

HOW TO FORM A REGIONAL GREENSPACE PLAN:  
CASE STUDY OF THE UPPER ETOWAH WATERSHED

by

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(Under the Direction of Laurie Fowler)

ABSTRACT

The cooperation between eight counties in the Upper Etowah Watershed and the successful completion of a Draft Upper Etowah Watershed Regional Greenspace Plan has prompted an interest by other local governments and organizations in developing regional greenspace plans. This thesis describes the benefits of greenspace protection and regional greenspace planning; provides a discussion and analysis of the Georgia Greenspace Program; outlines a conceptual framework for forming a regional greenspace plan; and illustrates the framework through the planning process of the Upper Etowah case study. Overall, development of a regional greenspace plan is a complex process that requires an interdisciplinary, interjurisdictional and interactive approach.

INDEX WORDS: Regional Greenspace Plan, Etowah Watershed, Land use, Georgia Greenspace Program, Greenspace, Green Space, Open Space, GIS, Natural resource protection, Etowah River, Lake Allatoona, Greenspace analysis, Land use planning, Land use policy, Watershed planning, Forest cover, Habitat, Greenspace benefits Institute of Ecology, Office of Public Service and Outreach

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**DEDICATION**

In the memory of my father –

Patrick Joseph Goergen

“Shall We Dance?”

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## CHAPTER I

### INTRODUCTION

*"The fate of creatures is inextricably linked with the fate of places."*

- Wendell Berry

The adverse effects of unchecked growth, or sprawl, are well documented and, as a result, communities are beginning to rethink their historical land-use plans and policies. Early land use policies were developed to help control social and environmental stresses of the centralized cities. In 1920, the U.S. Department of Commerce drafted the Standard City Planning and Zoning Enabling Acts, which still supply the institutional structure for planning in many states. The Standard Acts were drafted in regards to localized urban concerns, and were intended to establish a national framework for planning and zoning especially in reference to private property rights and nuisances. The Standard Acts focused on segregation of use as a way to keep social (slums) and environmental factors (air, water, noise pollution) from disturbing adjacent property owners. At the time the Standard Acts were developed, land was viewed only as something to be developed and citizens participated in the planning process only through a public hearing after major decisions had been made (Meck, 2002).

Today, the segregation of use promoted by the Standard Acts is considered one of the major dilemmas in land use planning as it forces a reliance on the automobile.



Segregation and isolation of retail, residential, and industrial complexes requires a car for almost every errand or visit, and businesses that used to be found on traditional main streets are now scattered along the highway in the business section with large parking lots and very few sidewalks (National Geographic.com, 2001).

As America's population exploded following WWII, new networks of roads and highways allowed growth to shift from town centers to rural areas and suburbs began to multiply. Development away from central areas was augmented by the political and social climate that financially supported building in suburbs and the federally-subsidized interstate system (Meck, 2002). As a result of these policies, now more than 2.1 million acres of land are developed annually in the U.S. Between 1982 and 1997 the amount of developed land more than doubled while our population only increased by 17% (American Rivers et al., 2002).

Sprawl has compromised our air and water quality, increased our time we must spend in the car and decreased our quality of life. Our nation's automobile-orientated land use planning has translated into social, economic, and environmental costs prompting the realization that new tools are needed to address our current land-use concerns. Now that citizens expect to be engaged in planning their communities, and the public regards land as a resource (Meck, 2002), it is no surprise that the public and local governments are beginning the process of reforming the 1920 Standard Acts.

States and municipalities have already begun the process of reexamining their planning statutes to provide choices and tools to manage growth and its impact on our quality of life. Between 1999 and 2001, one-quarter of the states were implementing moderate to extensive statewide comprehensive planning reforms, one-fifth were

pursuing additional statewide, regional or local reforms, and one-third of the states were pursuing their first major statewide reform (American Planning Association [APA], 2002). These reforms include planning for open space in addition to development and infrastructure. In the 1998 elections, 72% of the 240 state and local open space initiatives were approved (Local Government Commission, 2002), and in 2000 70% of the 533 state and local initiatives related to planning and smart growth were approved (APA, 2002). Smart growth is planned growth that involves several principles such as mixed land uses, preservation of open space, a variety of transportation choices, and a range of housing opportunities.

In 2000, to address the impact of development on the environment and Georgia's quality of life, Governor Roy Barnes and the Georgia Legislature enacted the Community Greenspace Program (Senate Bill 399). The Community Greenspace Program is a statewide planning initiative designed to permanently protect 20% of the state's land. In accordance with the Georgia Greenspace Program, seven counties within the Upper Etowah Watershed developed individual county greenspace plans. During the greenspace planning process, several of these counties identified the need for regionalizing their plans but were limited by the lack of technical expertise and coordination. The recognition that natural resources do not follow jurisdictional boundaries provided the impetus for working among, rather than within each county. In the summer of 2001, the Office of Public Service and Outreach at the University of Georgia's Institute of Ecology offered to assist in the development of a regional greenspace plan, as it was consistent with the University's other work in the watershed.

Over the past year, the Georgia Forestry Commission provided funding to the Institute of Ecology to coordinate the beginnings of an Upper Etowah Watershed Regional Greenspace Plan. The goal of the Regional Plan is to reduce the impact of metropolitan Atlanta's sprawl by protecting the aquatic health and agricultural and forested land in the Etowah Watershed. As Project Coordinator, I oversaw student's research, organized the Etowah Watershed Greenspace Workshops, gathered data, researched and analyzed information, developed the GIS database for the region, and edited the Upper Etowah Watershed Regional Greenspace Plan.

The cooperation between the counties and the successful completion of the Draft Upper Etowah Watershed Regional Greenspace Plan has prompted an interest by other local governments and organizations in developing regional greenspace plans. This thesis provides a discussion and analysis of the Georgia Greenspace Program, outlines a conceptual framework for forming a regional greenspace plan, and uses the Upper Etowah Watershed Regional Greenspace Plan as a case study. The remainder of chapter one defines relevant terms and discusses the benefits of greenspace. Chapter two describes and critiques the Georgia Greenspace Program, as it provides the foundation for the regional plan. Chapter three discusses the benefits of regional greenspace planning and describes the conceptual framework for a regional greenspace plan. Chapter four illustrates the framework through the planning process of the Upper Etowah case study (The Draft Upper Etowah Watershed Regional Greenspace Plan can be found in Appendix 1). Chapter five provides recommendations and conclusions for forming a regional greenspace plan.

## **Definitions**

In today's rhetoric, there appears to be no universally agreed upon definition for the terms "greenspace" (also spelled "green space") and "open space" and they are often used synonymously. In some cases, the words are used in their literal sense with "open space" referring only to land that is open (such as meadows, lakes, and prairies), and "greenspace" referring to land that is vegetated or green (such as forests, parks, meadows, and golf courses) regardless of the extent of man-made alterations. In other cases "open space" is used to represent land that is in its natural state or rural environment, while "greenspace" is used to represent any undeveloped land within an urban context. At times, greenspace is defined as a special type of open space by placing a limitation on it, such as public open space, urban open space, or permanently protected open space.

In most cases the general definition of "greenspace" and "open space" as undeveloped land and/or water is simply modified to take into consideration community values and the choice between using the word "greenspace" or "open space" is a matter of community preference. In this thesis, two terms will be used: (1) "open space" will be used to refer generally to any undeveloped natural and landscaped land and/or water, and (2) "greenspace" will be used to refer to permanently protected open space.

For the case study, this thesis adapted the definition of greenspace codified in the legislation enacting the Georgia Greenspace Program:

"Greenspace means permanently protected land and water, including agricultural and forestry land, that is in its undeveloped, natural state or that has been developed only to the extent consistent with, or is restored to be consistent with, one or more of the following goals:

- (A) Water quality protection for rivers, streams, and lakes;
- (B) Flood protection;
- (C) Wetlands protection;

- (D) Reduction of erosion through protection of steep slopes, areas with erodible soils, and stream banks;
- (E) Protection of riparian buffers and other areas that serve as natural habitat and corridors for native plant and animal species;
- (F) Scenic protection;
- (G) Protection of archaeological and historic resources;
- (H) Provision of recreation in the form of boating, hiking, camping, fishing, hunting, running, jogging, biking, walking, and similar outdoor activities; and
- (I) Connection of existing or planned areas contributing to the goals set out in this Paragraph”

- Official Code of Georgia Annotated §36-22-1.

### **Benefits of Greenspace**

Greenspace contributes to our quality of life in many ways, especially by protecting the natural resources that are needed to sustain our lives and that of plants and wildlife. Land that is in its natural state has the ability to perform many important services. Undeveloped land allows precipitation to penetrate through the vegetation and into the soil where it is filtered and stored. Thus, greenspace can provide natural services such as purifying water, minimizing the impacts of floods, and sustaining plants and wildlife (Community Greenspace Advisory Committee [CGSAC], 1999). As open space is converted to development, the land itself is lost as are the many services it provided.

Protecting open space means protecting the ecological, economical, and social vitality of our world by providing healthy and diverse natural resources as the basis for our sustainable future. Greenspace benefits include water quality, air quality, transportation, cultural and historical, aesthetic, health and recreation, environmental, and economic benefits.

## Water Quality and Quantity

### Riparian Buffers

Terrestrial land, as a buffer for upland uses, has a profound effect on stream quality. The vegetated areas of land alongside streams and rivers that help to maintain clean water and a healthy aquatic community are known as riparian buffers (also called stream buffers or river corridors). When they are protected and maintained in native vegetation they can perform a number of useful functions including:

- Filtering sediment and pollutants from runoff
- Preventing bank erosion
- Providing wildlife habitat
- Storing flood waters, reducing damage to people and property
- Shading the water, which maintains a healthy temperature for aquatic life
- Providing leaves and other material that serve as energy sources for the stream
- Improving the appearance of the stream and increasing property values (Wenger and Fowler, 2000).

Riparian buffers help trap and filter out sediments and pollutants from surface runoff. Sediments and the contaminants attached to them settle out as plants in the buffer slow down the runoff. Nutrients and contaminants can also be taken up by riparian vegetation and stored as biomass or transformed into less harmful forms (Connecticut River Joint Commissions, 2000). Studies have shown that pollutants (e.g. nitrogen, phosphorous, sediment, pesticides) in surface, and groundwater have been reduced by as much as 30% - 98% after the water passed through a riparian forest (Maryland Department of Natural Resources, 2001). Another important benefit of riparian buffers is

that the root system of the vegetation binds the soil along stream banks, helping to stabilize the bank and prevent erosion. This is important because although erosion is a natural process, the rate of erosion is often amplified due to an increase in the volume and rate of surface runoff from human activities. This higher rate of erosion not only causes soil loss from land, but it also clogs up rivers and streams, decreasing the water quality and viable aquatic habitat.

As an ecotone between land and water, riparian buffers support a very diverse habitat. A riparian buffer provides corridors for wildlife travel, and it improves in-stream habitat. Vegetation provides shade and cover for wildlife. Shading maintains a cooler water temperature, which increases the oxygen available in the water. A few degrees difference in temperature can have a significant effect on aquatic fauna's ability to survive. Vegetation from the riparian buffer also falls into the stream providing food, hiding places, and reproductive sites for aquatic species (Maryland Department of Natural Resources, 2001).

Buffers also add diversity and beauty to the landscape. Buffers provide opportunities for passive recreation such as hiking, jogging, birdwatching, canoeing, and fishing and improve the quality of life for citizens. Although minimum buffer widths are often between 25 and 150 feet, the actual buffer size will depend on the greenspace protection goal. Buffers for wildlife habitat often require a larger minimum buffer size than buffers that promote water quality goals. Because they perform so many functions

in such a small area (minimum buffer width of 25 to 100 feet), riparian buffers provide a “conservation bargain”— they offer big returns for a small price (Wenger and Fowler, 2000). Greenspace in the form of riparian buffers can be seen as a framework for healthy streams and water quality.

### Floodplains

Floodplains are the low areas next to rivers, streams, lakes and oceans that are occasionally inundated with water (Floodplain Management Association, 2002). The Federal Emergency Management Agency (FEMA) issues flood insurance rate maps (FIRMs or “floodplain maps”) for most areas that define the 100-year floodplain, which is the area likely to be flooded at least once in a hundred years. In their natural state, floodplains perform a range of useful functions:

- Storing and conveying flood waters
- Trapping and filtering contaminants in runoff
- Moderating water temperature
- Promoting groundwater recharge
- Providing habitat for wildlife
- Improving the aesthetics and values of nearby properties
- Providing recreational opportunities

Floodplains are integral to the long-term health of a river. In fact, it is reasonable to think of the floodplain as an extension of the river itself, because water regularly moves between the river channel and the shallow groundwater just beneath the floodplain (American Rivers, 2002). At some points this groundwater reaches the surface, forming floodplain wetlands. These are especially important areas as active pollutant removal



sites and habitat for many organisms. Periodic flooding rejuvenates both river and floodplain, allowing a healthy exchange of nutrients and organic matter. To perform all these functions, floodplains should support a natural assemblage of vegetation, consisting of hardwood forest in most of Georgia.

The more developed a floodplain becomes the less it is able to perform its functions (Wisconsin DNR, 2002). Parking lots seal off the soil and the groundwater. Buildings occupy space once used for flood storage. Septic drain fields change sites of nutrient removal to nutrient sources. Drainage and channelization, which can rapidly remove water from the site, dramatically increase flooding downstream. Upland development has its impact too. Runoff from impervious surfaces, conveyed through storm drains, rapidly enters the stream channel and increases the likelihood and the frequency of floods.

Maintaining floodplains as greenspace helps to reduce potential damage costs due to flooding and often cost less to protect than the similar cost for man-made flood protection. For example, in Maryland, buying 100 homes and their associated land in floodplains cost \$27 million but saved an estimated \$85 million in storm damage assistance costs (CGSAC, 1999).

#### Groundwater Recharge Zones

Ground water is any and all water that either fills the spaces between soil particles or penetrates the cracks and spaces within rocks beneath the earth's surface. Ground water is usually held in porous soil or rock material, much in the same way water is held in a sponge (EPA, 1996). An aquifer is the term given to such a rock unit that is capable of containing or producing water from a well (EPA, 1990). Recharge is the process by

which aquifers are replenished with water from the surface. This process occurs naturally when precipitation filters down through the soil or rock into an aquifer. The land area where recharge occurs is called the recharge zone.

From 1966 to 1996, the U.S. population grew 52% while the total water use tripled (EPA, 1996). As the population continues to increase, so will our need to withdraw more water from rivers, lake and aquifers, threatening local resources and future water supplies. Ground water accounts for 67% of the total available freshwater (EPA, 1996). This makes ground water a vitally important national resource.

Because ground water is recharged from water on the surface, any contamination to the surface land area has the potential to reach groundwater through the natural recharge process. Groundwater recharge areas are important in influencing stream flow and providing a local water supply for human populations. They can become polluted by landfills, septic tanks, leaking underground storage tanks, and from the overuse of fertilizers and pesticides. Also, increasing impervious surfaces through building and paving can adversely affect the recharge area by not allowing water to infiltrate back into the ground.

People often take their supply of water and water quality for granted. Because groundwater is hidden, contamination is often not detected until it is a major problem. This can jeopardize people's health and require a complicated and expensive (often millions of dollars) process of groundwater cleanup. For example, when a community in Massachusetts's public water supply wells were contaminated by gasoline, the cleanup effort alone cost more than \$3 million (EPA, 1990).

The best way to guarantee continued supplies of clean ground water is to prevent contamination (EPA, 1990). Protection of recharge zones as greenspace prevents groundwater contamination by protecting the land above the ground water from land uses that could cause contamination.

### Wetlands

Wetlands are those areas that are flooded or saturated by surface or groundwater often and long enough to grow vegetation adapted for life in wet soil conditions (Mitch et.al, 1993). Wetlands generally include swamps, marshes, bogs, and fens. Wetlands, like rain forests and coral reefs, are one of the most productive ecosystems in the world (Sipple, 2002). When they are protected and maintained in native vegetation, wetlands provide many benefits. These include:

- Flood control
- Protecting and improving water quality and quantity
- Buffering shorelines against erosion
- Food and habitat for fish, wildlife, and plants
- Economic benefits, and
- Opportunities for recreation, education, and research.

Wetlands, a major link between land and water, greatly influence the flow and quality of water before it reaches open water. Wetlands intercept and store water from runoff, surface water, and precipitation, releasing it slowly over time. Thus, wetlands help to minimize flood damage to adjacent and downstream properties, including agricultural lands (Sipple 2002). This is particularly valuable downstream of urban areas because impervious surface increases the risk of flooding by increasing the rate and

volume of runoff (EPA, *Wetlands and People*, 2002). Preserving wetlands alleviates the need to utilize costly dredging, levees, and other man-made flood controls. Minnesota determined that the cost for man-made flood controls to replace a 5000-acre wetland was \$1.5 million annually (Sipple, 2002).

As water passes through the wetland, pollutants are filtered or transformed. Wetlands remove or retain inorganic nutrients from the water, process organic waste, and reduce suspended sediments through physical, chemical, and biological processes (Turner and Gannon, 2002). As a result, wetlands reduce nutrients from urban and agricultural runoff that cause problems such as algal blooms, dead zones, and fish kills (Sipple, 2002).

Wetlands act as reservoirs, releasing the filtered water over time into ground- or surface water (Turner and Gannon, 2002). Because this release of water occurs slowly over time wetlands are able to maintain stream flow even during dry conditions. Consequently, disruption of this natural process can have a drastic effect on available ground- and surface water. For example, draining 80% of a 5-acre swamp would result in a 45% decrease in available groundwater (Turner and Gannon, 2002).

Humans are not the only animals dependent on wetlands' ability to produce clean water. Many fish, plants, and wildlife depend on wetlands not only for water, but for food, shelter, breeding and nesting sites as well. As one of the most productive ecosystems in the world, wetlands are very diverse and produce large amounts of food.

Many animals and plants, like wood ducks and swamp rose, can only survive in wetlands (EPA, *Wetlands and People*, 2002). In fact, 43% of the federally threatened and endangered species rely directly or indirectly on wetlands for their survival (Sipple, 2002).

Wetlands' natural services not only provide water quality, ecological, and social benefits but they provide economic benefits as well. For example, the wetlands of the Congaree Bottomland Hardwood Swamp in South Carolina remove sediment and toxic substances and remove or filter excess nutrients. The least cost substitute for these wetlands benefits would be a water treatment plant costing \$5 million (in 1991 dollars) to construct, and additional money would be needed to operate and maintain the plant (Sipple, 2002). In Georgia, protecting a 2,500-acre wetland saves \$1 million annually in water pollution abatement costs (Sipple, 2002).

This wealth of biodiversity supported by wetlands provides many recreational, educational, and research opportunities. Recreation, such as hunting, fishing, hiking, birdwatching, and photography, related to nature is the fastest growing tourism sector with an annual increase of 30% since 1987 (Sipple, 2002). A large part of this nature-based tourism involves birds, many of which are dependent on wetlands. In fact, the outdoor recreation activity that increased most dramatically is that of birding. Participation in recreation related to birds was 63 million in 1997 – three times the participation in 1982 (Sipple, 2002). Wetlands also provide a great opportunity for research, teaching, and studies related to environmental issues, botany, ecology, biodiversity, plant-animal interactions, and hydrology.

Another way wetlands provide economic benefits is that they contribute to the national economy by producing natural products. Wetlands provide timber and other plants like blueberries and cranberries for harvesting (EPA, *Wetlands and People*, 2002). Wetland-dependent shrimp and fish constitute more than 75% of the commercial and 90% of the commercial and recreational harvest that are a large part of the \$50 billion seafood industry (Turner and Gannon, 2002).

Wetlands also provide opportunities for popular activities such as hiking, fishing, birdwatching and photographing. Ninety-eight million U.S. adults spend \$59.5 billion annually participating in such wildlife activities (EPA, *Economic Benefits of Wetlands*, 2002).

Wetlands benefit humans because they are so productive and because they greatly influence the flow and quality of water. Losing or degrading wetlands can lead to serious consequences, such as increased flooding, extinction of species, and decline in water quality. Protecting wetlands as greenspace can help to avoid these consequences by maintaining and restoring wetlands.

