

Changing Landscapes

Land use planning curriculum for natural resource professionals

- P** rinciples, people, and policies
- L** and planning and pressures
- A** pproaches
- N** atural resource planning tools

L2: Scales of Planning: From Landscapes to Ecosystems



Planning occurs at many different scales.

Overview

Planning occurs at many different levels, or scales, and with very diverse objectives in mind. This factsheet will provide resource professionals with an overview of these different levels from small-scale landscapes to large-scale ecosystems. It discusses past and current drivers of planning efforts as well as what is expected to drive future planning.

Defining Planning at Different Scales

Planning happens at different levels with different goals and objectives. Planning boundaries or areas can be defined politically, geographically, or ecologically. Traditionally, planning areas were mostly delineated by political or jurisdictional boundaries defined by governmental agencies. The primary considerations were major natural features, such as rivers, along with politically derived survey lines. Today, boundaries that are delineated by natural features, such as watersheds and ecosystems, play an increasingly important role in planning efforts.

Politically Defined Planning Areas were historically negotiated “lines on a map” that included only major natural features, such as rivers and mountains. The size of the planning area was generally determined by the extent of the human community and delineated by city limits or county lines.

Geographically Defined Planning Areas are created by using physical boundaries within the landscape, most commonly watersheds. Watershed boundaries provide an identifiable limit to the plan area while encompassing most of the features that influence natural and manmade systems. Geographically defined areas may be wholly located within one jurisdiction or overlap many jurisdictions.

Ecologically Defined Planning Areas are created by drawing from natural systems using maps of habitats and ecosystems as a guide. This type of planning approach considers the necessity of encompassing larger plan areas in an effort to maintain functional ecosystems.



Ecologically defined planning considers larger areas with the goal of maintaining functional ecosystems.



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Where Have We Been As Planners?

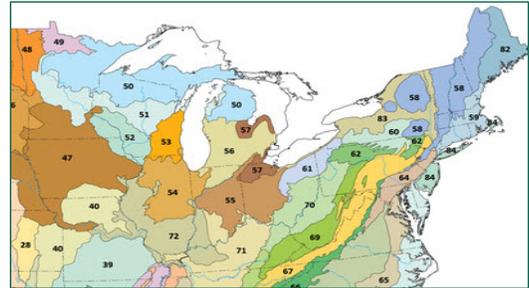
The history of planning is long and eventful in the United States. Most resource professionals are familiar with planning at ecological scales, which is not very different from planning at jurisdictional scales. The following overview of planning scales will help natural resource professionals relate the scales of planning to natural resource planning scales with which they may be more familiar.

State-level Planning – In ecological terms, state-level planning would be equivalent to planning at the ecoregion scale. Typical state-level planning activities include planning for preventing and mitigating emergencies such as drought, earthquakes, wildfires, flooding, and hazardous material incidents. Statewide Forest Action Plans are an example of planning that takes place at the State level. Forest Action Plans evaluate conditions, trends, and threats facing each State's forest resources and provide a roadmap for forest resource sustainability. State-level planning boundaries are politically defined.

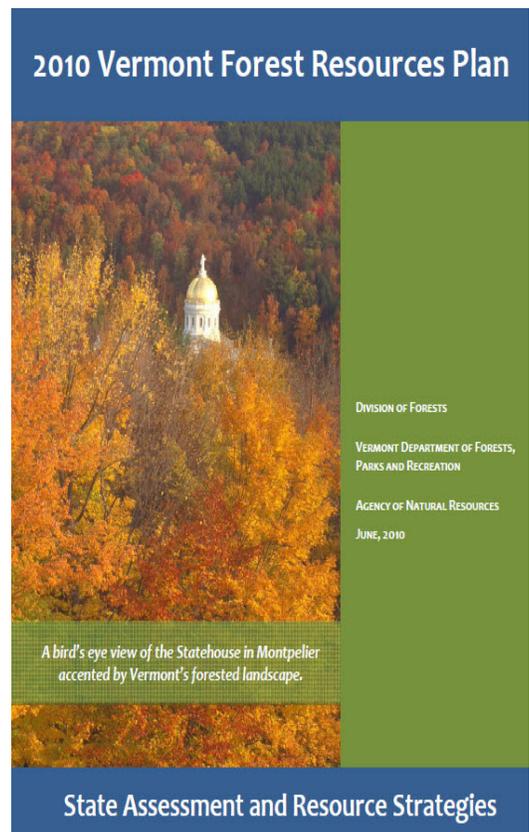
Regional Planning – Regional planning is equivalent to planning at the landscape scale and typically occurs in metropolitan areas that include parts of multiple communities, counties, or States. Many metropolitan areas have their own metropolitan planning organizations (MPOs) that prepare long-range plans and policies to guide growth and development within the region. MPOs frequently work in five target areas: community design, open space, transportation, workforce and the economy, and housing. Regional planning boundaries are typically geographically defined.

