

APPENDIX E.

Georgia Department of Natural Resources Comprehensive Wildlife Conservation Strategy (CWCS) Environmental Education Technical Team Report

Purpose of this Report

In 2003, the Wildlife Resources Division of Georgia DNR began a two-year effort to develop a statewide comprehensive plan for conserving Georgia's wildlife. The conservation strategy will be based upon the best available data on the distribution and abundance of wildlife species in the state. It will examine the extent and condition of habitats required by these species, threats to these habitats, address research and survey needs, habitat restoration needs and monitoring needs. It will also include an assessment of current regulations, policies, and programs for wildlife conservation in Georgia.

Several technical teams were formed to address specific elements of the conservation strategy; these teams include Wildlife Resources Division staff and representatives of other agencies and organizations. This report outlines the CWCS Environmental Education Technical Team's recommendations to:

- 1) Measure Environmental Literacy in Georgia;
- 2) Publish Technical Team Findings;
- 3) Promote Targeted Educational Messages;
- 4) Develop Easy-to-Use Materials;
- 5) Establish a Network of Regional Educators and Community Groups; and
- 6) Increase Support for Coordination of Environmental Education within DNR.

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Environmental Education in Georgia

More than 180 organizations including private non-profit, and for-profit entities, universities and governmental agencies provide environmental education programs for the citizens of Georgia. A statewide network of 400+ environmental educators, the Environmental Education Alliance (EEA) of Georgia, supports these organizations through an annual conference, a symposium for teachers on the development and use of outdoor classrooms, environmental education certification courses, promotion of training events and resources, and research on the benefits of environmental education to student achievement.

EEinGeorgia.org, the online guide to environmental education in Georgia, makes information about environmental education resources readily available. The comprehensive Web site is a collaborative effort of the Environmental Protection Division (EPD) of the Department of Natural Resources (DNR), the Department of Community Affairs, the Department of Education (DOE) and EEA. It includes EE lesson plans for all grades and subjects based on the state education standards, a searchable directory of EE organizations and their resources, facts about Georgia's environment, and a calendar of EE events.

Measuring the Effectiveness of Environmental Education in Georgia

In 2002, the Department of Education, in partnership with EPD, the University of Georgia and EEA launched *Using the Environment as an Integrating Context for Learning (EIC)*, a K-12th grade school improvement program. Today there are 130 educators in 14 schools implementing the EIC Model. Teams composed of teachers, school administrators, community organization representatives and statewide environmental education (EE) providers develop, teach and assess grade-level units that address standards-based and context-based objectives. Organizing themes for their EIC Model Unit plans range from waste management and watershed quality to wildlife conservation and eco-tourism.

The Georgia State Board of Education approved the EIC Model Program to address the underperformance of K-12th grade students on standardized Science measures. In 2008, an independent study of the effectiveness of the EIC Model on student achievement, classroom behavior, and school attendance will be published.

CCWS Environmental Education Technical Team Recommendations

Measure Environmental Literacy in Georgia

There has never been a statewide survey to measure the environmental literacy of Georgia residents. The EE Technical Team recommends that a survey be developed and conducted to establish a baseline of citizen conservation knowledge and to measure the effectiveness of environmental education initiatives in Georgia. While many examples of environmental literacy surveys exist, a subcommittee of the Environmental Education Technical Team reviewed the following surveys and recommends them as suitable models for Georgia.

- National Environmental Education and Training Foundations report - Understanding Environmental Literacy in America: And Making it a Reality (<http://www.neetf.org/roper/ELR.pdf>)
- The First Pennsylvania Environmental Readiness for the 21st Century Survey Report by the Pennsylvania Center for Environmental Education (http://www.pcee.org/Research/research_1main.asp)
- Report Card on Minnesotan's Environmental Literacy (2003-04) by the Wilder Research Center (http://www.seek.state.mn.us/eemn_b.cfm)

The major steps required to implement a statewide survey include:

- Determine the key conservation and environmental issues affecting Georgia's wildlife resources today.
- Partner with a local university or independent research firm to develop survey questions that will assess the knowledge of Georgians regarding these key issues.
- Conduct a statistically valid phone survey of Georgia citizens, legislators and community leaders to determine their knowledge of key conservation issues.
- Post these questions on the GA-DNR website and encourage citizens to take this quiz (with the understanding that the web instrument lacks statistical independence between survey respondents so this survey would only be an index of understanding of these issues).

