

CHAPTER 3: STRATEGIC APPROACH TO CONSERVATION PLANNING

North Carolina's strategic approach to conservation planning had to be broad in scope in order to address the significance of a wide variety of natural resource functions and resources throughout the state. The conservation planning approaches used in other states were evaluated for their suitability to North Carolina's specific needs. The most widely used and successful state conservation plans applied a holistic method called a "green infrastructure" approach. This approach to system conservation is based on principles of landscape ecology and conservation biology, and utilizes collaborative planning techniques. Green infrastructure emphasizes the importance of maintaining an interconnected network of green space that conserves natural ecosystem values and functions and provides associated benefits to human populations. (Benedict and McMahon, 2006). The North Carolina Conservation Planning Tool is based on these green infrastructure principles.

Identifying Essential Natural Resources

The selected conservation planning approach strategically focuses on lands that are both sufficiently large and intact to provide a broad range of ecological functions and resources. These lands may include terrestrial and aquatic habitats such as rivers, wetlands, floodplains and coastal waters, working farms, forests, parks, game lands and urban forests. Taken as a whole, North Carolina's vital green infrastructure forms a network of essential natural resources that support the ecosystem functions on which all life depends.

The overall structure of the Conservation Planning Tool is a raster-based GIS analysis producing a series of maps in which cells are ranked for their ecological significance. The ranking was based on geospatial data and ranking rules devised by expert committees and reviewed by other interested parties. Use of these assessments should provide a consistent approach to evaluating land conservation and restoration efforts in North Carolina.

Evaluation of Ecosystem Resources and Functions

To identify and prioritize the areas in North Carolina's landscape that are essential for conservation, it was necessary to develop multiple natural resource assessments. Recognizing the dual role that ecosystem functions play for wildlife and humans, it was decided to conduct separate assessments in order to more accurately rank the functions of each. The values used to assess necessary ecosystem functions are different enough that no meaningful combination into a single scale can be made. For example, it would not be reasonable to compare the significance of drinking water to the value of a rare species.

To best represent the functions that are needed to support a sustainable network of ecosystems, assessments were designed in these categories:

- Biodiversity and Wildlife Habitat,
- Open Space and Conservation Lands,
- Water Services,
- Farmland Preservation,
- Forestry Lands, and
- Marine and Estuarine Resources.

Once these are complete, we will begin work on a Threats assessment, examining impacts of climate change, population growth patterns, landslide hazards, and exotic species on our state. At a later date, a separate assessment map will be created for Restoration needs, ranking the importance of degraded lands for restoration. Through restoration, these lands will eventually improve their role in providing ecosystem functions.

Assessment Development Process

- 1) Determine the scope of the assessments.
- 2) Identify the components of the landscape that contribute to healthy ecosystem functions.
- 3) Separate the components into the identified assessment areas.
- 4) Identify indicators of these components that are available as geospatial data layers.
- 5) Integrate these data sources to produce each targeted assessment and map.
- 6) Establish ranking systems to distinguish relative levels of conservation value.

Conservation Decision Support

The final product of the statewide conservation planning process will be a series of maps that provide vital information for making decisions that impact the ecological future of North Carolina. Major factors in conservation decisions include opportunities, costs, constraints of funding sources, and specific missions and interests of the conservation players. The rankings will be useful in choosing among options available at a given time, and can encourage initiatives to

broaden in scope. The maps serve to show the scale of conservation needs as well as data gaps. Regardless of this model's precision, it will be necessary to verify the significance of any conservation site and the potential benefits of conservation action before substantial investments are made.

Resource Functions: The maps represent a number of different ecosystem functions, all of which are important. Therefore, the rankings are based less on the relative importance of the particular functions than on the need and ability to focus conservation action on specific tracts of land that the mapped data represent.

Resource Rarity and Distinctiveness: Sites that support the rarest resources, such as rare species or unusually pristine natural areas, are not considered interchangeable with most other areas (which are unlikely to support the same conservation target). Thus the need to focus protection actions on specific tracts with rare resources is high, and the lands containing these resources were highly ranked. These are areas that, if lost, have no substitutes. When many areas of similar type and integrity are available, there is less need to focus conservation action on any one specific site.

Data Spatial Precision, Accuracy and Completeness: Data that is highly specific and accurate for the functions being measured has a greater power to distinguish conservation need than data sets that are diffuse or inaccurate. Data that doesn't precisely distinguish examples with high integrity (for the specified ecological functions) from those with low integrity are less able to guide conservation actions. For common functions and land types, data needs to be able to distinguish the best examples in order to focus conservation actions.