### Steep Slopes

Steep slopes can be defined as having a gradient of 15% or more. The steepness of slopes has an impact on the water quality of a watershed. Stormwater runoff rates are faster on slopes with greater declines. In developed areas, stormwater quality tends to worsen with higher runoff rates (Marsh, 1991). When vegetation is removed from steep slopes, the soil surface is exposed to erosion. Protecting the integrity of steep slopes as greenspace prevents this erosion and sedimentation from entering nearby streams.

### Noise and Air Quality

Greenspace can help to mitigate noise and air pollution. Noise pollution is reduced by greenspace because vegetation has the ability to absorb, deflect, and refract sound, thus reducing the impact of noise (CGSAC, 1999). Providing alternative transportation routes and cleaning polluted air are two of the main ways in which greenspace can help to control air pollution.

By providing routes to travel by walking, bicycling, or using electric golf carts instead of automobiles, greenspace can help to reduce the amount of pollution being put into the air. Vegetation helps to clean the air by taking up and absorbing pollutants like ozone, sulfur dioxide, carbon monoxide, and airborne particles of heavy metals through the normal processes of photosynthesis (CGSAC, 1999). Each year in Chicago, the urban tree canopy removes 15 metric tons of carbon monoxide, 84 metric tons of sulfur dioxide, 89 metric tons of nitrogen dioxide, 191 metric tons of ozone, and 212 metric tons of particulates (Scheer, 2002). New York's existing tree cover is estimated to save taxpayers \$10 million each year, money that would otherwise be spent on traditional pollution mitigation efforts (Scheer, 2002).

### Plant and Wildlife Habitat

Greenspace provides habitat for wildlife such as resident and migratory birds, large predators like bear and coyote, and native vegetation including rich herbaceous communities. Although urban forests may not provide habitat for animals with large ranges, wildlife such as resident birds, small mammals, reptiles and amphibians are commonly found here.

Greenspace also provides food, shelter, and nesting areas for wildlife, plant, and animal survival (Meffe, Carroll, & Contributors, 1997). Large, contiguous tracts and corridors of greenspace protect the physical and biological integrity of ecological systems and natural landscape zones.

### Cultural and Historical

Historical and cultural points of interest such as bridges, cemeteries, churches, historic centers and parks tell stories of a bygone era and their relationship with the present. Preserving these structures as greenspace chronicles the history of the region for generations to come. Greenways protect historic resources and enhance the culture of the region by providing new places for neighbors to meet, children to play, and community groups to gather, becoming new focal points of community activity (CGSAC, 1999). The interpretation of historic and archeological sites along greenways can also serve to increase the awareness and appreciation of an area's particular history. Greenspace can benefit cultural and historical assets by permanently protecting and raising the community's awareness of them.

### Health and Recreation

People need places to exercise, relax, play, and have fun. Greenspace can provide the opportunity for recreation and improved public health. One study has found that physical activity levels increase in communities that build walking and bicycle trails or fund public areas like parks. (Rostler, 2001). Physical activity is the most effective weight loss strategy and is proven to be more effective than medication in controlling some ubiquitous diseases, such as type 2 diabetes and mild depression (Jackson and Kotchitzky, 2001).



One of the main determinants of physical activity is a person's immediate environment and research has demonstrated that people are more willing to utilize greenspace when it is within one quarter of a mile of their homes. Well-designed and located greenspace can serve as gathering points, as passive recreation areas, and provide constructive forms of activity like birdwatching and trail running for people in the community (Frankston, 2002).

In 1997, six million asthma attacks were caused by smog pollution and research has determined that automobile-related pollution is responsible for a greater number of deaths than traffic accidents (Jackson and Kotchitzky, 2001). Well-designed greenways, pedestrian, and bicycle trails can provide transportation opportunities besides the automobile thereby helping to reduce air pollution and the resulting respiratory-related illnesses.

### Economic

As discussed in previous sections, the natural services that wetlands, floodplains, and riparian buffers provide would be more costly to obtain with human technology such as water treatment plants and levees. Greenspace, on the other hand provides these services free of charge, except for the cost of land. Greenspace also helps to reduce heat island effect of urban areas. In Florida a comparison of two towns showed that a town with larger urban forests saved residences about \$126 annually per household on electrical use (Georgia Forestry Commission, 2001).

Other economic benefits of greenspace include increasing property values, attracting businesses, and producing natural commodities. Many studies have demonstrated that buyers are willing to pay higher prices for residential property located

near greenspace. For example, property adjacent to a greenbelt in Boulder Colorado was worth 32% more than a comparable home only 3,200 feet away (CGSAC, 1990).

Greenspace also provides a higher quality of life that attracts businesses and tourists. An annual survey of chief executive officers in 1989 found that quality of life for employees was the third most important factor in locating a business (CGSAC, 1999).

Tourism is one of the major economic forces in the world and greenspace can enhance the role tourism plays in the economy. For example, the state of Missouri spent \$6 million to create a 200-mile greenway. In its first year of operation, the greenway generated travel and tourism expenditures greater than \$6 million (Mid-America Regional Council, 2001).

Greenspace that is part of a working landscape also provides valuable production of goods and services that contribute to the economy. Greenspaces, used for forestry and crop production, orchards, pasture, wetlands and fish production, utilize the land in a commercially viable way and provide linkages between larger natural areas and the more developed urban areas.

Finally, recent studies (called cost of community services), which look at the revenue collection and expenditure burden of local governments, indicate that lands maintained as open space generate more income than residential development ((Haygood, 2002). This is because residential areas require more county services (e.g. police and fire protection, water and sewer service) than do other land uses. Local governments must spend more money on these county services than the residential land use generates from property taxes (Dorfman et. al., 2002 and Nelson and Dorfman, 2000).

For example, in Habersham County, GA local governments residential land use revenues are only \$0.81 for every \$1 of expenditure; commercial/industrial land use revenues are \$1.04 per \$1 expenditure; and open space revenues are \$1.42 per \$1 expenditure. (Nelson and Dorfman, 2000). Thus, protecting land as greenspace actually generates revenue for local governments.

## CHAPTER II

### GEORGIA'S COMMUNITY GREENSPACE PROGRAM

*“Environmental quality must now become a top priority objective of American society.*

*Governments at all levels must now assume a new positive role as trustees of the  
environment for all the people.”*

– Former Vice President Hubert H. Humphrey

In response to development pressure and subsequent loss of open space, Governor Roy Barnes and the Georgia Legislature enacted the Georgia Greenspace Program (Senate Bill 399) in 2000. The Georgia Greenspace Program is a model for effective greenspace legislation because it provides state funding as a basis for the permanent protection of land. The following sections provide the background, description, and critique of Georgia's Greenspace Program.

#### **Statement of the Problem**

Georgia is experiencing unprecedented population growth, and is under intense development pressure. For example, the metropolitan Atlanta area loses 50 acres of forested land per day. Since 1972, the Atlanta region has lost 60% of its urban forest to development (CGSAC, 1999). In many cases, the conversion of land to developed uses and the subsequent loss of greenspace have resulted in environmental and quality of life impairments. The subsequent increase in impervious surface levels, for example, may

disrupt important functions of natural systems, resulting in increases in urban air temperatures and air pollution levels, decreases in water quality, and loss of wildlife. Issues such as air and water quality degradation, traffic congestion, and urban sprawl have moved beyond Georgia's urban areas and are now threatening the rural character of many counties in Georgia. Between 1995 and 2025, Georgia's population is projected to add 2.7million people- the fourth largest population growth in the nation (DNR, 2001). Populous or rapidly developing counties that have a desire to protect greenspace and the services it provides must act now to conserve greenspace before impervious surface encompasses all available land.

#### **Community Green Space Advisory Committee**

In August 1999, at the National Governors' Conference, Governor Roy Barnes first mentioned greenspace as a way to address the concerns of development pressure and subsequent loss of open space in Georgia. Instead of dictating how local governments should increase their greenspace, on Oct. 22, 1999, Governor Barnes appointed the Community Green Space Advisory Committee. The Committee was comprised of 13 representatives and five support staff representing a broad range of interests including: city and county government, conservation and environmental organizations, residential and development community, and the general business community. The Advisory Committee met for the next several months to determine how the state could achieve a goal of protecting 20% of its land as greenspace.

In the final greenspace report, published on December 15 1999, the Community Green Space Advisory Committee recommended three courses of action:

- Enact legislation creating the Community Green Space Program;
- Establish a Community Green Space Fund and support at an appropriate level;  
and
- Improve a number of existing laws and programs to make them more usable for communities to protect greenspace (CGSAC, 1999).

### **Applicable Legislation**

Senate Bill 399 of the 2000 session of the Georgia General Assembly provided a framework for the Georgia Greenspace Program, and created the Georgia Greenspace Commission and the Georgia Greenspace Trust Fund. This bill is codified in the Official Code of Georgia Annotated, Section 36-22-1 and became effective on April 16, 2000 when Governor Barnes signed it into law.

The five-member Georgia Greenspace Commission is made up of the commissioner of the Department of Natural Resources (DNR), the director of the State Forestry Commission and three members appointed by the governor. The Commission establishes the program policies, and reviews and approves community greenspace programs. The current members of the Georgia Greenspace Commission are: Mr. J. Frederick Allen, Director of the Georgia Forestry Commission Mr. Lonice C. Barrett, Commissioner of the Department of Natural Resources; Honorable C. Jack Ellis, Mayor of the City of Macon; Mr. Clay C. Long, a principal of the Atlanta law firm McKenna & Long Aldridge; and Mr. Stephen H. Macauley of the Macauley Companies (DNR, 2001).

Since the statute identifies the Georgia Department of Natural Resources as the state agency responsible for the program, DNR provides staff to run the Georgia Greenspace Program. The legislation has not, however, allocated additional funds to DNR for this purpose, which has limited the ability of the staff to assist counties.

The statute also creates a Georgia Greenspace Trust Fund to which all state and federal appropriated funds, donated funds, and interest incomes are deposited. The fund monies can be used only for grants to counties with an approved greenspace program and are deposited into the counties' Community Greenspace Trust Funds. Any cities that choose to participate may either coordinate a greenspace plan with their county or develop a separate plan. A participating city receives a portion of the county's funding based on the city's population. The county or city may then use the funds only to acquire property and property interests, or for necessary acquisition services, such as appraisals, surveys, and Phase 1 environmental reports, for land that meets the definition of greenspace. The DNR is responsible for administering the fund and must provide and account for funds received and expended each year.

#### **Description of the Georgia Greenspace Program**

The purpose of the Greenspace Program is to identify rapidly growing counties in Georgia and promote the permanent protection of 20% of their land area as greenspace. The Greenspace Program is a voluntary, non-competitive program. All counties whose population exceeds 60,000 or whose population growth increased by over 800 persons in the past year are eligible to participate.

A list of eligible counties is supplied by DNR to the Georgia Greenspace Commission, which then notifies the counties of their eligibility. Based on the most recent U.S. Census data, 58 counties are eligible to participate in the program during 2003 including 38 of the 40 counties that became eligible in 2001, 19 of the 49 counties that became eligible in 2002, and one county newly eligible in 2003 (DNR, 2002).

DNR determines the amount of money from the State Fund that the eligible counties may receive. Since the Georgia Greenspace Program began in 2000, the Georgia General Assembly has appropriated \$30 million dollars annually to the State Fund. Each county receives a percentage of the appropriated amount based upon the state property tax levy on residential property in the county for the prior fiscal year. The property taxes for all eligible counties are summed and the percentage that each county contributes to that sum is determined. A proportional amount of the appropriated moneys is then identified for each eligible county.

To initiate development of a community program, the county must notify the Greenspace Commission of their interest in writing and hold a public meeting for interested individuals and designated representatives of all local governing bodies within the county; all local boards of education; the governing body of the counties which border it; the Regional Development Center of which the county is a member; several state and federal agencies; and nongovernmental organizations that are active within the county and concerned with greenspace issues. Following the public meeting, the county must prepare and submit a detailed report by November 30 describing their Community Greenspace Plan.



The plan must include the following information:

- A statement of county greenspace protection goals;
- Identification of the department or office which the county has assigned to administer its Community Program;
- Establishment of a Community Greenspace Trust Fund;
- Discussion of the existing growth patterns in the county as well as the vision for incorporating greenspace in the county's future, including a variety of maps and statistical information;
- Identification of participating and non-participating municipalities;
- Description of what tools the county will use for greenspace protection;
- Identification of existing local land-use ordinances, policies and regulations that will further the preservation of greenspace;
- Identification of legal and structural barriers to the achievement of greenspace protection;
- Ten year strategy for preserving greenspace and removing or mitigating greenspace barriers; and
- Description of sources of funds to be used for the program (Georgia Green Space Rules, 2000),

Upon submittal of a Community Greenspace Plan, the Greenspace Commission reviews the report. If the Commission finds that the Greenspace Plan's policies, rules and regulations advance the statutory purpose of preserving at least 20% of the land area and complies with Senate Bill 399, then it is accepted. Upon approval, the DNR transfers funds from the State Greenspace Trust Fund to the county's Community Greenspace Trust Fund.

In order for a previously approved county to continue to receive money from the State Fund for the next year, it must continue to meet the eligibility requirements and submit annual reports of their progress to the Commission. The progress report must include:

- A copy of the county's most recent future land-use map and plan
- A description of each property or interest in property acquired with funds from the State Fund, including the method(s) used to ensure their permanent protection, and their proposed or actual use(s)
- A table which shows the acreage of permanently protected greenspace within the county, how it is protected and the acreage of greenspace with public access
- Percentage changes in each type of protection; percentage change in greenspace within the county; and percentage of the county in greenspace at the beginning and the end of the reporting period and as a result of the program activities during the previous year, and

- A discussion of the effectiveness of the strategies selected by the local government to achieve its greenspace goals and suggested changes in strategy if necessary.

Finally, the DNR will create a state annual report and provide it to the General Assembly, the Governor, participating and eligible counties, and any interested person (Georgia Greenspace Rules, 2000).

### **Evaluation of the Georgia Greenspace Program**

The Governor's Greenspace Program is a leading piece of legislation in that it requires permanent protection of greenspace, and it provides an achievable and environmentally effective goal of preserving 20% of the land base. The major strength of the Community Greenspace Program is that it accounts for the variability in natural conditions, demographics, and other factors by allowing each county to tailor a greenspace plan to their specific greenspace needs and concerns.

Another strength of the Greenspace Program is that it provides state funding, though limited to direct costs only and the funds are only dedicated for two years. Laurie Fowler of the UGA's Institute of Ecology and School of Law says, "It [the funding] is \$30 million more than before" (2000) that can be used to purchase greenspace. On the other hand, none of this money can be used for actual greenspace planning, which will be a significant investment of a county's time and resources during the first several years. Ms. Fowler also pointed out the combination of only minimal funding and no dedicated funding source could promote a less serious approach by local governments in developing their required 10-year greenspace plan (2000).

Another positive aspect of the program is the requirement that counties and municipalities cooperate to produce a greenspace plan. However, the allowance of each participating municipality to manage their small percentage of money, from the overall funds provided to the county, could undermine the encouragement of a cooperative plan.

An additional facet of the Community Greenspace Plan, which could threaten the accomplishment of the Governor's goal to permanently protect 20% of the land base, is that Senate Bill 399 did not incorporate into Georgia's Greenspace Program all of the recommendations by the Community Greenspace Advisory Committee. Specifically, the Advisory Committee suggested that Governor Barnes work with the General Assembly to amend several specific laws to improve the effectiveness of tools for greenspace protection (CGSAC, 1999).

For example, in order for conservation easements to become more popular with landowners in Georgia, more incentives are needed. Presently, Georgia landowners do not receive state income tax credits, as do easement donors in other states such as North Carolina. The Advisory Committee suggested the state income tax code be amended to provide a state income tax credit to landowners who donate land or interests in land that further the Greenspace Program goal (CGSAC, 1999). Second, reevaluation of land after a conservation easement is not being performed consistently, resulting in varying valuations for similar types of land. The Advisory Committee suggested that the Revenue Code be amended to require tax assessors to use a specific uniform method for valuing land protected by a conservation easement (CGSAC, 1999). Finally, although local governments and volunteer land trusts are in an excellent position to recruit and monitor easements, the long-term stewardship and enforcement should be granted to a

body of authority with a more stable future. The advisory committee suggested that the Uniform Conservation Easement Act be amended to provide the Attorney General the authority to enforce conservation easements in the State (CGSAC, 1999).

Another flaw with the Program is that currently greenspace is being monitored based solely on the standard of increased accumulation of permanently protected land. To ensure long-term success of the greenspace program, the Georgia Greenspace Commission must be able to prove to the General Assembly and the public that greenspace accomplishes the goals inherent in the definition, such as water quality protection. As it stands now, county are not required to explain what greenspace goal(s) the protected land is meeting. This leaves out a lot of information about why individual pieces of land are being protected. Report requirements should include that county's clearly state what greenspace goals are being met by the protected greenspace.

Annual reports themselves (except for annual audits) are not required unless a county desires to be eligible for funding in the future. Since this is a voluntary program, it is possible that large amounts of information could be lost if counties that decide not to participate in the future are not required to submit an annual report. Because the state is required to report limited information to the General Assembly and the public each year, this is a big loophole. If a county decided not to participate in future years, they could decide not to provide the state with the necessary information and the state would not have an incentive to make the county provide the information.

One way to fix this problem would be to require an end-of-project report if a county decides not to continue participating. This would help to collect information on why the county decided to stop participating and possibly determine if any changes are necessary to the program to retain counties' voluntary involvement.

Another aspect of a voluntary program is that it requires public interest and involvement in order to be successful. Because of this, the state requires each county to provide information to inform the public about the Georgia Greenspace Program and their Community Greenspace Plan. To assist the counties with this goal, the Department of Natural Resources has begun to provide information to help with public education. However, this largely takes the form of directing counties to other programs, organizations, and information available on the Internet. Often this requires the counties to spend time sorting through a mixture of information in order to obtain information related to greenspace. Currently, DNR has not even produced a brochure on the State Greenspace Program. Because the public plays such a key role in the success of the state greenspace program and the community plans, the Georgia Greenspace Commission should provide more direct tools for the local communities to help educate and involve the public about greenspace. Basic information that should be developed by DNR in the form of brochures, fact sheets, pamphlets, or toolkits includes: the greenspace program and county relationship, the benefits of greenspace, tools for greenspace protection, and stakeholder involvement. While some of this information may be available in various formats from one or more organizations, DNR should accumulate the information into appropriate materials for the Georgia Greenspace Program and have the materials

accessible for downloading on their Internet site. This will allow the counties to quickly obtain the prepared information and if necessary alter it to fit their specific needs.

Also only the state report is supplied to the participating counties. This report is probably the only thing each individual county is going to have available to learn about the progress in other counties. Because DNR already accumulated each County's Greenspace Plan, they could easily act as a clearinghouse to allow county's to obtain each other's Greenspace Plans. Although DNR could be doing more to provide assistance to counties regarding public education, they have done an excellent job considering the fact that the greenspace legislation provided no resources for DNR Greenspace Staff.

Another aspect that is missing is promotion by the state program for regional approaches. Over half of the greenspace goals in the Greenspace Program are directly related to water quality and quantity. Yet, the Georgia Greenspace Program still does not allow a county to use greenspace funds to purchase land outside its borders, even if the money is targeted for watershed protection. DNR has taken recent steps to demonstrate regional relationships between other programs and greenspace, such as DNR's Wildlife Program. However, such regional support is still only focused on how the individual county greenspace plans can play into existing state programs. The state (DNR) could be more supportive of a regional greenspace approach by assisting counties in regional efforts by allowing them to utilize funds for a regional purpose.

Overall, the long-term success of Georgia Greenspace Program will be determined by two key factors: how well the public responds and participates in the program; and a permanent funding source, including funds for DNR to run the program.