Publish Technical Team Findings

The reports from the other CWCS technical teams (i.e., Mammal, Bird, Habitat Restoration, Plant Communities, Aquatic, etc.) should be compiled and summarized in a format that includes key educational messages that resonate with the general public. The summary will be a valuable resource for educators throughout Georgia, as it will include the most up-to-date information on the conservation status of species and communities statewide. The documents will be made available via the DNR/CWCS Web site and other outlets to educate citizens about specific conservation priorities within their own ecoregion.

The EE technical team recommends that a focus group survey be conducted after the messages are developed to ensure that the messages are easily understood and lead to appropriate citizen action. Documenting the effectiveness of the messages will help garner the support and funding necessary to implement them. It is important to measure the extent

to which the messages improve environmental literacy and adjust them accordingly before spending resources to implement them.

Promote Targeted Educational Messages

To reach Georgia's citizens effectively and efficiently, the EE technical team recommends developing targeted educational messages and interpretive themes that Georgia's diverse network of environmental educators will use. Efforts should focus on far-reaching ecological concepts related to conserving all of Georgia's natural resources including plants, animals, water, air and land.

The key message is *communities* - educating communities of people about conservation concerns within their natural communities. The most effective means of educating Georgians about conservation is to incorporate educational strategies that include the background information needed to understand pertinent conservation issues (with an emphasis on the findings of the CWCS technical teams) and appropriate actions that citizens can take. Educational messages and interpretive themes should be relevant and targeted for specific groups, including schools (K-12) and nonformal settings such as nature centers, parks, science museums and zoos. Messages may be delivered through face-to-face learning opportunities, publications and other media.

Develop Easy-to-Use Materials

To help Georgia's environmental educators promote targeted educational/interpretive messages, fact sheets, posters, lesson plans, audio-visual materials and other easy-to-use resources should be produced.

Establish a Network of Regional Educators and Community Groups

The educational messages of the CWCS will be best delivered through ecoregional networks. Working with EEA, EEinGeorgia and other organizations, educators within each ecoregion should be identified. Workshops will introduce the educators to each other and the unique features and issues of their ecoregion, provide them with easy-to-use materials for teaching these concepts and challenge them to develop strategies for incorporating the messages into their programming.

A coordinated effort will require a network of educators within each ecoregion who can modify existing programs to incorporate key education messages and findings of the CWCS technical teams. This may entail meetings with educators and DNR technical team members to identify "good stories" that can be used to develop the key messages and "hook" learners on issues in that ecoregion. Audiences will include school children, teachers (including pre-service) and the general public.

Key community groups that impact land use: private property owners, business leaders and government officials should also be identified. Community workshops will integrate CWCS strategies with local issues to motivate "buy-in" by key community groups and combine targeted messages to bring community groups together under a common educational strategy.

Increase Support for Coordination of Environmental Education within DNR

Increased coordination of environmental education within the Department of Natural Resources is the most realistic way to accomplish the above recommendations. This coordination will also benefit numerous initiatives of DNR's divisions: Coastal Resources, Environmental Protection, Historic Preservation, Pollution Prevention Assistance, Wildlife Resources, and State Parks and Historic Sites.

There are a variety of strategies for building a statewide education network within the Department of Natural Resources. They all involve additional staffing; four strategies are listed below:

Hire a Statewide Conservation Education Coordinator and two educators per ecoregion. The Statewide Education Coordinator would report to the Commissioner's Office and serve as a liaison to the Department of Education. There would be two educators in each ecoregion: Ridge and Valley, Blue Ridge, Piedmont, Southeastern Plains/Middle Georgia, and Coastal Region. One educator would address community groups and one educator would address school programs (K-12).

Hire a Statewide Conservation Education Coordinator and one educator per ecoregion. The Statewide Education Coordinator would report to the Commissioner's Office. There would be one educator in each ecoregion to address school programs (K-12). The regional educators would establish a network of environmental educators and community groups within their ecoregion.

Hire a Statewide Conservation Education Coordinator to establish networks of environmental educators and community groups in each ecoregion and identify educators within each ecoregion who could serve with partial funding from DNR as regional educators.

An interim strategy may involve using existing DNR staff with a representative from each Division serving on a team to develop workshops (a different one for each ecoregion) that can be presented around the state to educators and community groups. Technical team members may be called on to make presentations at these workshops.

Conclusion

The Comprehensive Wildlife Conservation Strategy presents the Department of Natural Resources with an opportunity to: 1) educate the citizens of Georgia about natural communities and the conservation priorities within their ecoregions; and 2) measure the effectiveness of the campaign. This can be accomplished by increasing support for coordination of environmental education within the agency and taking advantage of the strong and diverse network of environmental educators throughout the State.

