

V. NATURAL DIVERSITY PRESERVATION

PRESERVING NATURAL DIVERSITY

We are fortunate in North Carolina to enjoy a unique natural heritage composed of an extraordinary variety of natural ecosystems and native plants and animals. Today, our landscape is very different from the vast wilderness that the first European settlers found in North Carolina. Three hundred years of human settlement, agriculture, urbanization, and resource use have changed our state's landscape. Only remnants survive of the natural ecosystems that once blended into one another in astounding variety from the highest mountains in eastern America to the long stretches of beaches and barrier islands and vast estuaries. North Carolina still has a profusion of native animal and plant species and a range of natural communities. These resources are our natural heritage.

Action must be taken to save what is left of North Carolina's natural diversity. As thorough as the changes in our natural landscapes have been, North Carolina still possesses a wide range of examples of its original ecological resources. But man-caused alterations continue to degrade and destroy our natural areas at an alarming rate. Many of our state's outstanding natural lands and native plants and animals are imperiled. In the wake of burgeoning development, natural resources are being consumed and natural habitats destroyed with unprecedented speed. With the loss of habitat, many native plant and animal species could be eliminated. Approximately 240 plant and animal species are considered endangered or threatened in North Carolina, and the survival of several hundred other species is at risk. Also, about half of the state's natural community types are considered rare and threatened in North Carolina or worldwide.

Concern for preserving natural areas and ecological resources derives from the understanding that there are basic relationships between people and the other living things that share our earth. Natural areas are living laboratories and outdoor classrooms where we can study and enjoy natural environments. They provide opportunities for comparison against managed or exploited resources. Natural areas are havens for animal and plant species, often dependent upon specific habitats for their survival. Natural areas also provide for enjoyment, recreation, and renewal of the human spirit. And they preserve examples of some of North Carolina's rarest and most unique resources.

Recognizing the need to ensure the survival of North Carolina's natural diversity, the Department of Environment and Natural Resources in 1976 established the Natural Heritage Program. It was established with technical assistance from The Nature Conservancy, a nonprofit conservation organization that has led the development of an international network of 85 natural heritage programs. Visit the website at www.ncsparks.net/nhp for more information on the North Carolina Natural Heritage Program.

The Nature Preserves Act of 1985 stated the need for natural diversity preservation in its policy declaration.

The continued population growth and land development in North Carolina have made it necessary and desirable that areas of natural significance be identified and preserved before they are destroyed. These natural areas are irreplaceable as laboratories for scientific research, as reservoirs of natural materials for uses that may not now be known, as habitats for plant and animal species and biotic communities, as living museums where people may observe natural biotic and environmental systems and the interdependence of all forms of life, and as reminders of the vital dependence of the health of the human community on the health of the other natural communities.

It is important to the people of North Carolina that they retain the opportunity to maintain contact with these natural communities and environmental systems of the earth and to benefit from scientific, aesthetic, cultural, and spiritual values they possess.

Natural areas are generally considered to be areas of land or water that (1) retain or have reestablished natural character, (2) provide habitat for rare or endangered species of animals or plants, or (3) have natural features of special scientific or educational value.

SUMMARY OF NATURAL HERITAGE INVENTORY DATABASE

Efforts to protect our natural heritage are based on a comprehensive inventory of our state's most important natural areas. The Natural Heritage Program's first purpose is to assemble and maintain a statewide inventory of exceptional and rare natural habitats and biotic communities, locations of rare or endangered animal and plant species, and special wildlife habitats. The inventory records the status, distribution and ecology of the state's natural communities and rare or endangered species.

North Carolina's natural diversity consists of thousands of plant and animal species, all interacting with each other and their physical environment. The Natural Heritage Program has classified special "elements" of the state's natural diversity and applies a systematic approach to inventory and protect this diversity. At a broad level, an element may be an entire ecological system such as a natural community (terrestrial or aquatic), including the plants and animals of that system and the associated soils, geology, and hydrologic features. At a species-specific level, an element would be a species of plant or animal considered rare or endangered in North Carolina. Therefore, the elements of natural diversity on which the Natural Heritage inventory is based may be a rare plant or animal or a natural community.

Of the total biological diversity of North Carolina, the Natural Heritage Program monitors 206 vertebrate animals, 340 species of invertebrate animals, 587 vascular plants, and 157 nonvascular plants. The monitoring of natural communities is different than that of species, since prioritization

depends primarily on quality or condition rather than on rarity. The database includes high quality examples of each of the 121 terrestrial natural community types recognized in the state. Other categories of elements monitored by the Program but given less emphasis include special wildlife habitats (such as nesting concentrations for colonial waterbirds, other bird rookeries and colonies of bats).

These elements are the focus of the Program' s inventory and protection efforts. The Program monitors a total of 1,400 "elements of natural diversity," which represent the rarest, most significant, and most threatened remnants of our natural heritage. Data are gathered on the locations of special elements as well as their rarity and threats to them. All elements are given global and state rankings, based on rarity and threat, according to a system developed by The Nature Conservancy. These rankings are periodically updated as new information becomes available. The data are used to determine priorities for future field investigations and for protection efforts. Elements that are the rarest and in most danger on a nationwide or statewide basis receive the highest priorities for these efforts. Elements that are more common, in less danger, or are adequately protected are given a lower priority or may be dropped from further consideration.