Comprehensive Planning – Comprehensive planning is equivalent to planning at the ecosystem scale, which generally occurs at the county or community scale. The goal is to create an official plan that establishes guidelines for the future growth of a community. Comprehensive plans are adopted and used to guide decisions about development in the community. Most commonly, comprehensive plans address compatibility between various land uses, management and preservation of natural resources, identification and preservation of historically significant lands and structures, infrastructure needs, schools, recreation, and housing. Comprehensive planning boundaries are politically defined.

Area Planning – Area planning is equivalent to planning at the habitat scale, is generally created for districts within a large community, and is subject to the guidelines of comprehensive plans. A large- or medium-sized city often has multiple district plans or area plans that address smaller-scale goals of each part of the city. Local plans focus on issues that are unique to the locality and may include detailed items such as density requirements, building setbacks, or even requirements for the design of commercial signs. Local planning boundaries are often determined by major streets or landscape features and may be politically or geographically defined.



The Ecosystem Land Classification System defines ecoregions as areas whose ecological systems and their components are relatively homogeneous. (Map: <http://www.epa.gov>)



Statewide forest action plans are an example of planning at the State level.

Planning's Future – Where Do We Go from Here?

While traditional planning efforts have been useful and successful in their time, there is always room for improvement. Past plans reflected a more egocentric approach to planning that focused on the role of humans within the landscape with little to no consideration for natural systems. However, in today's climate of environmental awareness, the need to integrate natural systems into the planning process is greater than ever. Two planning processes that integrate natural resources are watershed and ecosystem planning.

Watershed Planning – This is the most commonly recognizable planning effort that communities are using throughout the country. As society's progress results in increasingly detrimental impacts on natural resources, communities are embracing watershed planning as one way to protect and manage these valuable resources across jurisdictional boundaries.

Successful watershed planning takes place with a variety of community and agency partners. Programs such as the National Estuary Program are examples of partnerships where Federal, State, and local agencies and organizations work together to address the challenges of watershed management.

The Environmental Protection Agency has a wealth of resources available to help communities and organizations develop and carry out watershed plans to meet water quality standards and protect water resources. For more information, go to <http://www.epa.gov>.

Ecosystem Planning – Bailey (2009) defines this type of planning as the process of prescribing compatible land uses based on ecosystem capability, which is the ability to sustain resource productivity and maintain ecosystem processes and function. Ecosystem planning and management stress the interrelationship of ecosystem components and provide the basis for making predictions about resource interactions.

Like traditional planning, ecosystems must be recognized and planned for at various scales. Successful planning requires delineating ecosystems at a level and scale appropriate to management levels. The Ecosystem Land Classification System was developed to divide the landscape into ecosystem units of various sizes. As with watershed planning, ecosystem planning requires partnerships and a collaborative process that uses science to help make decisions.



Watershed planning is the most commonly recognizable planning effort communities use in the United States.

“Land management is presently undergoing enormous change—away from managing single resources to managing ecosystems.”

—Jack Ward Thomas
Former Chief, USDA Forest Service

Case Study – Chesapeake Bay Program

This program is a regional partnership that engages many diverse agencies, organizations, and academic institutions in efforts to restore and protect the Chesapeake Bay. The program was established in 1983 and built upon the idea of collaboration. Partners bring their leadership and expertise to work toward achieving a shared vision of a restored Bay. Programs and projects include modeling; monitoring; quality assurance; resource lands assessment; developing Total Maximum Daily Load data for the entire watershed; and developing strategies that address water quality issues related to urban stormwater runoff, brownfields, and agriculture.