Georgia Environmental Education Providers That Provide Wildlife Education

Source: *Environmental Education Alliance of Georgia website (www.eeingorgia.org)*

Southwestern Appalachians/Ridge & Valley Ecoregions

Arrowhead Environmental Education Center/DNR, Armuchee, Floyd County

Cloudland Canyon State Park/DNR, Rising Fawn, Dade County

Blue Ridge Ecoregion

Amicalola Falls State Lodge Park/DNR, Dawsonville, Dawson County

Anna Ruby Falls/U.S. Forest Service, Helen, White County

BearWalks, Morganton, Fannin County

Blue Ridge Outdoor Education Center, Toccoa, Stephens County

Camp Toccoa/Camp Fire USA Georgia Council, Toccoa, Stephens County

Fort Mountain State Park/DNR, Chatsworth, Murray County

H.O.M.E./Rolling Thunder Enterprises, Jasper, Pickens County

Kangaroo Conservation Center, Dawsonville, Dawson County

Medicine Bow, Ltd., Dahlonega, Lumpkin County

Mil-Fran Video, Dahlonega, Lumpkin County

Smithgall Woods-Dukes Creek Conservation Area/DNR, Helen, White County

Tallulah Gorge State Park/DNR, Tallulah Falls, Rabun County

Unicoi State Lodge Park/DNR, Helen, White County

Wahsega 4-H Center, Dahlonega, Lumpkin County

Wildlife Rehab Sanctuary & Outdoor Educational Program, Ellijay, Gilmer County

Wildlife Wonders - ZOO TO YOU, Cleveland, White County

Piedmont Ecoregion

Atlanta Audubon Society, Atlanta, Fulton/Dekalb County

Atlanta Reptile Connection, Atlanta, Fulton County

Bear Hollow Wildlife Trail, Athens, Clarke County

Birding Adventures, Inc., Atlanta, Dekalb

Callaway Gardens Education Department, Pine Mountain, Harris County

Charlie Elliott Wildlife Center/DNR, Mansfield, Jasper County

Chattahoochee Nature Center, Roswell, Fulton County

Chattahoochee-Oconee National Forests, Gainesville, Hall County

Chattahoochee River Environmental Education Center/NPS, Alpharetta, Fulton County

City of Alpharetta Department of Engineering/Public Works, Alpharetta, Fulton County

City of Roswell Environmental Protection Unit, Roswell, Fulton County

Cobb County Adopt-A-Stream, Cobb County

Cochran Mill Nature Center, Palmetto, Fulton County

Dauset Trails Nature Center, Jackson, Butts County

Davidson-Arabia Mountain Nature Preserve, Lithonia, Dekalb County

DeKalb County Extension Service Environmental Education Center, Decatur, Dekalb County

Dunwoody Nature Center, Inc., Dunwoody, Dekalb County

Eco-Reach, Clarke County

Elachee Nature Science Center, Gainesville, Hall County

F D Roosevelt State Park/DNR, Pine Mountain, Harris County

Fernbank Museum of Natural History, Atlanta, Dekalb County

Fernbank Science Center, Atlanta, DeKalb County

Forty Oaks Nature Preserve, Clarkston, DeKalb County

GEO, Georgia Environmental Organization, Inc., Smyrna, Cobb County

Georgia Museum of Natural History, Athens, Clarke County

Georgia Reptile Zoo, Commerce, Jackson County

Georgia Wildlife Federation/Alcovy Conservation Center, Covington, Newton County

Georgia Wildlife Federation/Mill Creek Nature Center, Buford, Gwinnett County

Gordon Georgia Youth Science & Technology Center (GYSTC), Barnesville, Lamar County

Gwinnett Adopt-A-Stream, Gwinnett County

Hard Labor Creek State Park/DNR, Rutledge, Morgan County

HawkTalk, Inc., Holly Springs, Clarke County

Hightower Educational Forest, Dawsonville, Dawson County

John Tanner State Park/DNR, Carrollton, Carroll County

Keep Forsyth County Beautiful, Cumming, Forsyth County

Lanier Museum of Natural History, Buford, Gwinnett County

Mistletoe State Park/DNR, Appling, Columbia County

National Wildlife Federation--Southeastern Natural Resource Center, Atlanta, Fulton County

Nature Corners, Peachtree City, Fayette County

Newman Wetlands Center, Hampton, Clayton County

Northeast Georgia Youth Science & Technology Center (GYSTC), Clarkesville, Habersham County

Oakhurst Community Garden Project, Decatur, DeKalb County

Oconee River GYSTC (Georgia Youth Science and Technology Center), Winterville, Clarke County

