Community component emphasizes human health, well-being, and the local environment

Issue

Towns and cities rely on clean air, water, green space, and other natural amenities for economic sustainability and quality of life, yet their benefits are not always fully understood or considered in local decisions. EPA and its partners are producing EnviroAtlas to help communities better use environmental assets for public good.

EnviroAtlas combines maps, graphs and other analysis tools, fact sheets, and downloadable data into an easy-to-use, web-based educational and decision-support resource. Managers, planners, researchers, non-profit organizations, and citizens can use EnviroAtlas to assess the status and distribution of natural resources, and their current and potential benefits to human health and well-being. Many societal benefits flow from natural resources — clean air; clean and plentiful water for drinking, recreation, biodiversity; and protection from natural hazards. These and more are often referred to as "ecosystem services."

EnviroAtlas helps users understand the connections between ecosystems services and the natural resources that provide them. It also incorporates data about the built environment, demographics, and forces of environmental change such as pollution and land conversion. These are key factors in the accessibility and condition of environmental goods and services.

Two primary spatial scales are featured in EnviroAtlas:

- The national component is based on 30-meter resolution landcover data and summarized by subwatersheds (in 12-digit hydrologic unit codes) for the contiguous United States. There are approximately 90,000 subwatersheds in the 48 mainland U.S. states.
- The community component is based on 1-meter resolution landcover data. Information derived from these data is summarized by census block groups. Development of the community component is currently underway for 50 cities and towns of varying size, location, demographic makeup, and environmental and health risks.

While the national and the community components include maps of the societal benefits of ecosystems, the community component is especially suited to focus on the connections between the environment and human health and well-being. By using U.S. Census Bureau data and spatial boundaries, the community component can address the distribution of ecosystem services to specific populations within the community. This allows community users to see potential disparities, prioritize future projects, and address unmet needs.

Aerial photography of downtown Portland, ME, classified into vegetation (greens), impervious surfaces (pink), and water (blue)

EnviroAtlas organizes ecosystem services data into seven general categories of societal benefits:

- Clean air
- Clean and plentiful water
- Natural hazard mitigation
- Climate stabilization
- Recreation, culture, and aesthetics
- Food, fuel, and fiber
- Biodiversity conservation

The community component includes high-resolution social and economic benefits estimation, and information on health issues associated with each benefit category.

A few examples of the topics included in the community component are:

- Residential proximity to green space and walking distances to parks
- Potential exposure to air pollution from traffic
- Capacity of natural vegetation to protect water quality and reduce urban heat-island effect
- Adverse health events avoided and dollars saved due to air pollutant removal by trees

Science

The community component supports data and methods development from the best available science to provide greater understanding and appreciation of the full societal value

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of natural resources. By creating landcover data for each featured community from aerial photography, as seen above, the community component provides foundational data that can be assessed with other environmental and social data and tools. Analyses can then illustrate the protective and health-promotional benefits of natural resources, and how their loss or degradation may be contributing to cumulative burdens on community health and well-being.

Through a partnership with the U.S. Department of Agriculture (USDA) Forest Service, EnviroAtlas leverages i-Tree, an ecosystem services calculation toolkit, to produce some of the community metrics. I-Tree helps identify the extent to which trees and other natural infrastructure meet community needs and where the availability of these assets falls short.

Urban tree cover can create shade, filter air pollutants, store rainwater, and beautify pedestrian areas. The community component maps the extent of tree cover at the neighborhood scale, quantifies pollutant removal and other ecosystem services, estimates air-quality benefits in health and economic terms, and provides fact sheets explaining additional health benefits that have been linked to tree cover in research studies.

Information on the potential improvement to community vibrancy and property values will contribute as well to a more complete understanding of the value of natural resources and ecosystem services. The community component also highlights the residential populations who receive benefits locally, and the areas where they are less prominent.

The community component integrates data and research to help users identify and understand a broad suite of environmental, social, economic, and health benefits associated with ecosystem services. The scale and focus of the community component is particularly suited to evaluate and promote environmental justice.

