

## Explore Data with Belief Networks (Netica)

### Exercise # 3

#### INTRODUCTION

Similar to Exercise #2, this exercise will expose you to Netica and how it's used, however we will be using a traditional belief network, rather than a naïve network. That is, the structure of the network has more cause and effect relationships between multiple nodes and can be explored differently.

#### TASK(S)

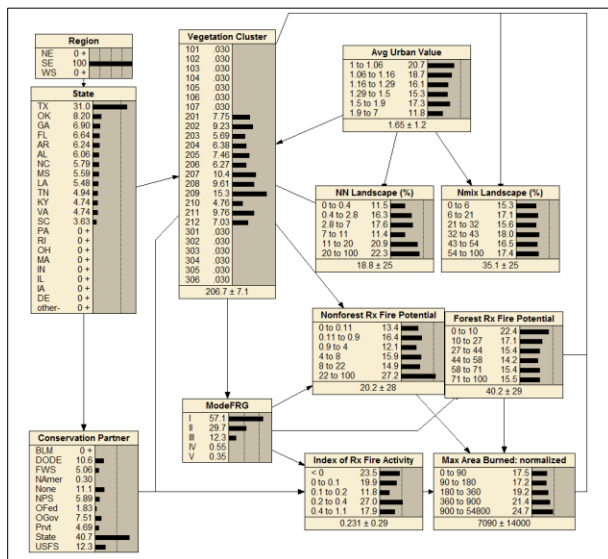
Your task for this exercise is to work with a partner and complete the activities outlined below. Most activities have a related question, which you should answer and write down in the space provided.

If you have any questions about the software or run into any issues, several facilitators will be walking around the room to answer your questions.

#### ACTIVITY/PROCESS

##### Activity #1

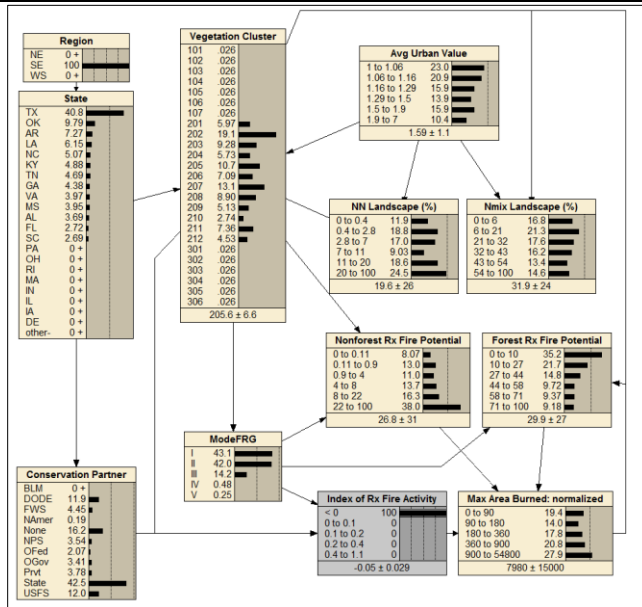
1. Open the Netica file called "Rx Fire\_Southeast" (File> Open...navigate to desktop)
2. Take a close look at the nodes within the network and notice how the arrows are drawn differently from Exercise #2. Notice the distribution of data without any findings selected.



3. Look at the Index of Prescribed Fire Activity node (called "Index of Rx Fire Activity"). Select the state called "<0" and notice the distribution of data in the "Max Area Burned: normalized". Toggle through each state in the "Index of Rx Fire Activity" node and see how the distribution changes.

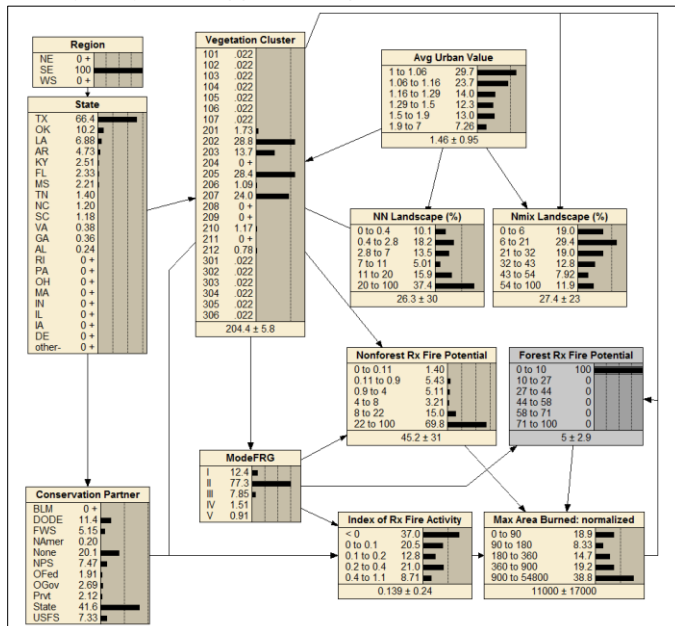
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## Activity #2