Unfortunately, it is in these two areas that the program is currently weakest. Part of the reason for this is the novelty of this program, but the State Legislature, Georgia Greenspace Commission, and DNR must work to provide the appropriate technical and educational materials, and permanent funding sources if long-term success is desired. Funding is particularly essential to the success and continued participation of counties and municipalities in Georgia. All of the counties in the Etowah had an individual county Greenspace Plan because the Georgia Greenspace Program provided funding, though limited, to counties who participated. Should the state desire to support regional greenspace plans, the most effective way for them to do so would be to provide additional funding specifically for Regional Greenspace Plans. As it is, the Greenspace Program has the opportunity to increase public interest and involvement, and to foster the concept of planning ahead for both greenspace and growth simultaneously.



## CHAPTER III

### A REGIONAL APPROACH TO GREENSPACE PLANNING

*“The significant problems we face cannot be solved at the same level of thinking we were at when we created them.”*

- Edward T. McMahon, The Conservation Fund

#### **Regional Greenspace Benefits**

With the framework and monetary incentive that the Georgia Greenspace Program provides for individual County Greenspace Plans one may wonder why a Regional Greenspace Plan is necessary. Just as the Standard Acts of 1920 segregated land uses and thereby exacerbated sprawl, the existing programs and regulations also continue to segregate their application to a specific pollutant or a particular area based on political and legal boundaries instead of natural boundaries. Because natural resources and the effects of human activities do not follow jurisdictional boundaries, a more comprehensive approach to managing land use and our natural resources is desirable.

There are several benefits to working on a regional greenspace approach based on natural resource boundaries. By making greenspace planning regional in scope, each local government can realize greater environmental, recreational, and aesthetic benefits as well as meet the requirements of state and federal environmental regulations. Areas that provide valuable ecosystem services such as filtering pollutants, controlling flooding, and providing viable habitat for plants and wildlife include floodplains, riparian corridors,

wetlands, groundwater recharge areas, steep slopes, and large forest patches. Because these areas transcend political boundaries, planning for them on a regional basis will help maximize and improve the continuity, integrity, impact, and benefit of these natural features. A comprehensive regional greenspace plan can play a major factor in accomplishing environmental and water quality objectives such as the development and implementation of total maximum daily loads under the federal Clean Water Act, and biodiversity objectives such as the development and implementation of habitat conservation plans for species protected under the federal Endangered Species Act.

Protecting greenspace on a regional scale can help to increase the quality of life by providing permanent intact natural areas, corridors for wildlife, non-automotive transportation links between high-density areas, and scenic and agricultural farmland protection thereby preserving the character and qualities of the area that draws development to the region in the first place.

A regional greenspace plan can be cost-effective. Improved communication and coordination among local governments and other stakeholders simplifies and streamlines the workload reducing duplication of efforts and conflicting actions. This helps to allocate limited financial and human resources in the most efficient manner. A regional approach can also help to increase awareness of the interconnectedness and interrelationships between human activities and the natural resources on which we depend. Increased awareness can provide increased public support, which is necessary for implementing greenspace plans that rely heavily on land donations of private landowners and political support. A regional approach can leverage financial resources that are only available to groups that have expanded beyond the normal range of

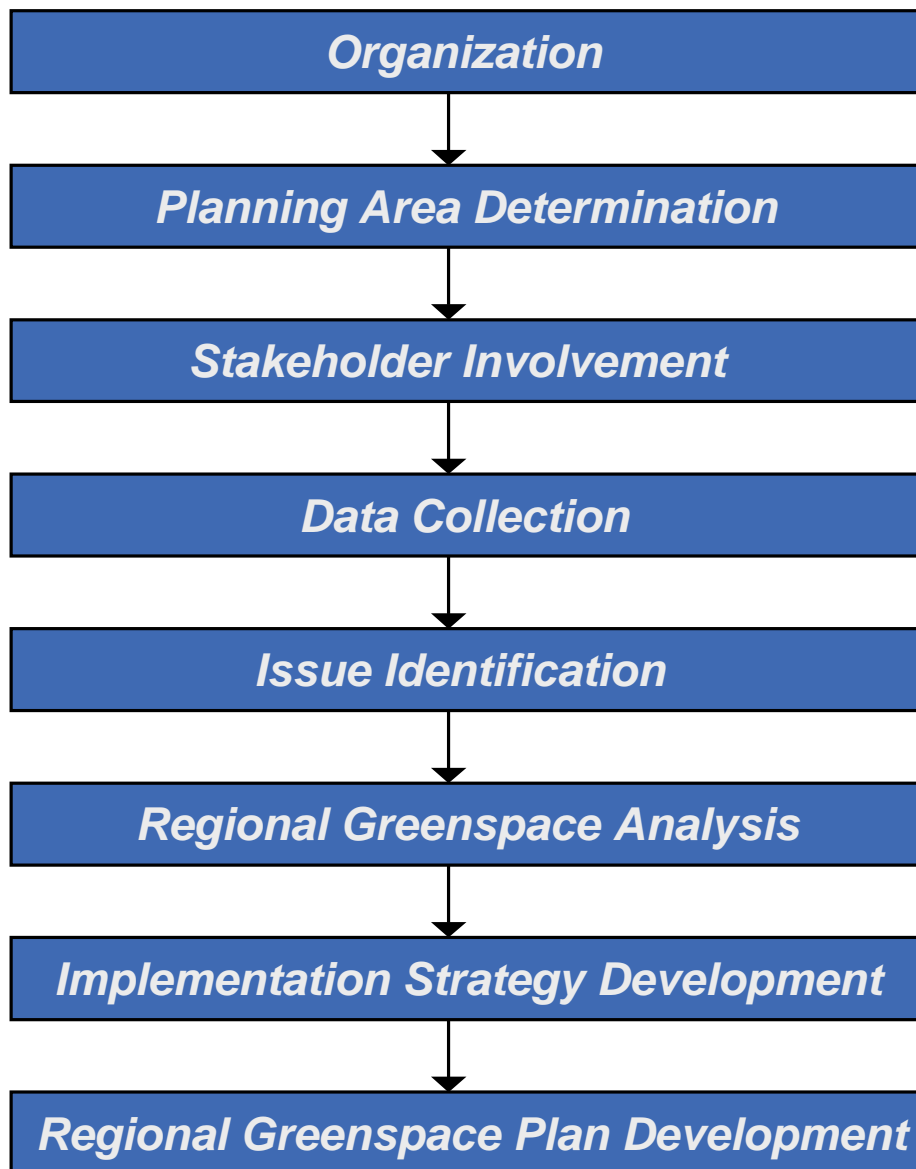
interactions such as watershed grants, grants for public-private partnerships and interagency grants. Overall, a cooperative regional effort between counties that promotes consistent ecological and quality of life goals and implementation strategies will result in aggregate benefits across the region providing friendlier, healthier, and more enjoyable conditions for their citizens.

So how does one begin the process of forming a regional greenspace plan?

From the process of forming the Upper Etowah Watershed Regional Greenspace Plan, I developed a conceptual framework for forming a regional greenspace plan. This framework consists of eight distinct stages: organization, planning area determination, stakeholder involvement, data collection, issue identification, regional greenspace analysis, implementation strategy development, and regional greenspace plan development (Figure 1). The following sections will discuss each of the stages necessary for forming a regional greenspace plan.

### **Stage 1: Organization**

The planning process begins when an individual, group, organization, or agency sees an opportunity. These individuals or interest groups may recognize the benefits that greenspace can provide to their community and see the need to plan for natural resources on a regional basis. The interested parties then decide how they are going to organize their efforts and who will be in charge of developing the greenspace plan. Often, such parties go to an existing organization such as the Regional Development Center, Department of Natural Resources, a local university or college, or a consultant for technical assistance and guidance in organizing the stakeholders and developing the greenspace plan.



**Figure 1: Eight Stages of the Framework for  
Developing a Regional Greenspace Plan**

## **Stage 2: Planning Area Determination**

After it is determined who will be in charge of developing the greenspace plan, the next step is to identify the planning area. This is the land area that the regional greenspace planning efforts will address. The planning area should be based around common resources or key community issues. If there is not a general consensus on the common resources or key community issues, it may be necessary to conduct research to determine the main issue or concern which the majority of the stakeholders can agree upon. This does not need to be a detailed priority list, but instead only an idea of the main resource concern that is prompting a desire to regionally protect greenspace. Often this information can be obtained by interviewing the individuals or groups who are interested in developing the regional greenspace plan. In other cases one might need to look at available management and planning information to determine a common thread among the region.

The actual boundaries for the greenspace planning area should be practical and easy to identify. Possible boundaries include watershed boundaries, vegetation boundaries, and geographical boundaries (California Coordinated Resource Management & Planning Council [CCRMPC], 2002). The planning area should include all public and private lands necessary to accomplish the key greenspace objectives. Once the planning area is determined, a brief description of the area and why it is important to protect the greenspace within should be written. This will help to clarify the common goals for the regional greenspace plan. The planning area and the common resource issues are often broad concepts and may need to be narrowed or defined more concisely through the greenspace planning process.

### **Stage 3: Stakeholder Involvement**

At this point it is important to determine how the stakeholders and/or the public will be involved in the greenspace planning process. Several principles related to involving communities in the planning process include: good coordination and organization, empower all interests and find common ground, reach out to the community, and recognize community control (Kier Associates, 1995).

#### **Organization and Coordination**

There are many different possible ways of organizing participants. One vital step is to break down the stakeholders into the smallest possible groups that combined still retain the characteristics of all the stakeholders (Council of State Governments, unknown). Most often this is accomplished by organizing the interested parties into some form of groups or categorizations such as local/state/federal agencies, business, environmental. This is done in order to balance the involvement of each interest group so that each group is being represented in the decision-making processes (Sierra Nevada Alliance, 1999).

Good organization of stakeholders will help to determine the method for including stakeholders in the planning process. Models range from a complete open policy for all meetings and decisions, to a small representative steering committee that involves all stakeholders only in the major decisions, to only allowing stakeholders to participate in the implementation stage. Regardless of the model, the core group should include the individuals and groups who were the catalyst for the regional greenspace planning process (CCRMPC, 2002). This core group should be willing to meet regularly

and assist the greenspace-planning group. For a large region it may be necessary to have individual local meetings followed by a regional meeting where a local representative is present.

#### Empower All Interests and Find Common Ground

A regional effort to protect greenspace must include efforts to involve stakeholders in all stages of greenspace planning and implementation. Just like the planning area must include all public and private lands necessary to accomplish the greenspace goal, so too must the planning processes include all necessary stakeholders to complete a successful greenspace plan. Stakeholder involvement that includes representatives from all potentially affected parties ensures a more effective plan less likely to arouse future challenges (CCRMPC, 2002). As people of diverse interests come in contact and communicate with each other through the planning process, they will begin to understand and respect each other's viewpoints. As they interact with each other they will find a common ground and help to dissolve the "us vs. them" approach to greenspace protection.

#### Reach Out to the Community

Greenspace protection depends on voluntary actions on the part of the citizens in the region. Therefore, stakeholder involvement must include an in-depth and extensive public education component as well as involvement in the planning process (SNA, 1999). A strong education component familiarizes the general public with the language and issues associated with greenspace planning (Kier Associates, 1995). There are many different ways to reach out to the community including meetings, workshops, forums, newsletters, fact sheets, brochures, posters, news releases, and public surveys (Kier and

Associates, 1995; CCRMPC, 2002; and Benedict and McMahon, 2001). Strive to find new and innovative ways in which to excite and engage both the steering committee and the public in the greenspace planning process.

#### **Community Control**

Engaging the public in the greenspace planning process will lead to long-term success of the regional greenspace plan. Stakeholder education and involvement in the planning process will help to provide a sense of ownership, responsibility, and control. Community buy-in to the regional greenspace plan leads to the community, financial, and political support necessary for successful implementation of the plan.

#### **Stage 4: Data Collection**

Readily available information and data to be used for issue identification, greenspace analysis, and strategies for implementation should be compiled and reviewed. Check with local agencies, regional citizen groups, and state and federal natural resource agencies for relevant documents. Existing materials may include:

- County & municipal greenspace plans
- Comprehensive land use plans
- Development and zoning ordinances
- Relevant state legislation
- Records from public meetings about land use or greenspace protection or
- Other local, state or federal documents regarding land use/preservation in the region.



Existing data for greenspace analysis and design also needs to be compiled and reviewed. Any data collected will need to be converted into a common format to allow for data to be aggregated and analyzed on a regional basis. One of the leading technologies used to organize, manage, analyze, and map data is the geographical information system (GIS). GIS data that is often used in natural resource management includes coverages and shapefiles such as roads, utilities, rivers, streams, wetlands, steep slopes, current land use, land parcels, parks, trails, historical points, recreation areas, protected lands etc. Planning offices, state & federal agencies, and local organizations create, obtain, and manage GIS databases. Often GIS information from these sources can be obtained via the Internet. Local GIS coverages of individual county greenspace designs and land use plans should be obtained or produced from the available information.

A summary of each county's existing greenspace and land use related materials and data should be prepared including identification of county priorities, concerns, tools, and strategies for greenspace protection, and greenspace design maps. If individual county greenspace plans exist, the county summary and converted greenspace maps should be sent to the greenspace coordinator and/or planning director to verify that the summary and maps are a true representation of the county's greenspace plan. However, if the summary and maps were produced for counties that did not have an existing greenspace plan it may be necessary to hold a county wide public meeting to obtain the necessary feedback. In either case, the purpose of the stakeholder involvement is to make sure that the analysis of each county's greenspace plan and maps is an accurate representation of their greenspace goals.

### **Stage 5: Issue Identification**

Once the stakeholders have approved the individual county greenspace summaries and maps, the summaries should be reviewed to identify common greenspace issues. The goal of identifying similar priorities, tools, and strategies among the counties' greenspace plans is to determine the common greenspace issues for the regional greenspace plan. These common issues can then be grouped into regional themes for greenspace protection. It is also important to determine where the regional themes are consistent with other land use and protection priorities of federal and state agencies, and other regional organizations. Depending on the depth of the public involvement during the data collection process, it may be necessary to hold a public workshop to present the key regional greenspace issues and to determine if there are any new issues the stakeholders would like to look into besides the existing issues and concerns. However, if extensive public involvement has incurred in the past or if there are already many common interests, tools and strategies, then the existing data should be analyzed first, before new greenspace issues are added.

### **Stage 6: Regional Greenspace Analysis**

There are a wide variety of tools and methods available for analyzing greenspace. Regional greenspace plans, by their very nature, are site specific with each region having different community and resource concerns, priorities, and tools. Therefore, it is difficult to provide details of a specific greenspace analysis that would fit the needs of every regional greenspace design. However, there are several important concepts and steps that are involved in the different methodologies currently in use.

In general, successful models are largely based upon developing an interconnected system of greenspace (hubs) and corridors (links). The emphasis on hubs and links provides a simply outline for greenspace analysis. The hubs for a greenspace plan are largely determined by the regional themes that were developed from common priorities. Then, linkages that promote a regional connection of this greenspace are found by assessing the regional themes. For example, if historical land is an important regional priority, then linkages can be determined by greenways that connect historic properties across the region. Once the assessment of the regional themes begins, additional data may need to be compiled. This may include looking at methodology from other regional or local greenspace plans that have similar features because of project scale, location, or community priorities and concerns.

*Green Infrastructure: Smart Conservation for the 21<sup>st</sup> Century* provides an excellent overview of the important benefits, concepts and principles of developing an interconnected greenspace system as well as a detailed list of green infrastructure projects done on a diversity of scales and landscape types (Benedict, and McMahon, 2001). The article notes that a holistic design promotes a greenspace system which functions as a whole rather than as separate parts.

After each regional theme has been evaluated to determine the main hubs and links, resulting maps, such as currently protected greenspace and proposed greenspace maps of each regional theme, should be presented to the stakeholders to obtain feedback. Information on each regional theme can be added or taken away based on stakeholder comments and concerns. The regional theme maps can then be synthesized into a final regional greenspace design.

## **Stage 7: Regional Implementation Strategy Development: Tools and Funding**

The next stage is to determine how the proposed greenspace is to be protected. There are two main components of implementing a regional greenspace plan: tools for greenspace protection, and funding.

### **Tools and Strategies**

A clear understanding of the tools available to permanently protect greenspace is essential to the development of a plan that can actually be implemented. If greenspace plans are to be expanded to deal with regional issues the traditional tools have to be expanded or modified as well. The summary of individual county tools can be used as a basis for researching greenspace protection tools. Existing tools for temporarily and permanently protecting greenspace and any existing local land-use ordinances, regulations, and policies that will enable the county to protect greenspace should be researched. It is a good idea to review greenspace protection programs in other states to determine if there are any new tools that may be appropriate for use in the region. After the tools for greenspace protection are determined, they need to be adapted and expanded to a regional extent. Also, local land use ordinances as well as state and federal regulations related to land use and natural resource management should be analyzed, in order to identify the legal and structural elements that support or those that provide barriers to greenspace protection tools. Regional strategies can then be devised to overcome the legal and structural barriers to regional greenspace protection.

## Funding

There are a variety of funding options available for greenspace protection. A regional approach to greenspace protection can maximize funding sources that are already available to individual communities, and recruit new funding sources that prefer or require a regional focus or partnerships. When researching the various funding sources it will be helpful to sort the results in some manner. Often this is accomplished by breaking the possible funding sources into local, state, federal, and private categories. It may even be necessary to break the funding opportunities down by agency or by sources that support each regional theme. There are many funding opportunities, but they are often limited to specific purposes, recipients, or geographic areas, and some offer minimal funding. Overall there is not enough available funding for outright purchase of all the desired greenspace. Thus, the tools and strategies for protecting greenspace will need to include other options such as donations of conservation easements and purchase of development rights. In fact, a significant portion of most greenspace plans relies on voluntary participation in the greenspace protection efforts. This large voluntary approach will require a significant amount of public education and involvement in order for the regional greenspace plan to be a success.

## **Stage 8: Regional Greenspace Plan Development**

The final state in developing a regional greenspace plan is to put everything together in a written format. The format of the regional greenspace plan will vary. However, there are some key elements that every plan should include.

The main elements to include in a regional greenspace plan are:

- Introduction – An overview of the main purpose, goals, and objectives of the plan, as well as the responsible agency and contact.
- Description of the planning area – Include important characteristics such as boundaries, climate, physical and hydrological considerations, land use etc.
- A greenspace vision including the types and amount of land to be permanently protected
- Methods for acquiring and permanently protecting land
- Barriers to greenspace protection – legally and structurally
- Strategies for using existing regulatory tools and for establishing new regulations, ordinances, and policies to remove prohibitive barriers
- Funding sources
- Information on stakeholder involvement, and
- Additional information.

Following the completion of the draft regional greenspace plan, stakeholder meetings should be conducted to explain the content of the greenspace plan and solicit comments and recommendations. Modifications can then be made as necessary to update the draft plan based on the stakeholder feedback. However, planning cannot end at the completion of this greenspace plan. The regional greenspace plan should be adaptive and evolve with the advancement of science, technology and public interest. The planning of development and transportation infrastructure goes hand in hand with the planning for land preservation and green infrastructure. Thus ideally, the greenspace plan would

become an official public policy as part of the comprehensive land use plan. Over the next few years, the counties will need to work together to procure funding and public support for the regional greenspace plan. An important part of this will be the development of an implementation plan to allow the accomplishment of the regional greenspace goals.

**CHAPTER IV**  
**CASE STUDY: THE UPPER ETOWAH WATERSHED**  
**REGIONAL GREENSPACE PLANNING PROCESS**

*“Growth is inevitable and desirable, but destruction of community character is not. The question is not whether your part of the world is going to change. The question is how.”*

- Edward T. McMahon, The Conservation Fund

**Introduction**

Rapid urbanization from metropolitan Atlanta threatens the ecological integrity and rural character of the Etowah Watershed. This urban development has come primarily at the expense of agricultural and forested lands. Spatial analysis of the watershed shows that the extent of urban land cover has tripled (100 mi<sup>2</sup>) and 11.5% (83 mi<sup>2</sup>) of the forest cover has been lost in this watershed since 1974. Development has also played a part in decreasing water quality in the Etowah Watershed including the main stem of the Etowah and Lake Allatoona itself. Only approximately 120 mi<sup>2</sup> (10.7%) of the watershed's land area is currently permanently protected as greenspace.