As of January 2002, the inventory contained 19,516 records on locations of elements of natural diversity. Each year the Program normally adds more than 1,000 new occurrence records and updates several thousand records. The NHP database currently includes the following sums of element occurrence records:

- 7,931 occurrences of rare vascular plants;
- 593 occurrences of rare nonvascular plants;
- 5,079 occurrences of rare vertebrate animals;
- 1,796 occurrences of rare invertebrate animals;
- 302 special wildlife habitats (including nesting colonies of coastal waterbirds, rookeries of egrets and herons, roosting sites for eagles and other raptors, and bat colonies); and
- 3,815 significant natural community occurrences.

The Natural Heritage Program compares sites containing the same element(s) to identify the most important natural areas for conservation efforts. This element-based approach ensures that biologically important, but little known or less scenic, natural areas are considered along with better known sites of greater size and beauty.

The Program has compiled inventory data on special ecological resources in all 100 counties, but has conducted systematic surveys in only 60 of the counties. The Program has supplemented its regular state funding with other sources – including state and federal grants, and local government projects funding– to finance county-wide or regional surveys of natural areas.

The Program has identified more than 1,514 natural areas throughout the state that have exceptional importance for the survival of North Carolina's natural heritage. Nearly half possess natural resources that are the best examples of their kind or are the most critical habitats for endangered species in the state or nation. Only a third of these 1,514 most important natural areas now have any assurance of protection (503 are at least half publicly owned; 374 are completely publicly owned, i.e., > 95%). Many of the "protected" areas are actually vulnerable to external threats, and in many cases only a fraction of the total natural area is assured of protection.

As the inventory of special natural areas and rare species habitats continues to progress, many other important sites will likely be identified and added to the natural areas priority list. The Natural Heritage Protection Plan, which is required on a biennial basis by the N.C. Nature Preserves Act (G.S. 113A-164.4), provides direction for the addition of new areas to the State Registry of Natural Heritage Areas and to the Dedicated Nature Preserves System. The plan also recommends natural areas that may best be protected by acquisition by public or private conservation agencies.

PROTECTING NATURAL DIVERSITY

Once a natural area is identified protection efforts can proceed. Local land trusts or national conservation organizations such as The Nature Conservancy are key to implementing protection. They can inform the landowner of the ecological significance of the property and offer a range of options for ensuring protection of the site.

Natural Heritage inventory data help other public agencies and private organizations safeguard important ecological resources as they plan development projects and make regulatory and land management decisions. Information is provided, for example, to guide the location of highways, electrical transmission lines, wastewater treatment and hazardous wastes facilities, industrial sites, and airports. Knowing about the presence of special natural resources in the early planning stages of a project allows development agencies to choose alternative designs for construction projects that will not harm natural areas or rare species.

Natural Heritage inventory information has helped build awareness and concern for natural areas in many governmental agencies. Besides providing data for specific sites and planning decisions, the Natural Heritage Program has built cooperative relationships and regular communication with many public agencies involved in the management and protection of natural resources. Among them are the U.S. Forest Service, National Park Service, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, U.S. Army Corps of Engineers, and many state agencies. The Program helps other public agencies design resource management plans for their landholdings. It shares rare species and natural area information through formal agreements with the U.S. Fish and Wildlife Service, N.C. Wildlife Resources Commission, and N.C. Department of Agriculture for endangered species inventory, management, and recovery programs.

Protection planning is a major component of the Natural Heritage Program's functions. The Program continuously updates its rankings for monitored natural elements, and its statewide natural areas priority list. The methods of protection most often recommended for the identified natural

areas are registration, dedication, or acquisition (by gift or sale). The state's Registry of Natural Heritage Areas and Dedicated Nature Preserves System are means to protect a natural area by voluntary agreement of the private or public owner. The N.C. Nature Preserves Act provides the statutory basis for both. No area is registered or dedicated without the voluntary consent of the landowner.

A new procedure used by the Natural Heritage Program is the regional conservation assessment. This process incorporates county natural area and rare species information as well as landscape level considerations to identify conservation priorities for groups, or guilds, of plants and animals associated with particular habitat types. The completion of county-wide natural area inventories and the development of regional conservation assessments which would lead to a statewide conservation assessment could guide the protection efforts of North Carolina conservation agencies and land trusts. This assessment will be particularly useful if it incorporates the conservation targets of multiple agencies, local governments, and local and national land conservation organizations.

RECOMMENDATIONS FOR ACTIONS IN THE NEXT FIVE YEARS

In light of the rapidly increasing population of North Carolina, it is critical that significant steps in land conservation be implemented during the next five years. These include:

- Completing comprehensive natural area inventories of all counties.
- Identifying and describe the most significant aquatic habitats of our state and increasing their protection by facilitating the use of the information by Clean Water Management Trust Fund and other state and federal programs.
- Providing life history, species identification, and distribution information for North Carolina's rare species via the Program web page.
- Developing a comprehensive state-wide conservation assessment which is spatially specific and addresses the habitat needs of wildlife as well as ecosystem function. This should include the protection goals of land trusts, partner agencies, and local governments.
- Increase the funding levels for the Natural Heritage Trust Fund, the Park and Recreation Trust Fund, the Clean Water Management Trust Fund, and the Farmland Preservation Trust Fund.
- Establishment of a land conservation grant Program which will provide funds to land trusts to support efforts which contribute to protection of lands identified in the statewide conservation assessment.
- Implementing the 2002 State Park Expansion Plan.

By implementing the recommendations listed above, we can make meaningful progress in our efforts to protect significant features of our State's natural diversity.