

Name: _____

Class: _____

Data Nugget
NELF Explorer: New England Landscape Futures Explorer

Research Background:

The New England Landscape Futures Project tries to better understand possible trends and how they will affect changes to the landscape in New England.

Groups of scientists, business owners, government officials, landowners, and non-profit representatives worked together to develop and analyze a set of landscape futures, or possible scenarios for how the New England landscape will change up until the year 2060. These possible scenarios were then compared to recent trends, or what would happen to the New England landscape if trends we see now were to continue. We hope that the results will help us to make real-world decisions about how we want to use the land and its resources and determine what is most important to protect and conserve.

The New England area is 44 million acres that covers six states in the Northeastern United States. Historically, the region experienced an expansion of farming and agriculture in colonial times resulting in massive deforestation, followed by nearly 200 years of forest regrowth. Now, however, the New England states are rapidly losing forests again due mostly to development of homes and neighborhoods in suburbs surrounding more densely populated areas and residential neighborhood construction near natural wonders like lakes and mountains. "Recent Trends" is a future of continuing along this same current path. By 2060, forest area is declining in all New England states. Based on recent trends, 1.2 million acres of forest will be lost by 2060, reducing total forest area by 4%.

Most of New England's forests are owned by hundreds of thousands of families with small to mid-sized lots. The total forest area is declining across the entire region but there is no singular, central government department or agency that oversees what we are doing with our land in New England. Without one group of people responsible for overseeing what is happening to our land in New England, it is watched over and regulated or managed by many different local, state, and regional government agencies and non governmental groups interested in conserving and protecting land areas. This fragmented, or broken up, management makes it difficult to see the big picture, which is a trend toward declining forest area in New England.

Natural resource planning refers to the extent to which governments think ahead and plan for ways to conserve and protect land and use energy and water efficiently. This planning is affected by how people feel about how important it is to take care of land and water resources sustainably, or so that it will still be there for future generations.

Scientific Question:

If there are strategies in place to use land and water resources responsibly, then the acreage of forest will (increase/decrease - choose only one option) and the acreage of developed land will (increase/decrease - choose only one option) in the Miller's River Watershed (or your selected area).

Hypothesis:

Please write out a hypothesis below using an "if/then" format.

If....

Scientific Data:

Part I:

Use the [NELF Explorer](#) to compare two natural resource planning scenarios. One scenario is the continuation of how we have been managing the land as of now, "Recent Trends" and the other uses a scenario with a strategy that uses a low amount of planning in the use of natural resources, "Going Global."

Please follow these instructions to navigate the [NELF Explorer](#) site to compare scenarios.

1. Go to the [NELF Explorer](#) website and click "Start the Activity."
2. Read and click "This future" in the "Increased globalization" scenario.
3. Read the "Innovation and planning for natural resources" page and click on the "Lower natural resource planning and innovation" scenario.
4. Type in "Worcester" for Worcester County and click Next.
5. Read the pop up for the "Growing Global" scenario and then click "Got it!"
6. Along the menu across the top of the mapping tool, click the dropdown menu for "Explore Areas" and click "Watershed (HUC 8).
7. Click on areas of the map until below your left side of the map it states "Land uses over time for Miller." This is the Miller's River Watershed, your local watershed.
8. Slide the slider under "Recent Trends" to the right toward 2060.
9. Lastly, below the right side of the map on your screen, click the "Impacts on" dropdown menu and select "Surface Drinking Water."

Instructions: Hover over the graphs with your cursor for both "Recent Trends" and "Growing Global" scenarios to obtain data. Use the provided graph paper to create a bar graph comparing the acreage of Conserved Forest, and Unprotected Forest, and Low Density and High Density Development in the Recent Trends 2060 scenario versus the Growing Global 2060 scenario.

Interpret the Data:

1. What patterns in land use in 2060 do you notice as you compare scenarios? How much of the change is due to the expansion of suburbs (or neighborhoods on the outskirts of cities) and development pressures from nearby larger urban areas?
2. The ecosystem provides us with what are called “ecosystem services,” which are the benefits that ecosystems provide to humans. What ecosystem services do you think are decreased in this area in 2060 and with which scenario have they decreased more?
3. Which scenario has the least amount of Conserved Forest? Why?
4. Which scenario has the least amount of High Density Development? Why?
5. Looking at the data showing “Impacts on Surface Drinking Water” on the lower right hand side of your screen, how could the amount of acreage of Conserved Forest and Developed Land affect local water quality? Be specific.
6. Looking at the data showing “Impacts on Wildlife Habitats” on the lower right hand side of your screen, how could the amount of acreage of Conserved Forest and Developed Land affect local wildlife habitats? Be specific.

Scientific Data:

Part II:

Now, compare the “Connected Communities” scenario with the “Going Global” scenario. Read about the scenarios below.

“Connected Communities” Scenario

This is a future where there is a shift toward living 'local' and appreciating an ability to rely on each other within the region, which increases public interest in protecting local resources.

“Go It Alone” Scenario

This is a future where the region is challenged by shrinking economic, or money-making, opportunities paired with increasing costs to meet basic needs. Also, the region is not very imaginative as they are not using new technologies to increase efficiency or create new opportunities. With local self-reliance and survival as the primary objectives, natural resource protections are rolled-back and communities turn heavily to industries that extract or take too many natural resources from the land.

Hover over the graphs with your cursor for both “Connected Communities” and “Go It Alone” scenarios to obtain data. Use the provided graph paper to create a bar graph comparing the acreage of Conserved Forest, and Unprotected Forest, and Low Density and High Density Development in the Connected Communities 2060 scenario versus the Growing Global 2060 scenario.

Interpret the Data:

1. What patterns in land use in 2060 do you notice as you compare scenarios? How much of the change is due to the expansion of suburbs (or neighborhoods on the outskirts of cities) and development pressures from nearby larger urban areas?
2. The ecosystem provides us with what are called “ecosystem services,” which are the benefits that ecosystems provide to humans. What ecosystem services do you think are decreased in this area in 2060 and with which scenario have they decreased more?
3. Which scenario has the least amount of Conserved Forest? Why?
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