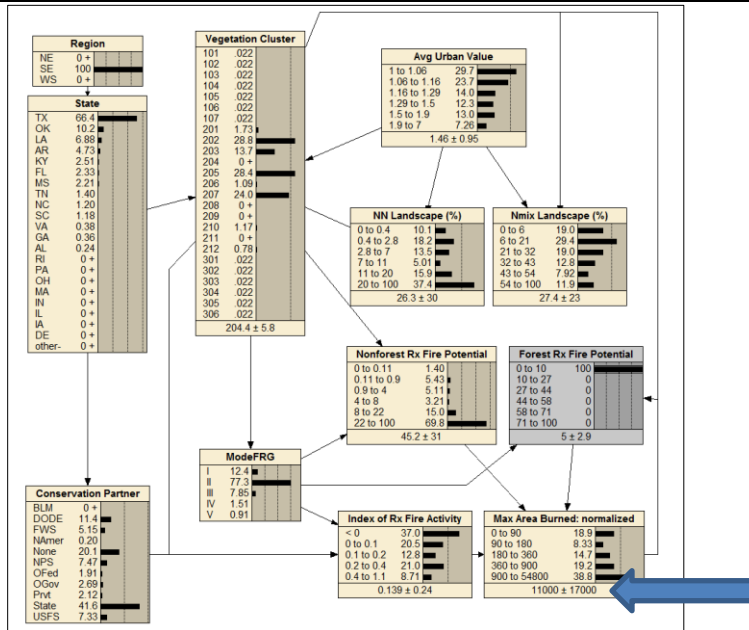
1. Make sure all findings are removed from the network (click on the “red x” button at the top called “Remove Case (Findings)”).
2. Look at the forested prescribed fire potential node (called “Forest Rx Fire Potential”). Select the first state (0-10) and toggle through the others to see how they effect “Max Area Burned: normalized”.



3. Now, do the same thing again and notice the number at the BOTTOM of the “Max Area Burned: normalized” node. This is the average Maximum Area burned in acres.

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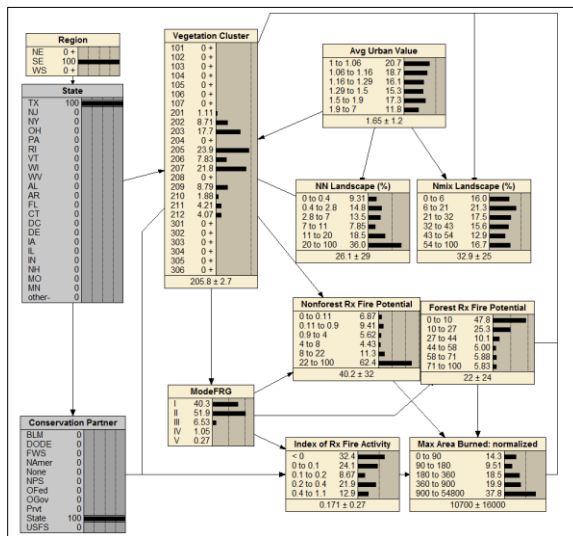
## Exercise # 3



4. Question: How does this average change? What is the average in “Max Area Burned: normalized” when you select the smallest state (0-10) in the “Forest Rx Fire Potential” node?

### Activity #3

1. Make sure all findings are removed from the network (click on the “red x” button at the top called “Remove Case (Findings)”.
2. Look at the State node. Begin to select each state in the “Conservation Partner” node and see how the distribution changes in the “Index of Rx Fire Activity” and the “Vegetation Cluster” node. Click on and off “State” in the “Conservation Partner” node several times to see how these are different.



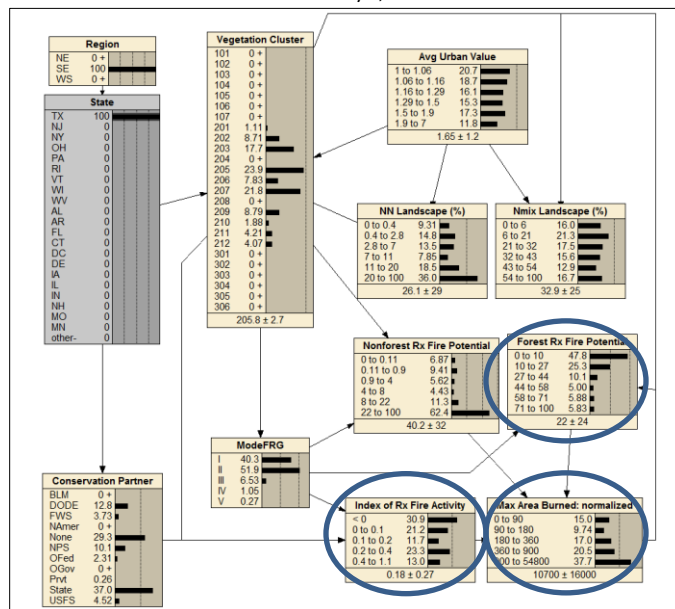
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3. Question: Does the distribution in “Vegetation Cluster” change? \_\_\_\_\_
4. Remove your findings.
5. Click on and off “State” in the “Conservation Partner” node several times (make sure “TX” is NOT selected in the “State” node).
6. Question: How does “Vegetation Cluster” change? \_\_\_\_\_

### Activity #4

1. Make sure all findings are removed from the network.
2. Now explore the network by selecting Texas from the “State” node and notice the distribution of data in the “Index of Rx Fire Activity”, “Max Area Burned” and “Forest Rx Fire Potential” nodes.



3. Remove your findings and now select “Oklahoma (OK)” in the “State” node.
4. Remove your findings and now select each “state” within the Southern region.
5. Question: What different trends do you see within the data?

### THINGS YOU WILL NEED

You will need the following items:

- Personal laptop
- Netica file saved on desktop (“Rx Fire\_Southeast”)

### RESOURCES

Norsys Netica “Help” section: <http://www.norsys.com/WebHelp/NETICA.htm>