The Upper Etowah Watershed Regional Greenspace Plan seeks to identify additional lands valued for ecological, cultural, agricultural and recreational purposes. Protecting these lands strategically throughout the watershed is a practical way of preserving the very qualities that draw development to the Upper Etowah region in the



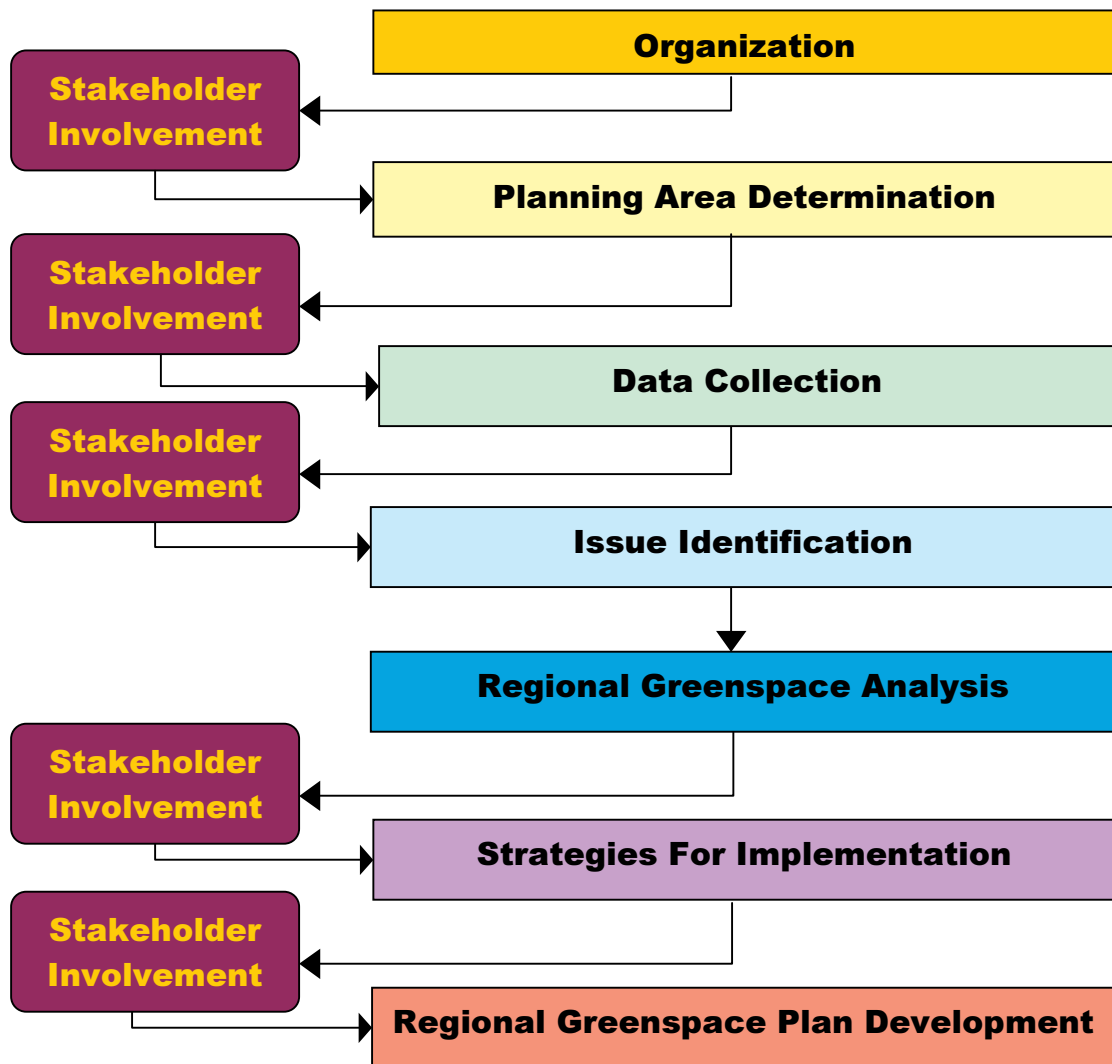
first place. The Upper Etowah Watershed Regional Greenspace planning process combined existing greenspace and comprehensive land-use plans with regional environmental concerns and ecological science to support multi-jurisdictional greenspace planning. The main goals of the greenspace planning process were to:

- Help the Etowah counties overcome two of their noted barriers: identifying greenspace priorities and legal strategies for protection within the regional context
- Improve communication and information sharing between local governments and organizations in the watershed
- Foster increased awareness of regional issues and land use trends, and
- Help local governments develop solutions to some of the environmental and quality of life threats associated with growth in the watershed.

The following sections illustrate the previously mentioned eight stages of the regional greenspace framework through the Upper Etowah Watershed Regional Greenspace planning process (Figure 2). The Draft Upper Etowah Watershed Regional Greenspace Plan can be found in Appendix 1.

### **Stage 1: Organization**

In accordance with the Georgia Greenspace Program, seven counties within the Upper Etowah Watershed developed individual county greenspace plans. During their greenspace planning process, several of these counties recognized the need for regionalizing their plans but were limited by the lack of technical expertise and coordination. For example, among the goals specified in Cherokee County's Greenspace Plan is engaging in regional greenspace opportunities and maintaining close contact with their neighboring counties.



**Figure 2: Regional Greenspace Framework for the Upper Etowah Watershed Regional Greenspace Planning Process**

The recognition that natural resources do not follow jurisdictional boundaries provided the impetus for working among, rather than within each county. As a result, the Office of Public Service and Outreach at the University of Georgia's Institute of Ecology offered to assist in the development of a regional greenspace plan, as it was consistent with the University's other work in the watershed. The counties were enthusiastic about regionalizing their greenspace plans, so in the summer of 2001 the Institute of Ecology took on the task of organizing the stakeholders and developing the regional greenspace plan.

### **Stage 2: Planning Area Determination**

In order to determine a commonality between the counties, the UGA staff worked closely with the county planners to define the planning area. To complement the information obtained from the county planners, the individual counties' greenspace plans and their comprehensive land use plans were also examined. It was immediately apparent that all counties had the common natural resource of the Etowah River and that each of their individual greenspace plans included the issue of water quality and quantity as a top priority. Therefore, the most logical planning area was an approach that recognized the inter-connectedness of land and water, i.e. a watershed approach.

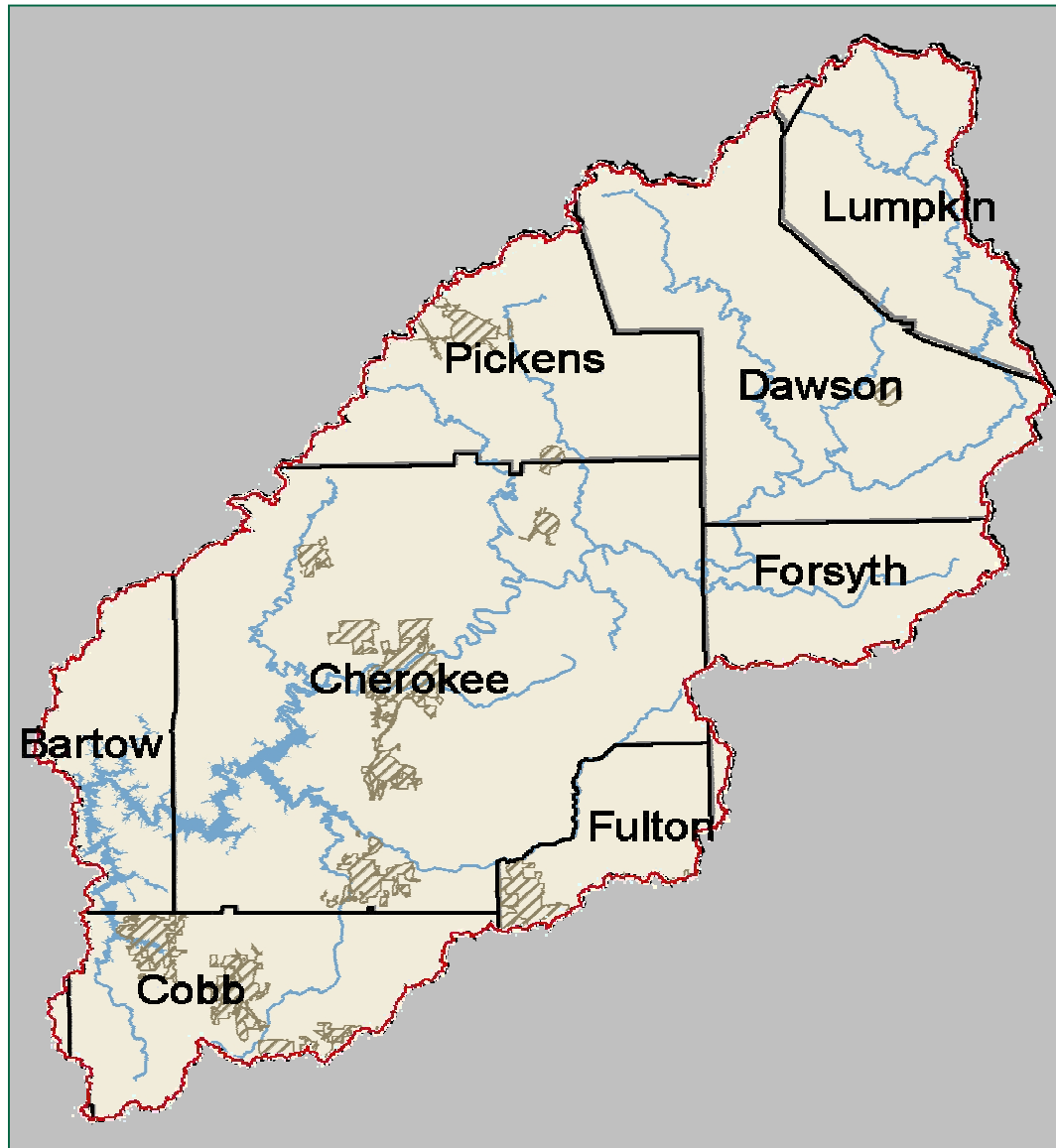
A watershed is the "land area where all of the water that is under it or drains off of it goes to the same place [body of water]" (Environmental Protection Agency, *What is a Watershed*, 2002). Watersheds come in all sizes based on the land area that is drained by the body of water of interest. The Etowah River Watershed is a large watershed. The Lake Allatoona Reservoir, a drinking water supply and a popular recreation spot for the entire region divides the Etowah River Watershed. Because the University has a close

working relationship with the counties located within the upper portion of the Etowah River, the greenspace planning area was determined to be the Upper Etowah River Watershed including the Lake Allatoona Reservoir (Figure 3). The Upper Etowah Watershed is a 1,120mi<sup>2</sup> basin that contains eight counties (Bartow, Cherokee, Cobb, Dawson, Fulton, Forsyth, Lumpkin, and Pickens). Another reason for focusing initial efforts on the upper portion of the Etowah Watershed is that two well-respected watershed groups in the region, The Upper Etowah River Alliance, and the Lake Allatoona Preservation Authority, were quick to partner with The University of Georgia and the local governments in developing and implementing the Regional Greenspace Plan.

An initial written description of the regional greenspace planning area (location and counties involved) and the importance of a watershed based regional greenspace plan was developed. The description of the watershed was expanded as the greenspace planning process continued. A complete description including physical and hydrological description, physiographic regions, weather and climate, natural resources, and land use in the Etowah Watershed can be found in Appendix 1 (p. 86). Once the planning area was determined, a letter of introduction (Appendix 1, p. 152) was sent to a core group of stakeholders in order to make sure that those parties who are responsible for major land use decisions in the watershed were aware of the regional greenspace planning effort.

### **Stage 3: Stakeholder Involvement**

In the Upper Etowah Watershed, all but one of the counties had completed an individual greenspace plan pursuant to the Georgia Greenspace Program. Because the counties had already involved their diverse stakeholders in the formation of their own



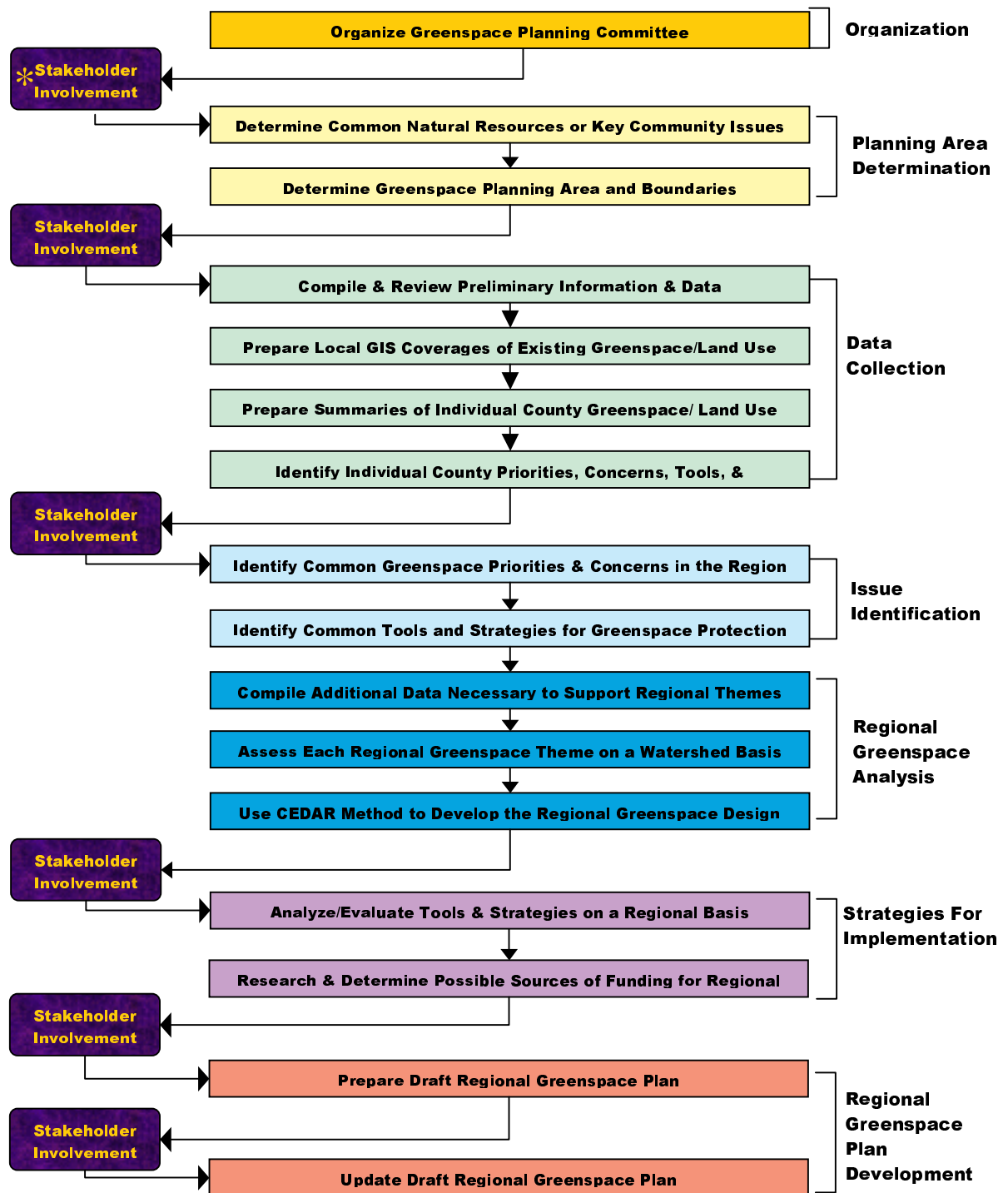
**Figure 3: Upper Etowah Watershed Regional Greenspace Planning Area including the 8 Counties of the Upper Etowah Watershed, GA and Their Municipalities.**

county greenspace plan, the Greenspace Coordinator for each of the counties was considered the representative of the stakeholders within each county. Representatives from each of the county planning offices, including the greenspace coordinator, acted as the core steering committee. These core stakeholders were contacted via phone to obtain their agreement in being part of the greenspace planning process including providing necessary information and attending meetings.

A decision was also made to recruit local, state, and federal public partners who already had involvement in land use decisions throughout the watershed, especially the Upper Etowah River Alliance and the Lake Allatoona Preservation Authority. A list of recruited public partners can be found in the Appendix (p. 153-154). These representatives of stakeholders in the Upper Etowah Watershed were involved throughout the planning process. Figure 4 shows an overview of the stakeholder involvement in the greenspace planning Process. More detail about stakeholder involvement in the Upper Etowah is discussed under each of the following stages of the greenspace planning process.

#### **Stage 4: Data Collection**

Seven (Bartow, Cobb, Cherokee, Fulton, Forsyth, Lumpkin, and Pickens) of the eight counties of the Upper Etowah Watershed have completed individual county greenspace plans under the Georgia Greenspace Program. Although Dawson County was not eligible to participate in the Georgia Greenspace Program, the county provided documents that addressed greenspace issues within Dawson County such as their



**Figure 4: Overview of Stakeholder Involvement in Greenspace Planning Process**

\*Although Stakeholder Involvement in the figure represents organized group participation, individual stakeholders were involved throughout the entire planning process

comprehensive land use plan and public meeting notes on land use and preservation issues. The first task was to review and analyze each county's greenspace plan and all other appropriate county materials such as comprehensive land use plans and zoning regulations.

After reviewing the greenspace plans, one of the first impediments towards developing a regional greenspace plan was realized. The visual maps produced by each county were in several different formats and as is, they could not be assimilated into a regional map. Therefore, Geographical Information Systems (GIS) was utilized to bring all of the visual components into the same format. GIS was chosen because it allows the most flexibility in overlaying and analyzing spatial data. Direct contact was made with each county to gather the information necessary to create a GIS map of the county's greenspace plan. In some instances, this required requesting existing GIS information from the county planners or other appropriate entities. However, for those counties that had not used GIS the following steps were taken: 1) determining map formats, 2) obtaining maps in an electronic format if possible, and 3) converting or hand digitizing the information into a GIS coverage.

Following this, a summary of each individual county's greenspace plan was prepared including each county's greenspace goal, current permanently protected areas, and priority areas targeted for permanent protection. The county summary and converted greenspace maps for each county were sent to the greenspace coordinator and/or planning director to verify that the summary and maps were a true representation of the county's greenspace plan.



### **Stage 5: Issue Identification**

Regional priority identification was begun by formulating a common language in both the text and maps among the counties based upon the similar characteristics of their individual greenspace plans and comprehensive land use plans. For example, neighboring counties may both target riparian areas in their greenspace plans, yet in one plan refer to them as stream buffers and in the other as riparian corridors. Developing a consistent terminology between the counties, both in the text and on the maps, helped aggregate the data and aid in the sharing of information between counties in the region.

Applicable state and federal laws and regulations related to natural resource and land use management were also researched. This research determined that two federal environmental laws (Clean Water Act and Endangered Species Act) are expected to substantially affect the development of the Upper Etowah and Lake Allatoona watersheds in future years. Therefore, a section of the Regional Greenspace Plan examines how establishing regional greenspace goals within the Upper Etowah Watershed can help meet the requirements of these federal laws. For a detailed discussion of this please see the Appendix (p. 90).

After formulating a common language, both the text and the maps were analyzed to determine the similarities between each of the individual county's greenspace plans. For example, every county was concerned with issues surrounding water quality and chose to target protection within the floodplains and/or stream buffers. The individual county priorities led to five regional themes: cultural, ecological, developmental, agricultural, and recreational.

## **Stage 6: Regional Greenspace Analysis**

After reviewing the county greenspace plans and other supporting documents it was determined that the CEDAR methodology (Green Space Design, 2002) would be appropriate for forming the Upper Etowah Watershed Regional Greenspace Design. The CEDAR methodology uses five themes (cultural, ecological, developmental, agricultural, and recreational (CEDAR) resources) and the linkages within each theme to produce a single greenspace design based on connected areas of greenspace. This methodology was appropriate for use in the Etowah because each of the five CEDAR themes were addressed in all individual county greenspace plans by one or more specific type of greenspace. For example, Bartow County's Greenspace Plan listed historical sites, which fall under the Cultural theme, as a type of greenspace they wish protect. Dozens of specific types of greenspace fall within each of the CEDAR themes. For example, the Ecological theme in the regional greenspace design was composed of greenspace types that relate to water quality and wildlife habitat including: steep slopes, riparian buffers, floodplains, wetlands, groundwater recharge areas, and large forest patches.