Application and Impact: Tackling environmental justice and health

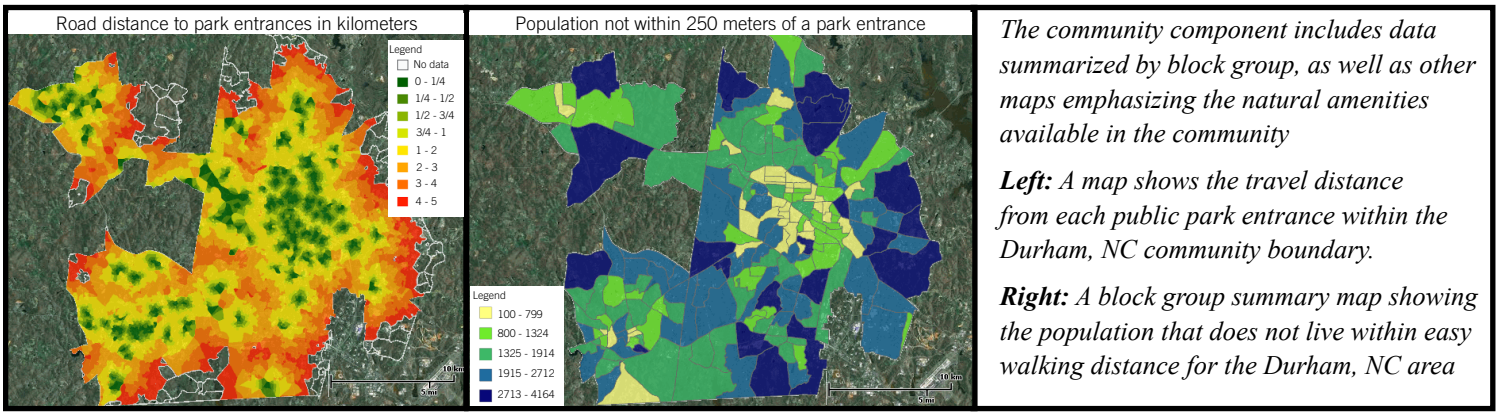
EPA defines environmental justice as "the fair treatment and meaningful involvement of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and polices." In the community component, users may address disparities by comparing the levels of ecosystem services available across different neighborhoods, socioeconomic groups, and populations with specific health vulnerabilities. For example, the community component includes maps that show the proximity to parks, as seen below, which can be used to evaluate equity in opportunities for exercise, play, and social interaction.

These comparisons provide a screening mechanism for proposed projects and the potential impacts of policy decisions and planning efforts, such as how environmental equity might be enhanced through investments in parkland or community gardens.

The community component also promotes understanding of the relationships between ecosystem services and human health. EnviroAtlas illustrates this through maps, highlights them in fact sheets, and incorporates extensive scientific research into an interactive Eco-Health Relationship Browser. EnviroAtlas users can explore the connections between ecosystem services and human health and well-being that have been established by published scientific research.

EnviroAtlas is continuing to grow and expand through partnerships to meet community needs, address research gaps, and integrate existing data and resources. To date, EnviroAtlas partners include EPA, the USDA Forest Service, the United States Geological Survey, the Natural Resources Conservation Service, and Landscope America. Local governments, universities, and non-profit organizations have also contributed. As EnviroAtlas continues to grow and foster new partnerships, its capacity to provide a comprehensive overview and analysis of the environmental, human health, economic, and well-being benefits associated with ecosystem services increases.

The first version of EnviroAtlas will be released in 2013, and will include Durham, N.C.; Portland, Maine; and Tampa, Fla. in the community component. Additional communities, maps, and research will be added as more data become available. For more information visit http://www.epa.gov or e-mail the EnviroAtlas development team at EnviroAtlas@epa.gov.



The community component includes data summarized by block group, as well as other maps emphasizing the natural amenities available in the community

***Left:** A map shows the travel distance from each public park entrance within the Durham, NC community boundary.*

***Right:** A block group summary map showing the population that does not live within easy walking distance for the Durham, NC area*

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