For more information, go to <http://www.chesapeakebay.net>.

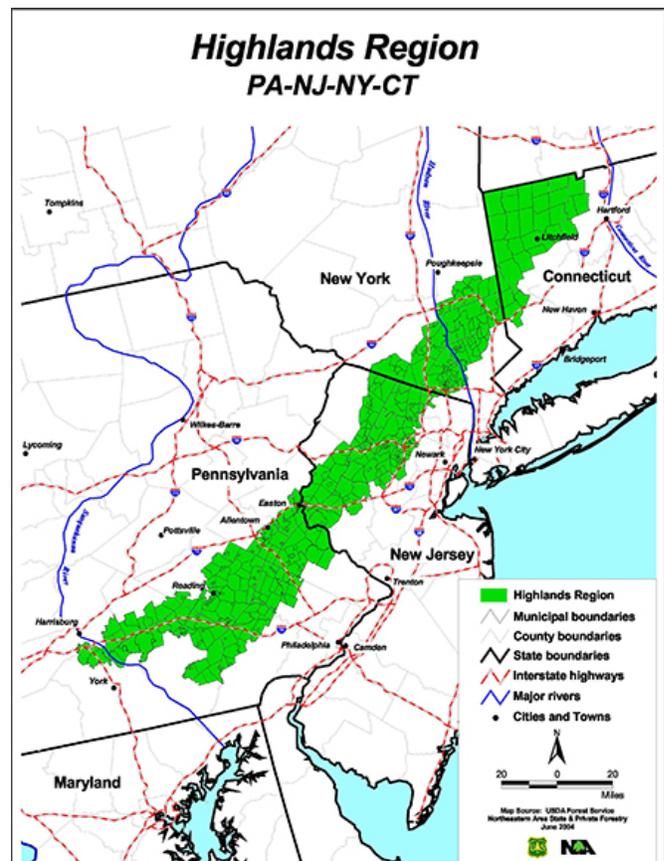


Chesapeake Bay Program
Science. Restoration. Partnership.

Case Study – Highlands Regional Study

The Highlands encompass 3.4 million acres within a four-state region (Connecticut, Pennsylvania, New Jersey, and New York) in the northeastern part of the country that is protected under the 2004 Highlands Conservation Act. The goal of the act is to protect the wealth of nationally significant natural resources and their associated benefits from the impacts of development. The original study boundaries were delineated by municipal boundaries. This resulted in an area that, while defined by political boundaries, was large enough to contain most of the geological and ecological resources that define it.

For more information, go to <http://www.na.fs.fed.us/highlands>.



Map of the Highlands Region.

Relevant Factsheets

P1 – *An American History of Planning* – Provides insight into the history of planning to better understand what is current and how this relates to the future of planning.

P5 – *Principles of Ecosystem Services* – Helps resource professionals understand the need for a broader, systematic approach to planning.

L3 – *How Planning is Put into Practice* – Provides an overview of the mechanisms that are used to put planning into practice at the local, State, and Federal level.

N2 – *Comprehensive Planning for Natural Resource Conservation* – Provides a thorough description of the most commonly used planning tool, the comprehensive plan.

N5 – *Planning for Healthy Forests and Timber Operations* – Provides an overview of tools used to carry out sound planning and stewardship.

N6 – *Planning Tools to Protect Water Quality* – Provides an overview of the tools used to protect water resources.

Resources

Bailey, Robert G. 2009. *Ecosystem geography: from ecoregions to sites*. 2d ed. New York: Springer. 264 p.

Barnes, Martina C., comp. 2010. *Highlands Regional Study: Connecticut and Pennsylvania 2010 update*. NA-TP-01-11. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Area State and Private Forestry. 215 p.

Grumbine, R. Edward. 1994. What is ecosystem management? *Conservation Biology*. 8(1): 27–38.

Penn State. 2008. *Managing natural resources: a guide for municipal commissions*. Penn State College of Agricultural Sciences, Agricultural Research and Cooperative Extension. 88 p.

Wisconsin Department of Natural Resources, Bureau of Forestry. 1999. *A technical guide to developing urban forestry strategic plans and urban forest management plans*. 18 p.

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