The first step in the CEDAR design process was resource mapping. These maps highlighted all of the greenspace land types valued by the region for cultural, ecological, developmental, agricultural and recreational reasons. The next step in the CEDAR process was developing analysis maps. Analysis maps were made up of information amassed from several CEDAR resource maps. Five analysis maps were produced in the Upper Etowah by combining all the resource maps per CEDAR theme. The Upper Etowah Watershed Regional Greenspace Plan includes a description of the analysis process for each CEDAR theme (Appendix, p.97).

Finally, the greenspace design map was developed. This map represents the most valued cultural, ecological, developmental, agricultural, and recreational greenspace. The CEDAR methodology utilizes the main CEDAR themes as the hubs for the regional greenspace design. The linkages are then determined by assessing each regional theme to find linkages that promote a regional connection of greenspace. Regional greenspace priority designations were determined by analyzing the Upper Etowah Regional Greenspace Design in context with significant priority concerns of the individual counties and their existing greenspace and comprehensive land use plans. The resulting Etowah Greenspace Design Maps from the above greenspace analysis include currently protected greenspace (Appendix, p. 85), analysis maps of each regional theme (CEDAR) (Appendix, p. 98,100,103,105,106, & 108), and a composite Regional Greenspace Design (Appendix, p. 109).

Overall, the Upper Etowah Regional Greenspace process combined existing greenspace and comprehensive land-use plans with regional environmental concerns and ecological science to support multi-jurisdictional greenspace planning. During this process information was collected through direct contact with local governments and organizations via phone conversations and local workshops. Following the development of the regional greenspace maps, the first Upper Etowah Watershed Regional Greenspace Workshop was held (Appendix, p.155-157). Attendees were provided with information on maximizing the environmental and economic benefits of greenspace protection, leveraging financial resources, and the resulting draft Upper Etowah Watershed Regional Greenspace Maps.

The attendees presented their ideas, concerns, and suggestions on the draft Regional Plan and Maps. This feedback was then used to adjust the greenspace plan and maps based on stakeholder comments and concerns. The new maps were then synthesized into a final draft Regional Greenspace Design.

### **Stage 7: Regional Implementation Strategy Development: Tools and Funding**

#### **Tools & Strategies**

Since most land use planning in Georgia has traditionally taken place on a county-by-county basis, the first step was to understand individual county approaches to protecting greenspace. Available greenspace plans, comprehensive land use plans, and local zoning ordinances were analyzed to understand each county's tools, barriers and strategies for overcoming the barriers to greenspace protection. A summary of each county's analysis can be found in the Appendix (p. 165-172).

The next step was to adapt the individual county tools and any new tools to a regional extent. A detailed explanation of the basic legal tools used in protecting greenspace and how they could be adapted for use in the Etowah, including a discussion of the regional barriers and strategies for overcoming these barriers can be found in the Appendix (p. 112). Some tools, such as transferable development rights, are relatively new to Georgia. When appropriate, the use of these tools to protect resources in other areas of the country were researched and presented in the Regional Greenspace Plan (Appendix, p. 187) in order to gain an understanding of how they can be modified or adapted to operate on a watershed scale in Georgia. A summary of the Upper Etowah Watershed regional greenspace protection tools, their barriers and regional strategies to overcome these barriers can be found below in Table 1.

**Table 1: Regional Greenspace Protection Tools, Barriers, & Strategies**

<b>GREENSPACE PROTECTION TOOLS</b>	<b>BARRIER</b>	<b>REGIONAL STRATEGY</b>
<b>Fee Simple Acquisition</b>	<ul style="list-style-type: none"> <li>There is not enough money available to purchase all greenspace outright</li> </ul>	<ul style="list-style-type: none"> <li>Work together regionally to:               <ul style="list-style-type: none"> <li>(a) maximize funding sources that are already available to individual counties and</li> <li>(b) recruit new funding sources that prefer or require a regional focus such as EPA's 2003 Watershed Initiative and the U.S. Fish and Wildlife Service's Habitat Conservation Plan Land Acquisition Grants</li> </ul> </li> </ul>
<b>Stream Buffers</b>	<ul style="list-style-type: none"> <li>There is not consistency between counties on buffer extent and width; some streams are not adequately protected</li> </ul>	<ul style="list-style-type: none"> <li>Develop a consensus on a common minimum buffer protection width and extent and adopt into law in each jurisdiction</li> </ul>
<b>Flood Plain Protection</b>	<ul style="list-style-type: none"> <li>While development in floodways is prohibited, most counties allow development in the floodplain</li> </ul>	<ul style="list-style-type: none"> <li>Develop a model ordinance prohibiting development within the 100yr floodplain and adopt into law in each jurisdiction</li> </ul>
<b>Conservation Easements and Restrictive Covenants</b>	<ul style="list-style-type: none"> <li>The state Uniform Conservation Easement Act does not provide adequate financial incentives for landowners who donate permanent easements</li> </ul>	<ul style="list-style-type: none"> <li>As a group, lobby the Georgia General Assembly to allow for state income tax credits as well as deductions for the conservation easement donor</li> </ul>

<b>GREENSPACE PROTECTION TOOLS</b>	<b>BARRIER</b>	<b>REGIONAL STRATEGY</b>
<b>Conservation Easements and Restrictive Covenants (continued)</b>	<ul style="list-style-type: none"> <li>• There is no single database containing the location of properties protected by conservation easements or restricted covenants that can be used to document success in protecting contiguous lands.</li> <li>• Many tax assessors do not know how to assess property protected with conservation easements or restrictive covenants</li> <li>• Many landowners are unaware that they can protect their land via conservation easements and restrictive covenants</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a regional conservation easement/restrictive covenant database in partnership with a conservation organization with a regional focus such as the Nature Conservancy or the Chattowah Land Trust.</li> <li>• Host a regional workshop to train local tax assessors on how to calculate property tax on land protected by easements and restrictive covenants</li> <li>• Provide opportunities for representatives of area land trusts and other experts (Regional Speakers Bureau) to make presentations on conservation easements to the general public, service organizations, and local government officials and staff</li> </ul>
<b>Conservation Subdivision</b>	<ul style="list-style-type: none"> <li>• Some counties do not provide for conservation subdivisions</li> <li>• No incentives exist for preserving contiguous open space by linking conservation subdivisions</li> </ul>	<ul style="list-style-type: none"> <li>• In these counties adopt ordinances allowing for clustering of residential development in exchange for the permanent protection of a significant amount of ecologically functional greenspace</li> <li>• Work together to identify conservation development corridors, and provide incentives for contiguous subdivisions.</li> </ul>

<b>GREENSPACE PROTECTION TOOLS</b>	<b>BARRIER</b>	<b>REGIONAL STRATEGY</b>
<b>Conservation Subdivision</b>	<ul style="list-style-type: none"> <li>• Banks are reluctant to provide loans to uncommon types of development</li> </ul>	<ul style="list-style-type: none"> <li>• Target banks and other lenders for education/outreach efforts on the benefits of conservation subdivisions</li> </ul>
<b>Purchase of Development Rights</b>	<ul style="list-style-type: none"> <li>• Like direct acquisition, adequate funding mechanisms are limited</li> </ul>	<ul style="list-style-type: none"> <li>• Work together regionally to:               <ul style="list-style-type: none"> <li>(a) maximize funding sources that are already available to individual counties and</li> <li>(b) recruit new funding sources that prefer or require a regional focus</li> </ul> </li> </ul>
<b>Transfer of Development Rights</b>	<ul style="list-style-type: none"> <li>• A provision in the state's TDR enabling legislation makes this tool virtually unworkable, requiring a deliberation of the governing body prior to each transfer</li> <li>• No effort has been made to look at the regional use of TDRs to protect water quality and biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>• Together lobby the General Assembly to eliminate this burdensome provision</li> <li>• Apply for a Quality Growth grant from the Georgia Department of Community Affairs to investigate the feasibility of a regional TDR program</li> </ul>

## Funding

For the Upper Etowah Watershed Regional Greenspace Plan, funding options were researched based on a watershed scale category and also the regional themes (Cultural, Ecological, Developmental, Agricultural, and Recreational). Some funding options suited several of the greenspace goals. In this instance the funding was mentioned and discussed in the section the funding fit with best. Under each category of funding the following information was provided: funding agency, a short description of how this funding option fit the Upper Etowah Region, funding amount, deadlines, and contact information. For example, one funding option under the watershed category was the EPA Watershed Initiative. This is a new program that will begin funding community-based watershed approaches in 2003. In an effort to provide clean water for drinking, clean beaches for swimming, and a healthy environment to support fish and other wildlife the EPA will invest \$20 million in grants for efforts in 20 local watersheds and technical assistance for other communities. EPA plans to begin dispersing funds in the summer of 2003. The grants will range from \$350,000 to \$1.3 million per project. Details of the other funding options researched for the Upper Etowah Watershed Regional Greenspace Plan can be found in the Appendix (p. 122).

## **Stage 8: Regional Greenspace Plan Development**

Because the counties in the Upper Etowah Watershed were already familiar with the required format for individual county greenspace plans, an attempt was made to follow the same format when forming the Regional Greenspace Plan. Following the Draft Regional Greenspace Plan a second Stakeholder Workshop was held. At the workshop details of the Regional Greenspace Plan were explained, and highlights of new



and updated information from the previous Workshop were provided. Feedback concerning the Regional Greenspace Plan was solicited and the resulting draft of the Upper Etowah Watershed Regional Greenspace Plan can be found as the attached Appendix. Finally, public outreach and implementation ideas were discussed at the Workshop.

Also, an opportunity had arisen for the Regional Greenspace Plan to become part of a larger natural resource management plan. The stakeholders recognized the importance in planning for greenspace in conjunction with other land uses, and decided to merge the Regional Greenspace Plan into the Regional Habitat Conservation Plan efforts currently underway. The proposed watershed-wide Habitat Conservation Plan would require local governments to implement growth management controls and land preservation measures to ensure that populations of imperiled aquatic organisms remain healthy. A Regional Greenspace Plan would be part of this by permanently protecting large areas of greenspace within critical sub-watersheds and riparian buffers important for the survival of the imperiled species. Further greenspace analysis to determine priority protection areas and an implementation plan will be developed through the Regional Habitat Conservation Plan Process.

### **Conclusions**

Although the Upper Etowah Regional Watershed Regional Greenspace Plan has not yet been implemented, the progress so far can be considered successful in that through the planning process communication has increased among stakeholders, partnerships have been built, current land use efforts are being advanced, public awareness and knowledge has increased and, most of all, the Upper Etowah Watershed

Regional Greenspace Plan's emergence with the Regional Habitat Conservation Plan shows that the stakeholders in the Etowah recognize the interconnectedness and interrelationships between human activities and the natural resources on which we depend.

## CHAPTER V

### CONCLUSIONS AND RECOMMENDATIONS

*“What holds people together long enough to discover their power as citizens is their common inhabiting of a single place.”*

– Daniel Kemmis

Although each regional greenspace plan will have different priorities and methods for developing their plans, there are several key aspects that should be kept in mind during the planning process. First, although GIS provides substantial management benefits over standard mapping techniques, integrating data from different sources is very time consuming. Utilizing GIS for greenspace analysis means that the data can be managed in a way that allows stakeholders to not only use the information but also to add to it. Using GIS to produce maps allows stakeholders to comprehend the big picture more quickly than other forms of reports. GIS provides a consistent data format that allows an easier exchange of data between stakeholders. When integrating data into a GIS format, however, issues such as data quality, geographic scale, and thematic classifications can directly affect the time frame and budget for data collection and analysis.

In the Upper Etowah Watershed, data collection required twice the time originally planned due to collection of data and GIS integration problems. As a result, the first stakeholder workshop was postponed four months until all data could be collected and integrated. While GIS is the recommended format for analyzing and producing greenspace data and maps, enough leeway should be built into the planning timeframe to allow for data collection and integration problems.

Second, balancing interests and cooperation among stakeholders takes time and effort. The long-term success of a regional greenspace plan often depends on the ability to bring together a group with a broad range of interests. Developing enthusiastic public involvement requires keeping a diverse group of citizens engaged in the goal of greenspace protection. Early inclusion of stakeholders in the greenspace planning process not only provides stakeholders with a sense of ownership in the plan, but it also provides a means to resolve any potentially conflicting interests between the stakeholders. This means that flexibility is a key to gaining consensus and cooperation among a diverse group of stakeholders.

For example, in the Upper Etowah Watershed each county had already provided public workshops and hearings to gather public input in the development of their own greenspace plans. Therefore, during the regional greenspace planning process, a core group of stakeholders represented each county. If individual municipality or county greenspace plans had not already been developed, more time would have been needed to engage the local and regional communities in the planning process. Even so, flexibility was still required in the Etowah planning process. The first public meeting was originally to follow the Upper Etowah Watershed Greenspace Planning Workshop.

However, during the first stakeholder workshop, county representatives raised several greenspace issues and concerns that they felt needed further research. Therefore, the public meeting was put off until a second workshop could occur to provide more information about and resolve some of the stakeholder concerns. While sound data and stakeholder involvement are time intensive and require a flexible planning process they are necessary for securing public, political, and financial support.

Third, working from the county level of involvement and then moving to the regional level is also an essential component, especially when working in a large planning area like a watershed. Each county has its own set of issues and concerns. Counties are also protective of the resources they have – natural, technical, and financial. Allowing counties the time to work through their individual county issues and to determine their greenspace priorities provides them with the ability to bring something of their own to the regional table.

Fourth, finding common ground is a key concept. This is important not just among the stakeholders, as previously discussed, but also among the local governments. Finding common ground for the greenspace plan increases the willingness of governments to work together. Finding a common ground that demonstrates that a Regional Greenspace Plan has benefits for everyone will greatly increase interagency cooperation. One of the biggest benefits from a government's point of view is funding. A common regional issue and regional partnerships help to find alternative or unusual funding sources. In the Etowah Watershed, water quantity and quality is an ever-increasing concern for both the public and the local governments. Developing the Etowah Watershed Regional Greenspace Plan around this common issue resulted in a

surprisingly strong participation by the stakeholders, and provided another funding option through the regional Habitat Conservation Plan. Determining the common factor that will pull all the stakeholders together is an essential part of developing and implementing a successful regional greenspace plan.

Finally, a Regional Greenspace Plan has the opportunity to increase public interest and involvement, and to foster the concept of planning simultaneously for greenspace and growth. In the past, greenspace protection has been reactive and decentralized. Instead, a Regional Greenspace Plan can be a first step in planning for land use. Coordinating greenspace planning with typical planning initiatives like grey infrastructure (e.g. roads, water, sewer, and electric) and comprehensive land use planning, will provide long-term success for management of the regions land use. Planning for greenspace in conjunction with other land use activities helps to more easily obtain an interconnected greenspace system. Such a proactive framework for greenspace planning helps to maintain the greenspace valued by the region.

For the Upper Etowah Watershed, the fundamental idea of the greenspace protection strategy was to preserve the regional characteristics of the watershed, especially water quality and quantity. In the second Regional Greenspace Workshop, the stakeholders determined that the only way to insure the integrity of the Etowah Watershed was to coordinate greenspace protection with other land uses planning initiatives. Thus, the stakeholders agreed to merge the current Regional Greenspace Plan into the Regional Habitat Conservation planning process.

Because implementation of a regional greenspace plan is difficult without a financial or legal backing, finding the grant or law to tie the regional plan into is

imperative. For some this may be done by completely joining their comprehensive land use plan with their greenspace plan. For other regions it may require looking into how greenspace can be a part of other state and federal requirements such as Total Maximum Daily Load Implementation Plans under the Clean Water Act. Use the unique aspects of the region to pull together the stakeholders and search out funding and political support for the Regional Greenspace Plan.

Keeping the above concepts in mind will help in the development of a successful Regional Greenspace Plan. The process of developing a regional greenspace plan is a complex process that requires an interdisciplinary, interjurisdictional and interactive approach. It encompasses a wide array of interests and specialized disciplines. It involves communicating with people and incorporating their perceptions of valuable lands into the greenspace plan. A well-designed regional greenspace plan provides a proactive approach to land use that involves a diverse set of stakeholders and is based upon sound scientific and land use planning theory. The benefits of such a plan go well beyond permanently protecting greenspace. Through the planning process and implementation of the plan, communication is increased among stakeholders, partnerships are built, current land use efforts are advanced, and public awareness and knowledge is increased. A successful Regional Greenspace Plan provides a proactive, collaborative framework for all land use in the region.

*“We must re-myth our world! ... Humanity dreams itself into existence. Our old dream has become a nightmare; we must dream a better dream.”*

–Elizabeth Dodson Gray

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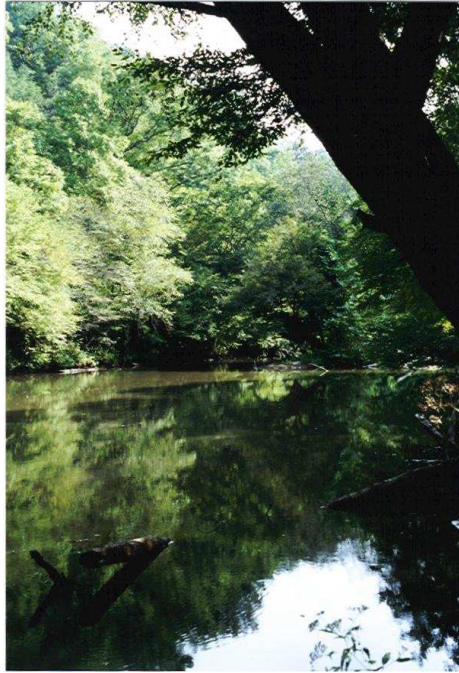
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## **APPENDIX 1**

### **CASE STUDY:**

#### **DRAFT UPPER ETOWAH WATERSHED REGIONAL GREENSPACE PLAN**

# The Upper Etowah Watershed



# Regional Greenspace Plan

# The Upper Etowah Watershed Regional Greenspace Plan

*Special Thanks to Our Funding Source:*

Georgia Forestry Commission

*Grant Recipient and Coordinator:*

University of Georgia, Institute of Ecology, Office of Public Service and Outreach

*Editors*

Raysun Goergen & Laurie Fowler

DRAFT

August 2002

*Cover Photos of the Etowah by Candace Stoughton*

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## INTRODUCTION

For the purposes of this plan, the Upper Etowah Watershed consists of portions of eight counties in North Georgia: Bartow, Cobb, Cherokee, Dawson, Fulton, Forsyth, Lumpkin and Pickens that drain into the Etowah River north of the Lake Allatoona Dam.

