the large windows labeled (6).

3: The list of force maps available. Click the arrow on the right to open the list, and select a map of interest.

4: To use the map selected from the list in modeling, click the "apply" button.

5: As a shortcut, if you wish to use the same map for all three seasons, set it for the wet season and click this box.

6: The currently selected map. The maps shown may be those set to be used in modeling (that is, shown in the three small windows above) or may be the map selected from the list in (3). If selected from the list in (3), the map will not be used in modeling until the button in (4) is pressed.

Exercise: Look at the force maps window in the "Parameters" section of SavView, and experiment with setting maps to use.

Method: Use the methods listed on page 17 to open a set of parameters in SavView. Double-click upon "Maps" and click upon "Force".

Notes: Changes to these settings are written to MAPPRM.PRM, causing it to use different existing force maps.

Values not yet Included in SavView

Vegetation cover and disturbance cannot yet be modified. Cover might be modified to reflect brush clearing or tree planting. Disturbance would represent fires, primarily. The frequency of fires would be adjustable.
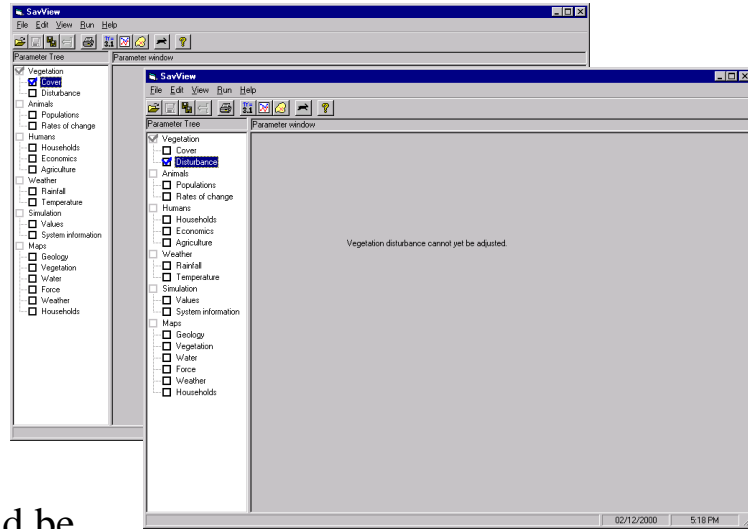
The household economics portion of Savanna has not yet been incorporated.
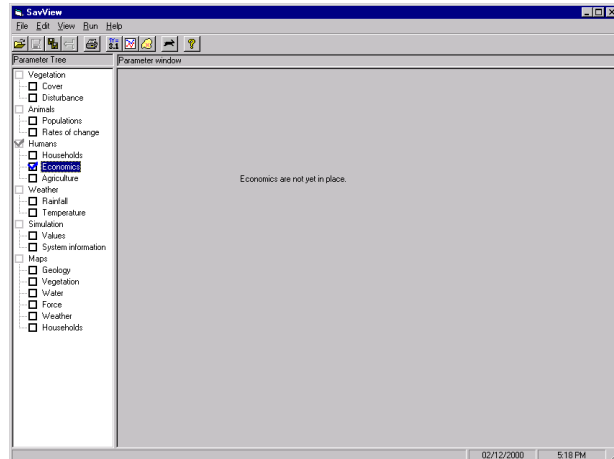
Temperatures cannot yet be adjusted. Changes may be made to explore effects of global climate change.

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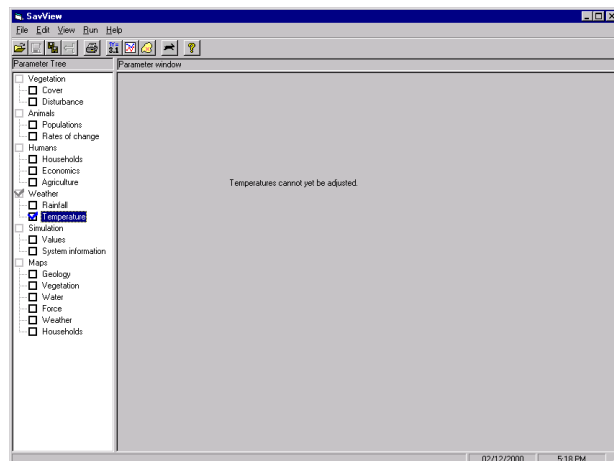
Exercise: As a group, we will discuss the relative importance of each of these modifications in addressing management questions.

Notes: NCA-Savanna was setup primarily to address management questions pertaining to grazing and animal populations. We do not know what the response of the model would be to changing temperatures or changing the amount of woody cover at the site. Creating these sections of SavView also requires ensuring that the model behaves as it should when such changes are made. At the least, warnings should be provided to users saying that they are applying the model to questions it was not setup to address.