Outdoor Activity Center, Inc, Atlanta, Fulton County

Oxford Institute for Environmental Education, Oxford, Newton County

Panola Mountain State Conservation Park/DNR, Stockbridge, Rockdale County

Piedmont National Wildlife Refuge, Round Oak, Jones County

Rock Eagle 4-H Center, Eatonton, Putnam County

Sandy Creek Nature Center , Athens, Clarke County

Science To Go, Inc., Marietta, Cobb County

Scott Jones/MediaPrehistoria, Carlton, Ogelthorpe County

Sweetwater Creek State Conservation Park/DNR, Lithia Springs, Douglas County

TYTO Inc., Buford, Gwinnett County

Upper Etowah River Alliance, Canton, Cherokee County

Warm Springs National Fish Hatchery/USFWS, Warm Springs, Meriwether County

Watson-Brown Foundation, Thomson, McDuffie County

Ways of the Ancestors Primitive Skills Programs, Gainesville, Forsyth County

Yellow River Game Ranch, Lilburn, Gwinnett County

Zoo Atlanta, Atlanta, Fulton County

Southeastern Plains Ecoregion

Bartram Forest, Milledgeville, Baldwin County

Birdsong Nature Center, Thomsonville, Grady County

Bond Swamp National Wildlife Refuge, Round Oak, Jones County

Brown's Mount, Macon, Bibb County

Florence Marina State Park, Omaha, Stewart County

General Coffee State Park, Nicholls, Coffee County

George T. Bagby State Park, Fort Gaines, Clay County

Georgia College & State University Outdoor Education Programs, Milledgeville, Baldwin County

Grand Bay Wetland Education Center/DNR, Valsosta, Lowndes County

Keep Tift Beautiful, Tifton, Tift County

Little Ocmulgee State Park/DNR, McRae, Wheeler County

McDuffie Environmental Education Center/DNR, Thomson, McDuffie County

Middle Georgia Youth Science & Technology Center (GYSTC), Warner Robbins, Houston County

Museum of Arts and Sciences, Macon, Bibb County

Oxbow Meadows Environmental Learning Center, Columbus, Muscogee County

Providence Canyon State Park, Lumpkin, Stewart County

Reed Bingham State Park, Adel, Colquitt County

Reynolds Nature Preserve, Morrow, Clayton County

Spirit Creek Educational Forest, Hephzibah, Richmond County

The Parks at Chehaw, Albany, Dougherty County

Southern Coastal Plain Ecoregion

Bear Grass Natural History Center/Okefenokee Joe, Odum, Wayne County

Bull River Cruises, Savannah, Chatham County

Burton 4-H Center on Tybee Island, Tybee Island, Chatham County

Coastal Ark, Coastal Resources Div./DNR, Chatham, Bryan, Liberty, Long, McIntosh, Glynn, Camden, Wayne, Brantley and Charlton Counties

Crooked River State Park, St. Mary's, Camden County

Driftwood Education Center, St. Simons, Glynn County

Okefenokee Education Center, Folkston, Ware County

Jekyll Island 4-H Center, Jekyll Island, Glynn County

Magnolia Springs State Park, Millen, Jenkins County

Mary Kahrs Warnell Forest Education Center, Guyton, Effingham County

Oatland Island Education Center, Savannah, Chatham County

Okefenokee National Wildlife Refuge, Charlton County

Okefenokee Swamp Park, Waycross, Ware County

Phinizy Swamp Nature Park/Southeastern Natural Sciences Academy, Augusta, Richmond County

Sapelo Island National Estuarine Research Reserve, Sapelo Island, McIntosh County

Skidaway Island State Park/DNR, Savannah, Chatham County

Stephen C. Foster State Park/DNR, Fargo, Charlton County

Taylor Schoettle, Author and Naturalist, Darien, McIntosh County

Tidelands Nature Center, Jekyll Island, Glynn County

Tybee Island Marine Science Center, Tybee Island, Chatham County

University of Georgia Marine Education Center and Aquarium, Savannah, Chatham County

Serve a Statewide Audience

Environmental Education Alliance of Georgia/Outdoor Classroom Council

EEinGEORGIA.org/DNR

Georgia 4-H Environmental Education Program

Georgia Adopt-A-Stream

Georgia Chapter, The Nature Conservancy

Georgia Conservancy

Georgia Natural Heritage Program/DNR

Georgia Nongame Endangered Wildlife Program/DNR

Georgia Power

Georgia Project WILD/DNR

Georgia State Parks and Historic Sites/DNR (63 sites)

Georgia Youth Science & Technology Centers (GYSTC)

Monarchs Across Georgia

USDA Forest Service