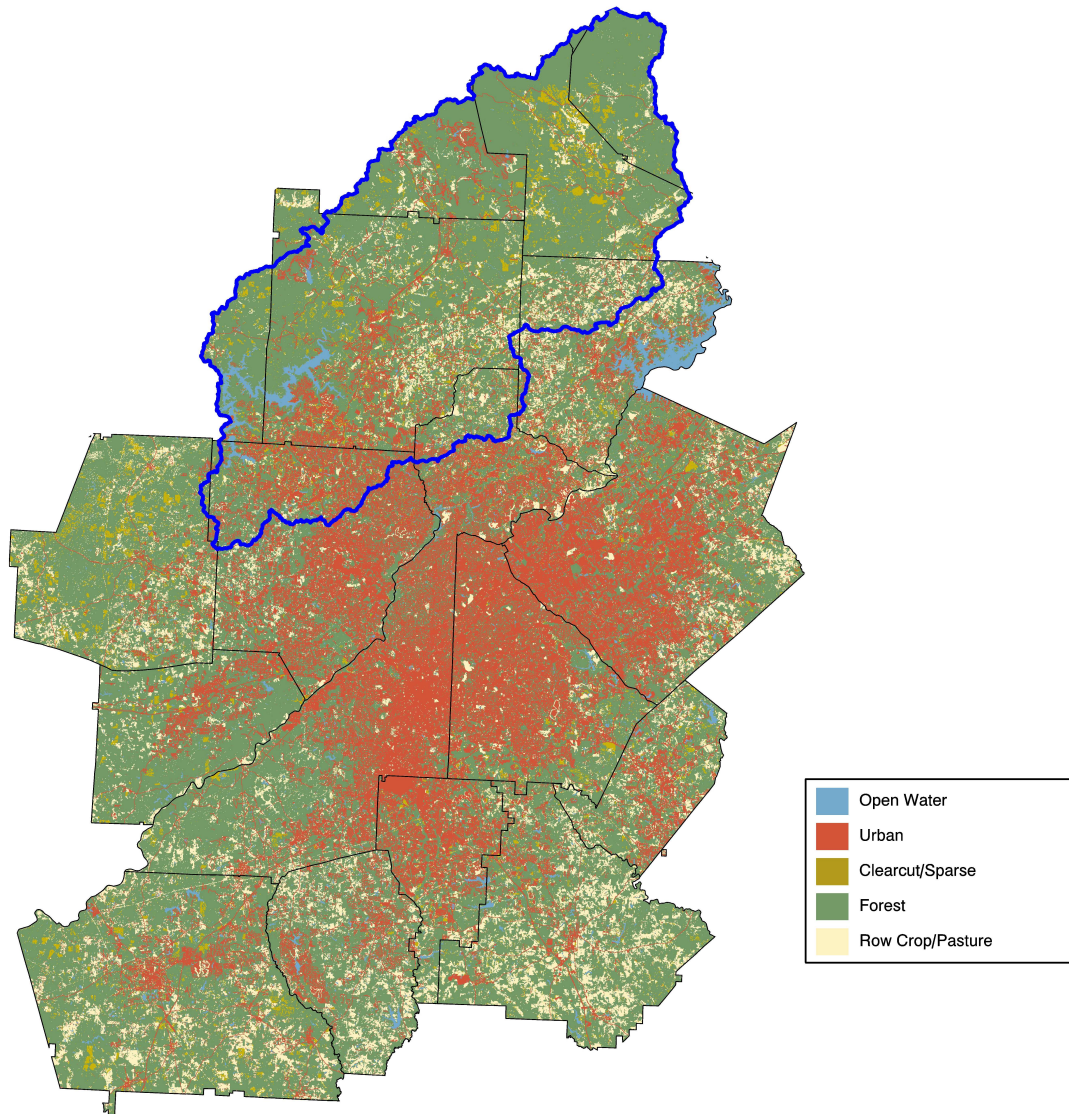
The Upper Etowah Watershed is among the most rapidly growing regions in the country (Map 1). Development pressure in the watershed is enormous; the population of the region has doubled in the past ten years and is projected to double again in the next ten. Six of the counties in the watershed are among the nation's fastest-growing 100. The Atlanta metropolitan area, which includes portions of the Upper Etowah Watershed, added more new residents during the 1990s than any other in the United States, except for Los Angeles.

Rapid urbanization from metropolitan Atlanta threatens the ecological integrity and rural character of the watershed. This urban development has come primarily at the expense of agricultural and forested lands. Spatial analysis of the watershed shows that the extent of urban land cover has tripled (100 mi<sup>2</sup>) and 11.5% (83 mi<sup>2</sup>) of the forest cover has been lost in this watershed since 1974. Development has also played a part in decreasing water quality in the Etowah Watershed including the main stem of the Etowah and Lake Allatoona itself. Of the 91 native fish species once found in the Etowah, 21 have been extirpated and at least twelve are imperiled. Three of these are listed as endangered or threatened under the federal Endangered Species Act and four are found nowhere else in the world.

The Upper Etowah Watershed Regional Greenspace Plan is a major component of a comprehensive plan to decrease sprawl and protect aquatic health and forest cover. Permanently protecting greenspace can help protect aquatic health by providing a buffer between erosive upland development activities and surface water/aquatic habitat without discouraging economic growth.

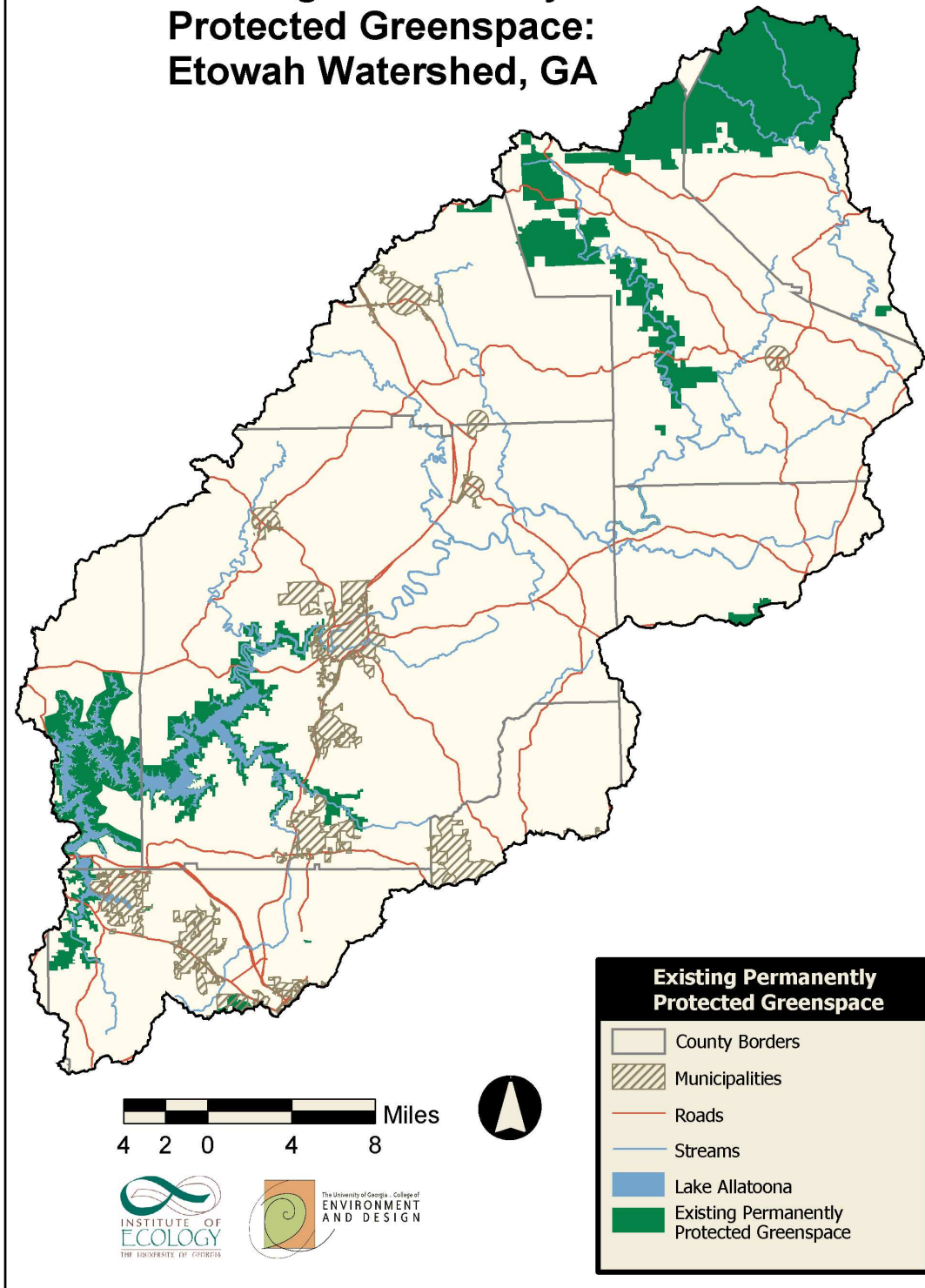
In accordance with the Georgia Greenspace Program, seven of the eight counties within the Upper Etowah Watershed have developed individual county greenspace plans. Several of these counties recognized the need for regionalizing their plans based upon the principle that natural resources do not follow jurisdictional boundaries, but were limited by the lack of technical expertise and coordination. This provided the impetus for developing a regional greenspace plan.

Only approximately 120 mi<sup>2</sup> (10.7%) of the watershed's land area is currently permanently protected as greenspace (Map 2). The Upper Etowah Watershed Regional Greenspace Plan seeks to identify additional lands valued for ecological, cultural, agricultural and recreational purposes. Protecting these lands strategically throughout the watershed is a practical way of preserving the very qualities that draw development to the Upper Etowah region in the first place.



**Map 1: 1998 Urban Land Cover: Etowah Watershed & Metropolitan Atlanta, GA**

## MAP 2: Existing Permanently Protected Greenspace: Etowah Watershed, GA



**Map 2: Existing Permanently Protected Greenspace**  
Map Reduced From 11"x17"

## UPPER ETOWAH WATERSHED DESCRIPTION

The following sections were consolidated from each county's greenspace and comprehensive land use plans as well as "The Upper Etowah River Watershed: Our Land, Our Water, Our Future" published by the Upper Etowah River Alliance.

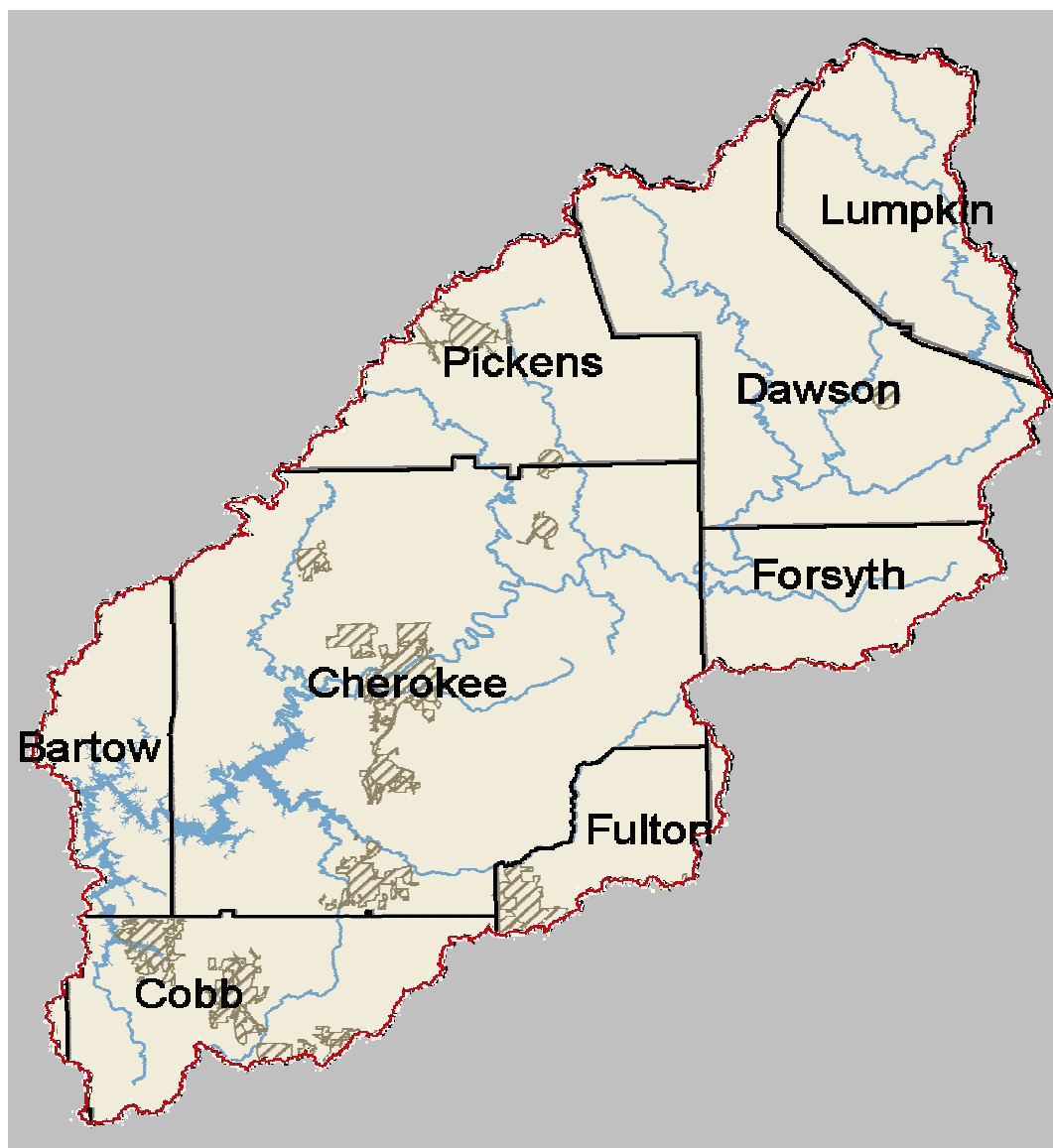
### **Physical and Hydrological Description**

The Upper Etowah Watershed, located in North Georgia, encompasses parts of eight counties: Bartow, Cobb, Cherokee, Dawson, Fulton, Forsyth, Lumpkin, and Pickens (Map 3). The Upper Etowah Watershed is a 1,120 mi<sup>2</sup> basin containing 102 miles of the Etowah River main stem and over 2,500 miles of tributaries including Amicalola, Long Swamp, Settingdown, and Shoal Creeks, and the Lake Allatoona Reservoir.

Rising in the Chattahoochee National Forest of Lumpkin County, with headwater tributaries in Pickens County, the 150-mile Etowah River travels southwest through Dawson, Forsyth and Cherokee Counties where it runs into Lake Allatoona. From Lake Allatoona, the Etowah eventually flows into the Coosa River in Rome, Georgia. The Coosa River then flows southward through Georgia into the Alabama River where it reaches the Gulf of Mexico near Mobile, Alabama.

From its source in Lumpkin County at an elevation of approximately 3,400 feet above sea level, the Etowah River drops nearly 2,200 feet by the time it reaches Dawson County. It drops only 200 feet more in its journey through Forsyth and Cherokee Counties into Lake Allatoona. The river, with its forested 25ft high banks and a river width between 100-300 feet, has a bankful capacity around 800 cubic feet per second near Dawsonville (Dawson County) and around 3,500 cubic feet per second near Canton (Cherokee County). Peak flow typically occurs in winter around January with the lowest flow occurring in fall around September to November.

The Lake Allatoona Dam, located about 50 miles above the mouth (where it flows into the Coosa River) of the Etowah River, was completed in 1949 for the purpose of power generation and flood control. With a surface area of 12,010 acres and a 270-mile shoreline, Lake Allatoona is the second largest Corps reservoir in the U.S. and the tenth largest lake in Georgia. Lake Allatoona is now a multi- purpose lake managed for navigation, water supply, fish and wildlife, and recreation. The lake receives over 9 million visitors per year and Red Top Mountain Park, located on Allatoona in Bartow County, is Georgia's most frequently visited park with over 1.5 million visitors per year. Within the Upper Etowah Watershed the Lake Allatoona Reservoir is contained within the counties of Bartow, Cherokee, and Cobb.



**Map 3: Counties of the Upper Etowah Watershed, GA**

**Physiographic Regions**

The Upper Etowah Watershed lies within two physiographic provinces (Map 4): the Southern Blue Ridge Province and the Piedmont Province. The two regions are separated by escarpments of 300 to 800 feet. In general, the watershed is underlain by metamorphic rocks such as granite, slate, and quartzite.

The Blue Ridge Province is a rugged, steep terrain with a series of prominent round crested mountains and narrow winding valleys and mountain streams. The streams are characterized by clear, highly oxygenated, fast moving water with rocky substrates. Historically, hardwood forests, composed primarily of oak, chestnut, and hickory, dominated the Blue Ridge region with only small amounts of hemlock and white pine. Today, the Southern Blue Ridge region is comprised of steep-sloping catchments surrounded by lush hardwood forests dominated by oak, buckeye, and basswood.

The Piedmont Province is characterized by gentle sloping terrain at the foothills of the mountains with flat-topped, undulating hills and narrow valleys. Historically, forest vegetation was deciduous hardwoods and mixed stands of pine and hardwoods. Today, the Piedmont region is composed of second-growth deciduous forests containing a mixture of pines on the dry, steep ridges.

**Weather and Climate**

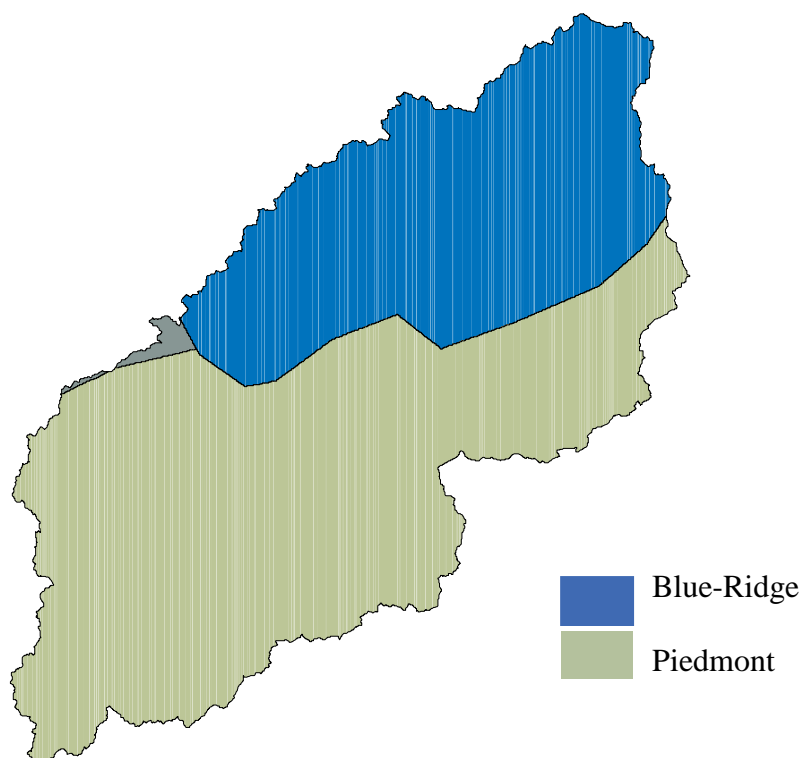
The Upper Etowah Watershed has a temperate climate with warm summers and moderate winters. Annual precipitation is around 50 inches and is primarily rainfall with an occasional snow of one to two inches. The average freeze-free growing period is approximately 200 days with occasional late spring frosts.

**Natural Resources**

The geographical scope of this project encompasses the Upper Etowah River and Lake Allatoona watersheds. A watershed is the land area that is drained by a body of water, in this case the Upper Etowah River, Lake Allatoona and the tributaries that feed them. It includes a mosaic of land and water features such as forests, wetlands, mountains, agriculture fields, riparian corridors, rivers and streams.

Ecological systems that sustain watershed health are complex and difficult to measure. Land that is in its natural state has the ability to perform many important services. Areas that provide valuable ecosystem services such as filtering pollutants, controlling flooding, and providing viable habitat for plants and wildlife include floodplains, riparian corridors, wetlands, groundwater recharge areas, steep slopes, and large forest patches. As these areas are converted to development, the land itself is lost as are the many services it provided. Because these areas transcend political boundaries, planning for them on a regional basis will help maximize and improve the continuity, integrity, impact, and benefit of these natural features. Protecting these lands and waters as permanent greenspace will provide for the healthy ecological systems that the Upper Etowah River and Lake Allatoona watershed depends upon.





**MAP 4: Two Physiographic Provinces in the Etowah**

Source: "Ecological Units of the Eastern United States," Keyes et al., 1995

A comprehensive regional greenspace plan can also play a major role in accomplishing water quality objectives such as the implementation of total maximum daily loads pursuant to the federal Clean Water Act and biodiversity objectives such as the protection of imperiled species habitat pursuant to the federal Endangered Species Act.

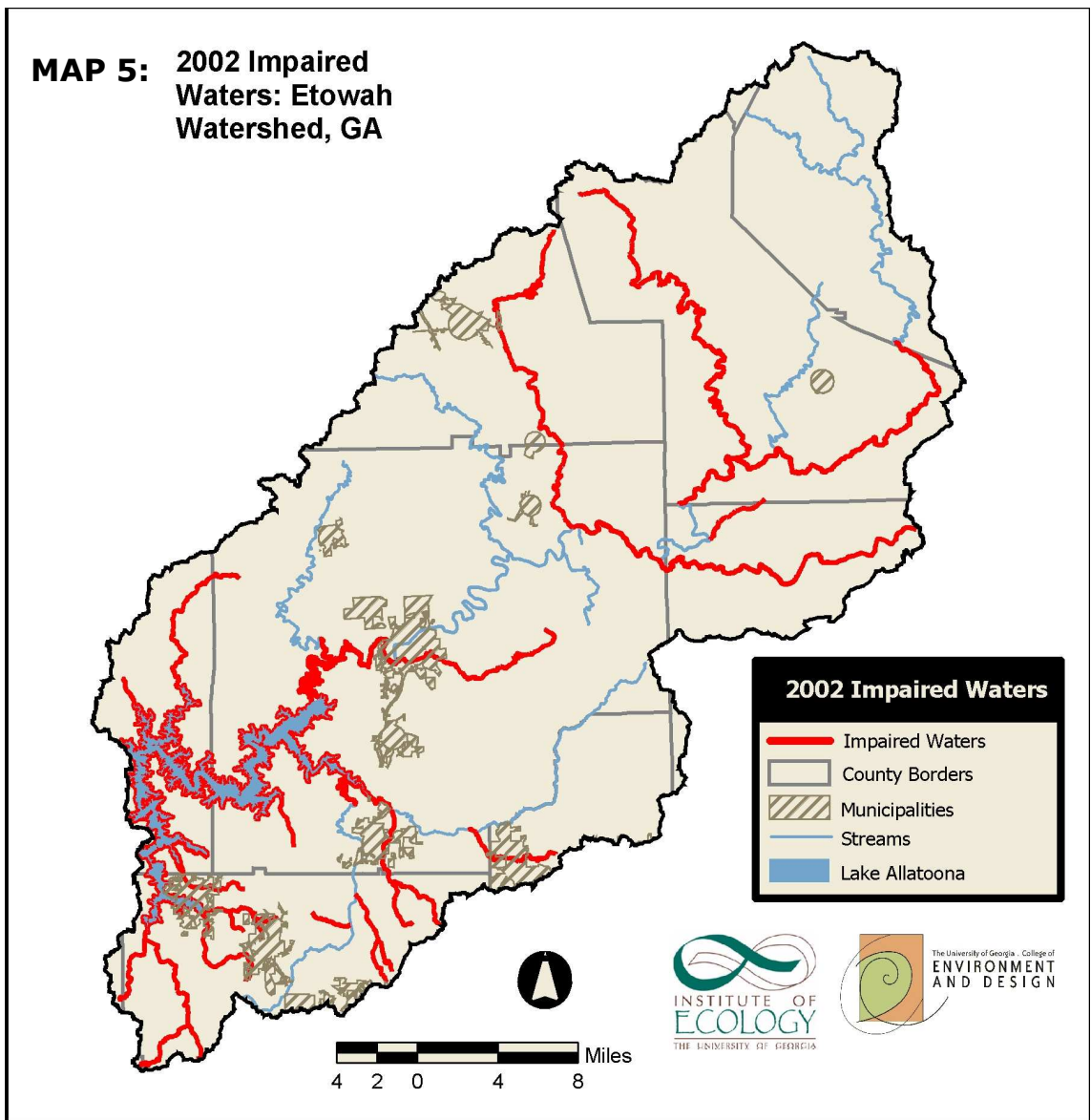
#### Clean Water Act

The Clean Water Act, specifically Section 303(d), requires states to list as “impaired” those bodies of water that do not meet or are only partially meeting their designated uses (such as drinking, recreation and fishing) because the bodies of water are out of compliance with chemical and/or biological standards. For each impaired water, the state is required to develop a Total Maximum Daily Load (TMDL). The TMDL represents the maximum pollutant load that a stream can accommodate and still meet its designated use. After determining the TMDL for an impaired water segment, the state must allocate pollution loads among point and non-point sources of pollution, and develop an implementation plan for managing the sources of pollutants in order to keep them within the required TMDL.

At least twenty water segments within the Upper Etowah Watershed, including Lake Allatoona, are impaired (Map 5). Obviously, given the fluid nature of water, action by one jurisdiction alone may not be enough to restore these waters, prompting the need for a regional control strategy. In many cases, the most effective TMDL implementation plan will incorporate a comprehensive approach that includes greenspace protection and restoration, stormwater management, and site design standards (See Appendix A).

It is recommended that 100ft greenspace buffers be placed on all impaired streams, and that use for these buffers be limited to the least impact use such as walking and birding. The buffer should include the 100-yr floodplain if possible and for every 1% in slope the greenspace width should be widened by 2ft beyond the 100ft buffer. Nutrient management for the greenspace buffers should also limit or prohibit use of fertilizers and pesticides. For developed areas with impervious surface over 10%, appendix A describes other options that may be necessary for stream protection.

The role of greenspace restoration and protection in a TMDL implementation plan is to buffer streams from upland development, provide infiltration to reduce stormwater runoff and capture pollutants, protect highly erodible soils, and maintain flow and quality in critical headwaters. Just as important, protecting greenspace permanently may prevent the degradation of non-impaired streams.



**Map 5: 2002 Impaired Waters**

### Endangered Species Act

Regional protection of greenspace can also help accomplish the goals of the federal Endangered Species Act. Three federally listed fish species inhabit the Upper Etowah River. The Amber and Etowah darters (*Percina antesella* and *Etheostoma etowahae*) are small, endangered fishes that inhabit shallow, riffled areas of the Etowah River and its tributaries (Figure 1). The Cherokee darter (*Etheostoma scotti*) is a threatened species that is found in much smaller streams within the Upper Etowah Watershed (Figure 1). Another two fish species are likely candidates for federal listing and seven species are protected under state law.



**Cherokee Darter**



**Amber Darter**



**Etowah Darter**

**Figure 1: Federally Imperiled Fish  
of the Etowah Watershed**

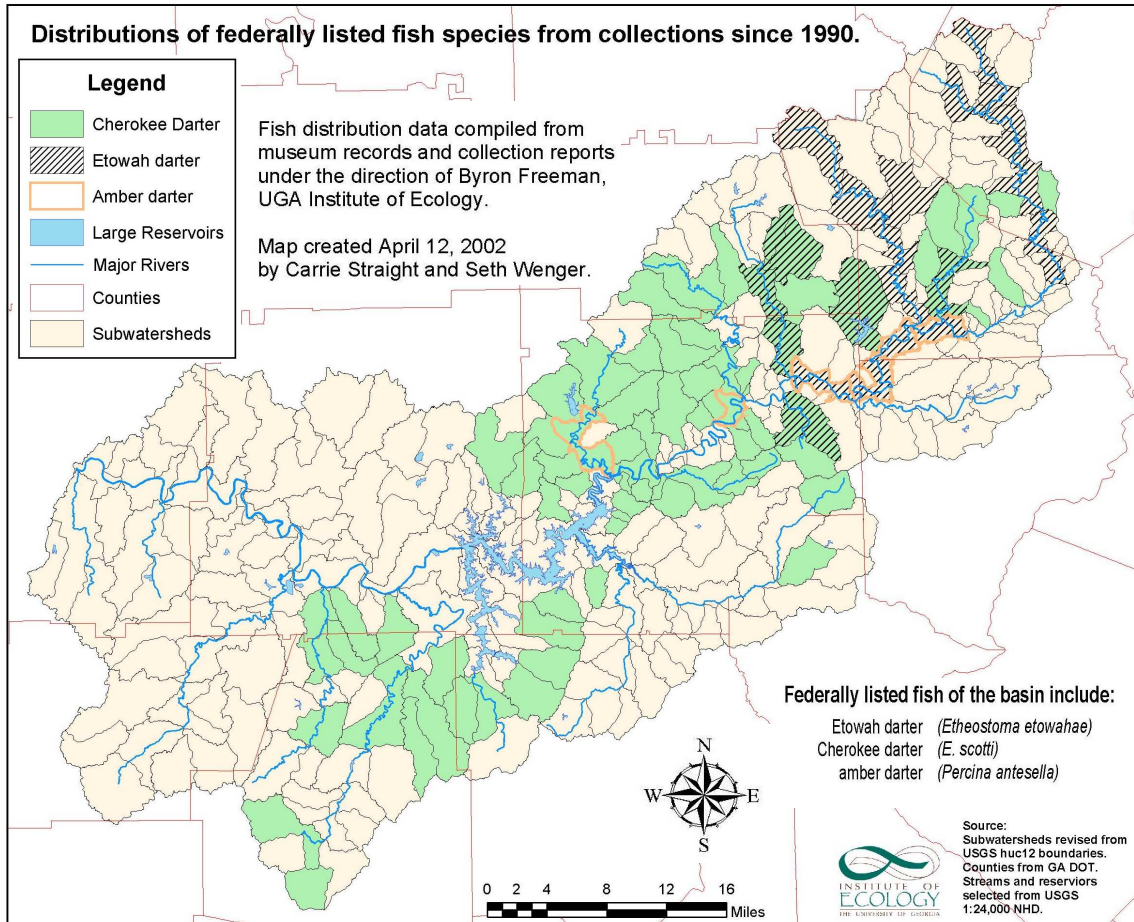
Sedimentation from land disturbing activities has been proven to injure these benthic fishes by ruining habitat for their prey (Quinn et al. 1992 *in* Burkhead et al. 1997), homogenizing their substrate habitat (Berkman and Rabeni, 1987 *in* Burkhead et al. 1997) and suffocating eggs and larvae by smothering these fragile organisms in a fine layer of silt (Chapman, 1988 *in* Burkhead et al. 1997).

The Endangered Species Act prohibits the taking (which includes harming, wounding, killing, collecting, or harassing, including degradation of the species' habitat) of an endangered or threatened species unless the taking is only incidental and a habitat conservation plan has been developed. For example, if a developer's intent is to build a golf course, and the construction of that golf course will incidentally degrade darter habitat, the U.S. Fish and Wildlife Service will allow the construction if the developer has obtained an incidental take permit. The incidental take permit obligates the applicant to assure that the effects of the taking will be minimized and mitigated by developing and implementing a Habitat Conservation Plan.

The Amber, Etowah and Cherokee Darters and other imperiled aquatic species are widespread throughout the watershed (Map 6) and their ranges cross jurisdictions, again prompting the need for regional cooperation and solutions.

The counties and municipalities in the Upper Etowah are currently developing a regional Habitat Conservation Plan to protect imperiled aquatic species. The permanent protection of greenspace, as described herein, is a critical element of that plan. Greenspace protection can be used as a tool for the Endangered Species Act in the Etowah by formally adopting a regional greenspace plan as part of the proposed Etowah Regional Habitat Conservation Plan.

The proposed watershed-wide Habitat Conservation Plan would require local governments to implement growth management controls and land preservation measures to ensure that populations of imperiled aquatic organisms remain healthy. Greenspace can be part of this by permanently protecting large areas of greenspace within critical subwatersheds and riparian buffers important for the survival of the imperiled species. Further greenspace analysis to determine priority areas for protection and an implementation plan will be developed through the Regional Habitat Conservation Plan Process.



**Map 6: Darter Distribution: Etowah Watershed, GA**

## Land Use

Land use in the Etowah was primarily agricultural until the 1930's when the boll weevil and the Great Depression caused 75% of agriculture land (primarily cotton) to be abandoned. These cotton fields were converted to silvicultural use. Current urban growth is encroaching on both of these historical land uses. . In 1974 land use in the Etowah was primarily forest with only 4% (48.6mi<sup>2</sup>) of land developed. By 1998 the extent of urban land cover tripled (by 100 mi<sup>2</sup>) (Figure 2 and Map 7). Spatial analysis shows that 11.5% (83 mi<sup>2</sup>) of the forest cover and 30.5% (42.8 mi<sup>2</sup>) of agricultural land has been lost in this watershed since 1974. This expanse of urban development has fragmented important wildlife habitat and degraded water quality in numerous streams and rivers, as well as Lake Allatoona itself.

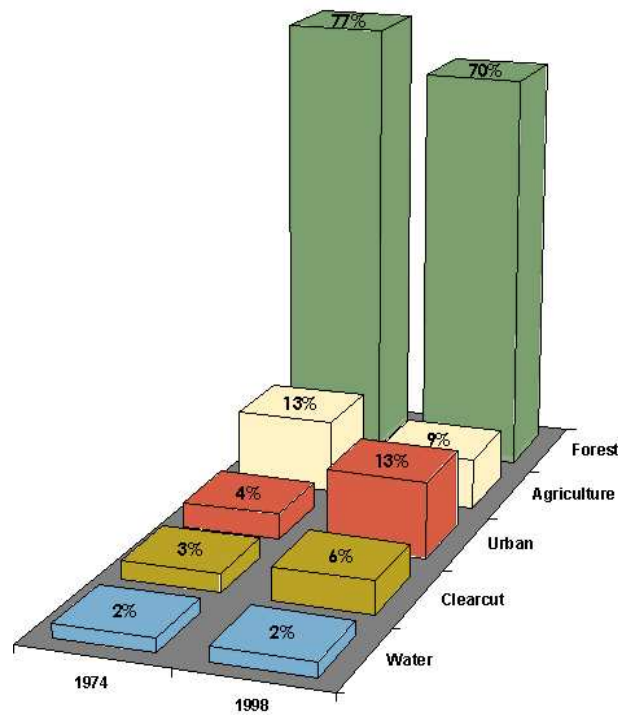
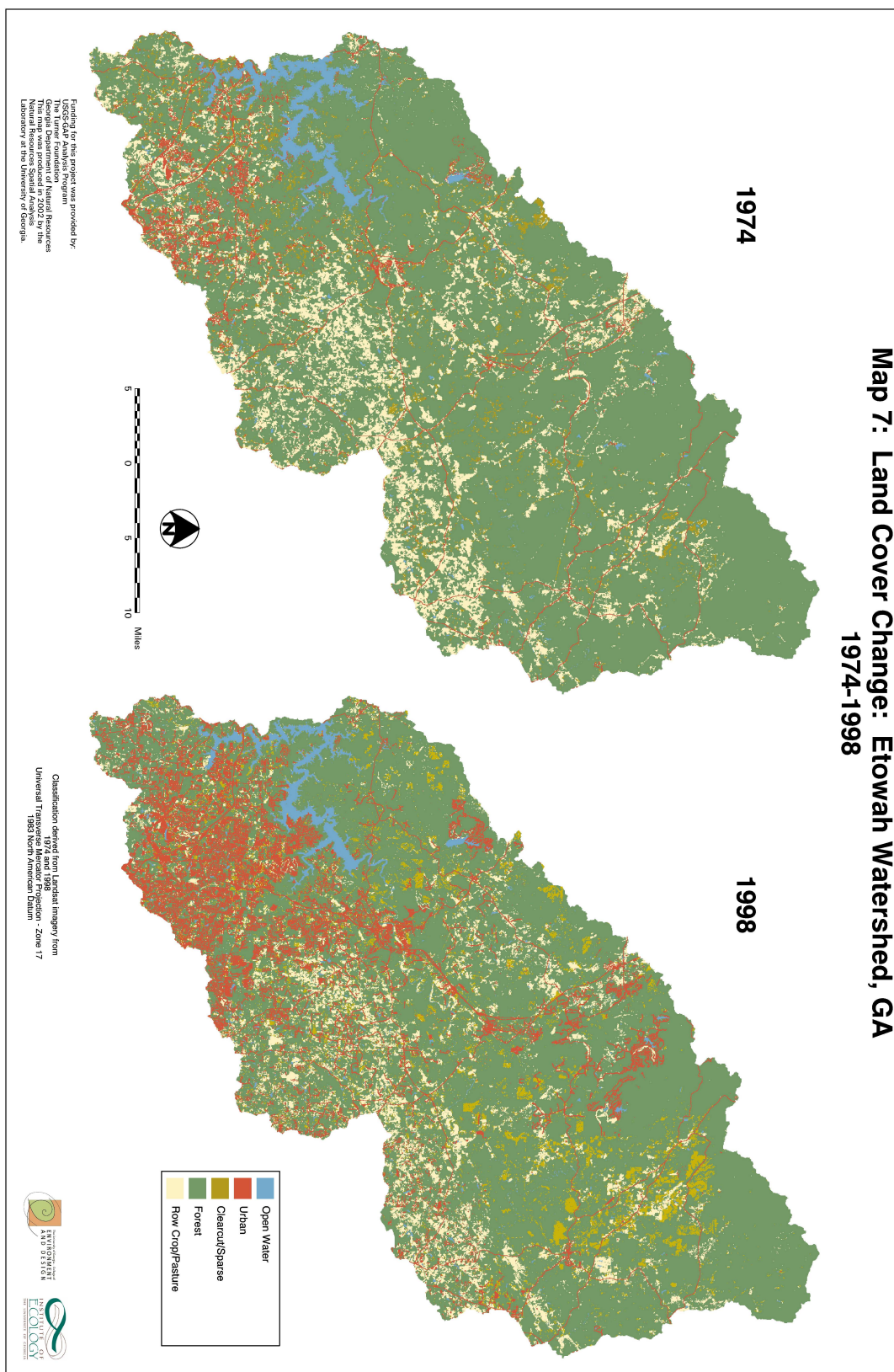


Figure 2: % Land Cover (1974,1998) in the Etowah Watershed, GA





**Map 7: Land Cover Change 1974-1998**  
Map Reduced From 11"x17"



## **REGIONAL GREENSPACE VISION**

### **The Planning Process**

The Upper Etowah Watershed Regional Greenspace process combined existing greenspace and comprehensive land-use plans with regional environmental concerns and ecological science to support multi-jurisdictional greenspace planning. During this process information was also collected through direct contact with local governments and organizations via phone conversations and local workshops (See Appendix B). Then main goals of this greenspace planning process were to:

- Help the Etowah counties to overcome two of their noted barriers: identifying greenspace priorities and legal strategies for protection within the regional context
- Improve communication and information sharing between local governments and organizations in the watershed
- Foster increased awareness of regional issues and land use trends, and
- Help local governments develop solutions to some of the environmental and quality of life threats associated with growth in the watershed.

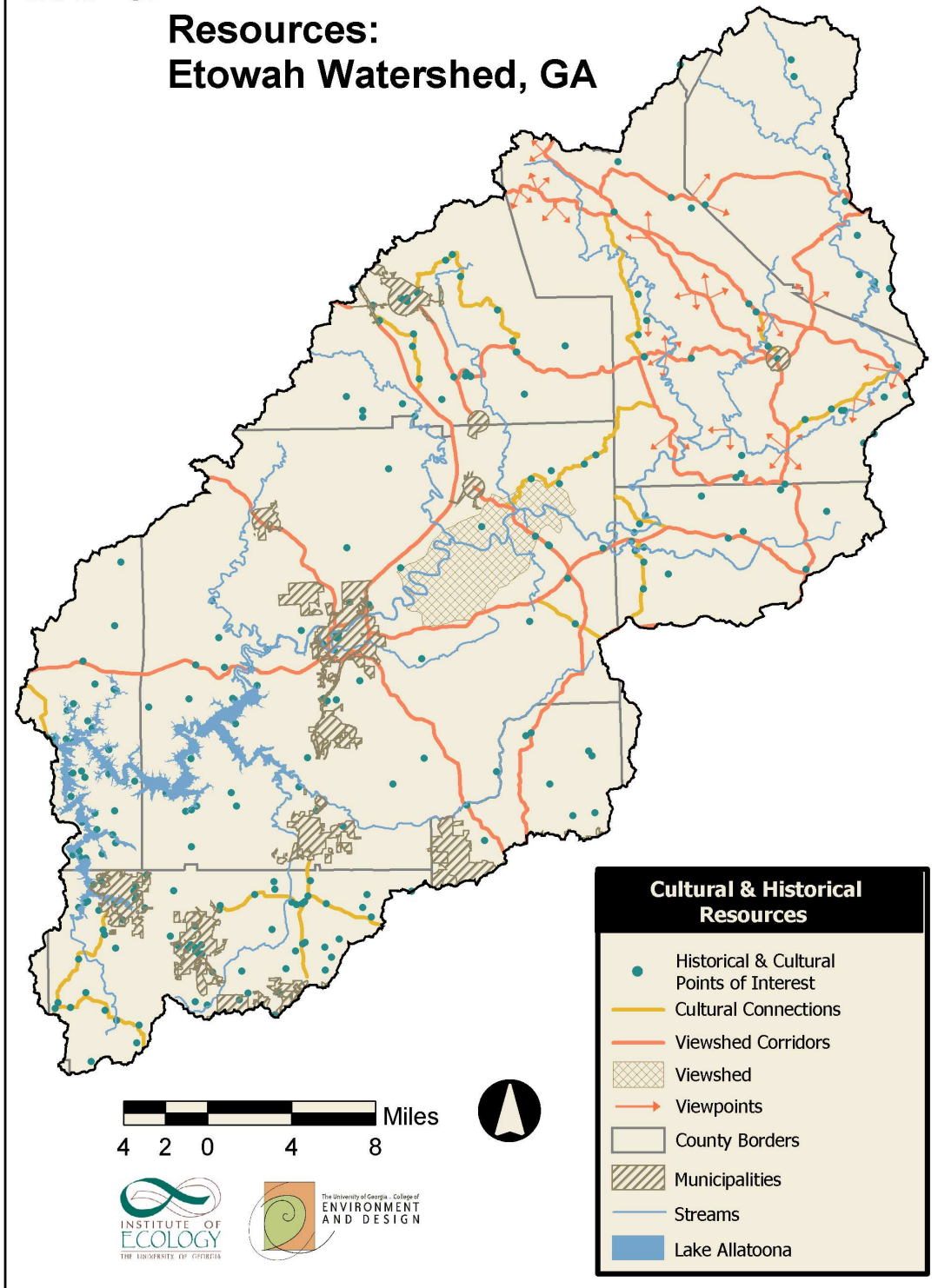
Seven (Bartow, Cobb, Cherokee, Fulton, Forsyth, Lumpkin, and Pickens) of the eight counties of the Upper Etowah Watershed have completed individual greenspace plans under the Georgia Greenspace Program. Although Dawson County was not eligible to participate in the Georgia Greenspace Program, the county provided documents that addressed greenspace issues within Dawson County. After analyzing the greenspace plans and other supporting documents, it was determined that the CEDAR methodology would be appropriate for forming the Upper Etowah Watershed Regional Greenspace Plan.

CEDAR methodology (developed by Swaner Design Co.) combines the information from cultural, ecological, developmental, agricultural, and recreational resources into one greenspace design. This methodology was appropriate for the use in the Etowah because each of these issues was addressed in all greenspace plans. The following sections will describe each CEDAR component in reference to the Etowah Region in more detail.

### **Cultural and Historical Resources**

Along with the landscapes and architecture that have resulted in the Upper Etowah Watershed's current mosaic landcover, historical and cultural points of interest (Map 8) such as bridges, cemeteries, churches, historic centers and parks also tell stories of a bygone era and their relationship with the present. Preserving these structures chronicles the history of this region for generations to come. The counties' Greenspace Plans and Comprehensive Land Use Plans, as well as Georgia's list of historic sites were consulted for the location of these points. Roads with little traffic and numerous historic sites located along them were highlighted as routes for historic driving tours or cultural connections (Map 8).

## MAP 8: Cultural & Historical Resources: Etowah Watershed, GA



**Map 8: Cultural and Historical Resources**  
Map Reduced From 11"x17"

Viewshed corridors (Map 8) were also noted as desired greenspace protection areas. These viewshed corridors have a rural character and rustic architecture or prominent viewsheds (Map 8) of rolling hills and stream valleys. Rural routes are not the only viewsheds noted for these corridors. Major thoroughfares into, through, and out of the watershed are also identified as viewshed corridors because residents of the watershed wish to be able to travel through the region even in business districts and still maintain the rural character of their counties. Such an expansion on the usual view of viewshed corridors provides a good basis for a regional scenic driving network. Scenic viewpoints (Map 8) were also listed as a greenspace priority. Dawson County identified scenic overlooks that are ideal for picnicking or breaking from a road trip in the country. Several of these viewpoints look into viewsheds that cross county lines, once again prompting the need for multi-jurisdictional cooperation to form a Regional Greenspace Plan.

## **Ecological Resources**

### Water Quality

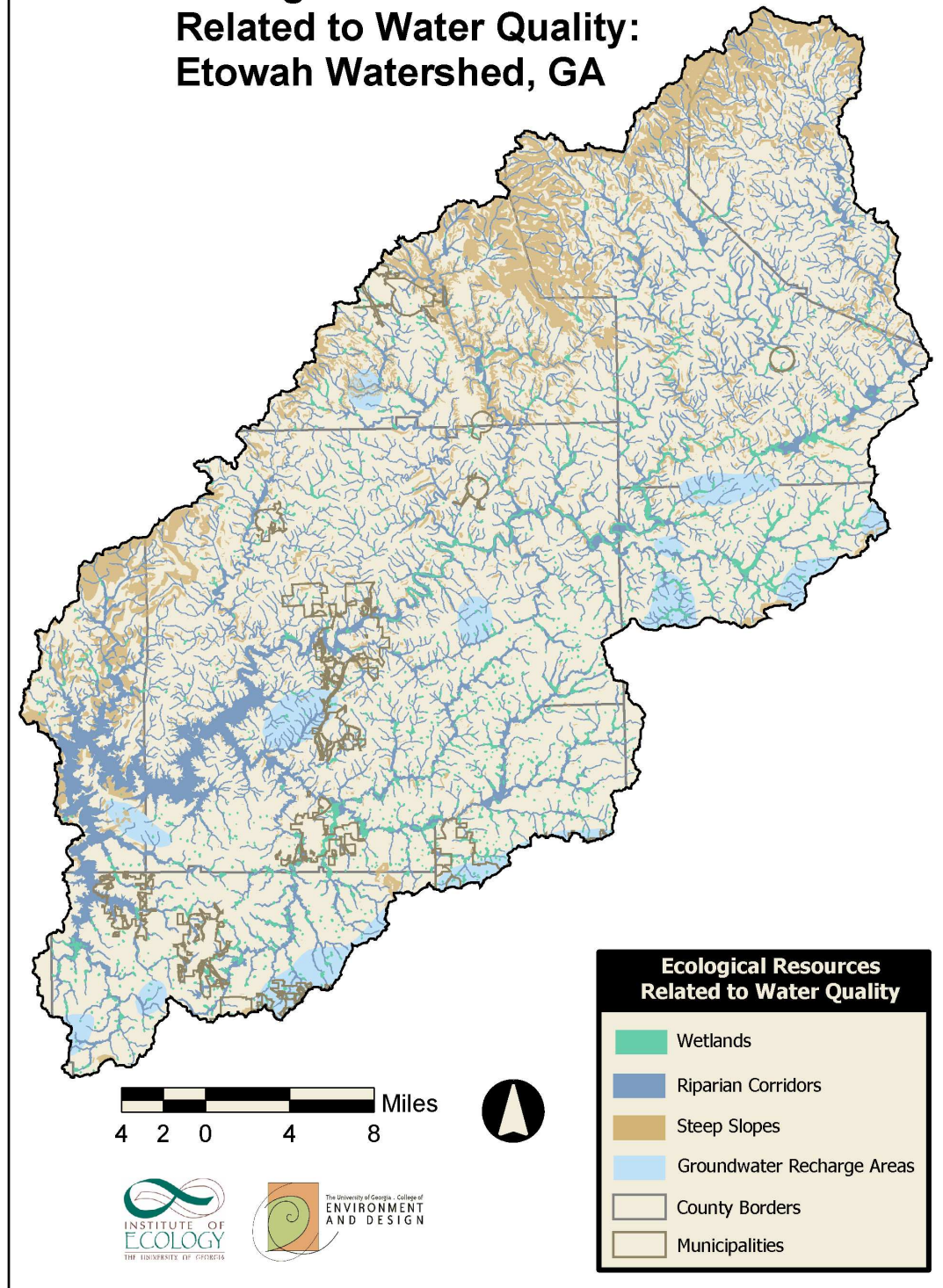
All eight counties placed water quality protection as one of the top concerns in their greenspace and/or comprehensive land use plans. Water quality and aquatic wildlife habitat concerns are critical given the number of federally imperiled fish species and impaired waters that are located in the Etowah Watershed.

Currently 482 miles of streams in the Upper Etowah Watershed are listed as impaired and three fish species are federally listed.

The Upper Etowah Watershed is comprised of over 2,500 miles of streams within a mosaic of land and water features such as forests, wetlands, mountains, agriculture fields and riparian corridors. Watersheds rely upon a network of ecological systems in order to operate properly. These systems must be protected to secure watershed health including water quality and aquatic species diversity and habitat. Ecological systems that sustain watershed health are very complex and difficult to measure. Therefore, land and water types that, in concert, capture the services and drive these ecological systems have been identified as protection priorities. These land and water types include floodplains, riparian corridors, wetlands, groundwater recharge areas and steep slopes (Map 9). Protecting these lands and waters throughout all counties in the region as permanent greenspace, will provide for the healthy ecological systems that the Upper Etowah River and Watershed depends upon.

Groundwater recharge areas (Map 9) allow precipitation to infiltrate the earth's surface into the cracks and spaces found in soil and rocks. These recharge areas are often much smaller than the total aquifer, but they are important in influencing stream flow and providing a local water supply for human populations. They can become polluted by landfills, septic tanks, leaking underground gas tanks, and from the overuse of fertilizers and pesticides. Also, increasing impervious surfaces through building and paving can adversely affect the recharge areas.

# **MAP 9: Ecological Resources Related to Water Quality: Etowah Watershed, GA**



**Map 9: Ecological Resources Related to Water Quality**  
Map Reduced From 11"x17"

Wetlands (Map 9) were identified through the U.S. Fish and Wildlife Service's National Wetlands Inventory. Wetlands are areas with permanently or temporarily saturated soils that influence the unique plant and animal communities living here. Water stored in or slowed by a wetland can more easily be absorbed as groundwater. Wetlands purify polluted water, and mitigate the destructive power of floods and storms. Wetland vegetation filters and retains sediments and toxins protecting the quality of downstream waters.

Floodplains (100-year) and riparian zones (Map 9) were identified either by FEMA or were generated as buffers in ArcView 3.2. A 100-foot buffer or the 100-year floodplain, whichever is larger, was considered as the riparian corridor area for water quality protection on all tributaries to the Etowah River. The 100-year floodplain or a 150-foot buffer was prioritized on the main stem of the Etowah River. The buffer width of 100ft reflects the average buffer protection measure suggested by the 8 counties in the watershed and scientific literature recommendations to protect a minimum of 100-foot streamside buffers to maintain healthy aquatic habitat.

Floodplains are fluctuating water level ecosystems on the low-lying land along streams that absorb high waters during a flooding event. They are ecotones, transitional areas between land and water that support a higher diversity of plants and animals. Flooding provides ecological benefits to both land and water communities. Floodwaters provide rich, highly productive alluvial soil to the surrounding land. Floodplains enrich water bodies with high nutrient organic matter, providing the foundation for a healthy aquatic food web.

Riparian corridors are linear zones along streams and rivers consisting of a vegetation community that differs from upland habitat. They influence stream temperature and light quantity as well as preserve water quality through the filtering of sediments from runoff, protecting stream banks from erosion, providing migration routes for wildlife, and preserving open space and aesthetic buffers for humans.

Steep slopes (>15% grade) (Map 9) were located by the counties in their Greenspace Plans or by a Digital Elevation Model from the U.S. Geological Survey. The steepness of slopes has an impact on the water quality of a watershed. When vegetation is removed from steep slopes, the soil surface is exposed to erosion. Slopes exceeding 15% grade contain highly mobile soils that can choke stream channels and ruin habitat. Protecting the integrity of steep slopes prevents this erosion and sedimentation from entering nearby streams.

Natural resources pay no attention to jurisdictional boundaries, thus targeted protection of these important ecological areas (floodplains, riparian corridors, wetlands, groundwater recharge areas & steep slopes) throughout the entire region will help to maximize their benefits and increase the quality of life of citizens in the watershed.

### Wildlife Habitat

Forest cover of pine, deciduous or mixed pine/deciduous forests characterizes the Upper Etowah Watershed. These forests provide habitat for wildlife such as resident and Neotropical migratory birds, large predators like bear and coyote, and native vegetation including rich herbaceous communities. The southern section of the watershed is much less forested. Although urban forests may not provide habitat for animals with large ranges, wildlife such as resident birds, small mammals, reptiles and amphibians are commonly found here.

The counties of the Upper Etowah Watershed are concerned with the rapid loss of forest cover that is occurring in the region. The majority of the land under forest cover is in private ownership and the rapid growth in development is coming primarily at the expense of forest conversion to residential and business areas. Spatial analysis shows that the extent of urban land cover has tripled (100 mi<sup>2</sup>) and 11.5% (83 mi<sup>2</sup>) of the forest cover has been lost in this watershed between 1974 and 1998.

The Upper Etowah Watershed is still almost 70% forested. However, the forest cover is not evenly distributed over the watershed. Growth from metro-Atlanta marching north into the watershed has fragmented forests and decreased forest patch sizes. Modern development not only occurs in a scattered pattern, consuming undeveloped land, but it also fragments the landscape. Numerous scientific studies have demonstrated the negative effects of forest fragmentation on habitat quality. As this pattern of fragmentation occurs forest begin to lose their functions as maintainers of biodiversity, providers of forest products, protectors of water quality, wildlife habitat, and sustainers of quality of life. In order to promote greenspace protection of large contiguous forest patches, forest cover zones were established (Map 10).

In the watershed, natural communities are represented by deciduous and mixed forest cover types, and were the focus of the forest selection process. Based on forest cover patch sizes, and the extent of development in the watershed, two separate forest zones were identified: Forest Zone A and Forest Zone B.

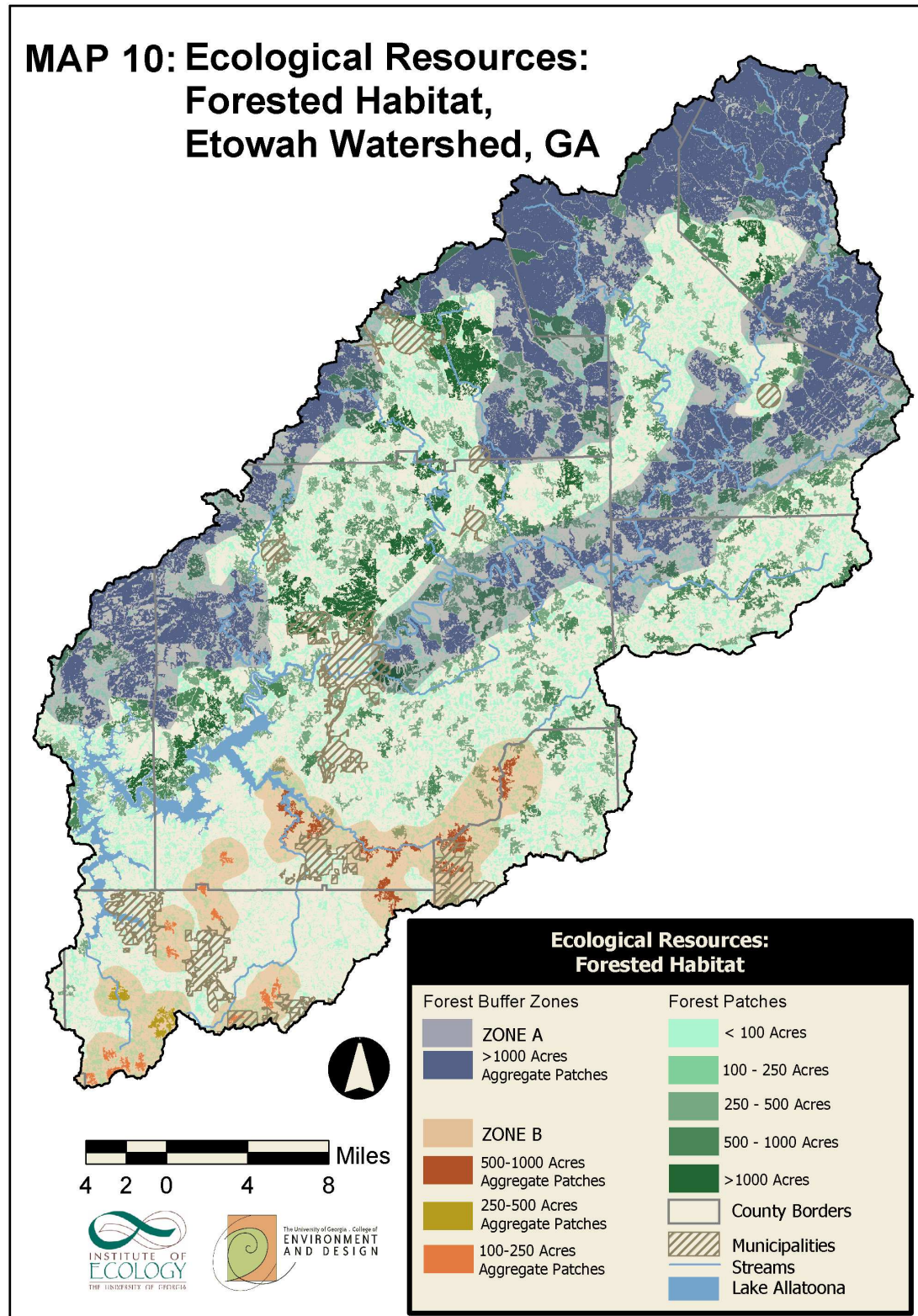
For the northern part of the watershed (Zone A), all forest patches greater than 1000 acres were selected and then buffered by 1km. All patches 500 acres or greater which fell within the 1 kilometer buffer were added to the forest zone to create our aggregate forest patches (labeled ">1000 Aggregate Patches" in the legend).

The same process was used for the southern part of the watershed (Zone B). However, due to a greater amount of development and smaller sizes of contiguous forest cover in the southern part of the watershed, smaller patch sizes were used ("500-1000 aggregate patches", "250-1000 aggregate patches", and "100-250 aggregate patches").

Both forest cover zones were adjusted when necessary to take into account development plans from each county's Greenspace and Comprehensive land use plans.



# **MAP 10: Ecological Resources: Forested Habitat, Etowah Watershed, GA**



**Map10: Ecological Resources: Forested Habitat**  
Map Reduced From 11"x17"

### **Developmental Resources**

Research has demonstrated that people are more willing to utilize greenspace when it is within a ¼ of their home. Thus, it would make sense to locate greenspace near and within urban centers. All of the counties mentioned the use of conservation subdivisions, and other developmental ordinances that promote greenspace in developed areas. While, a Regional Greenspace Plan does not provide the necessary on site detail to determine such items as small specific urban parks, the Upper Etowah Watershed Regional Greenspace Plan can set up a network of Greenspace that is close to the urban centers (Map 11).

The land available for a Urban Greenspace Network was achieved by querying for all of the undeveloped land patches and existing and planned parks located within the urban center or within ¼ mi of the municipal boundary. Existing utility corridors were also located using 1998 landcover data as several of these corridors provide an excellent opportunity to link urban centers and greenspaces between counties (Map 11).

### **Agricultural Resources**

Agriculture provides valuable contributions to the regional economy. While utilizing the land in a commercially viable way, agriculture also complements the Regional Greenspace Plan by providing linkages between larger natural areas and the more developed urban areas. Currently agriculture fields, row crops and livestock make up about 9% of the landcover in the Upper Etowah Watershed. Keeping land in agricultural production not only helps to meet greenspace and economic goals but also cultural, environmental (especially if best management practices are utilized) and aesthetic goals of the counties.

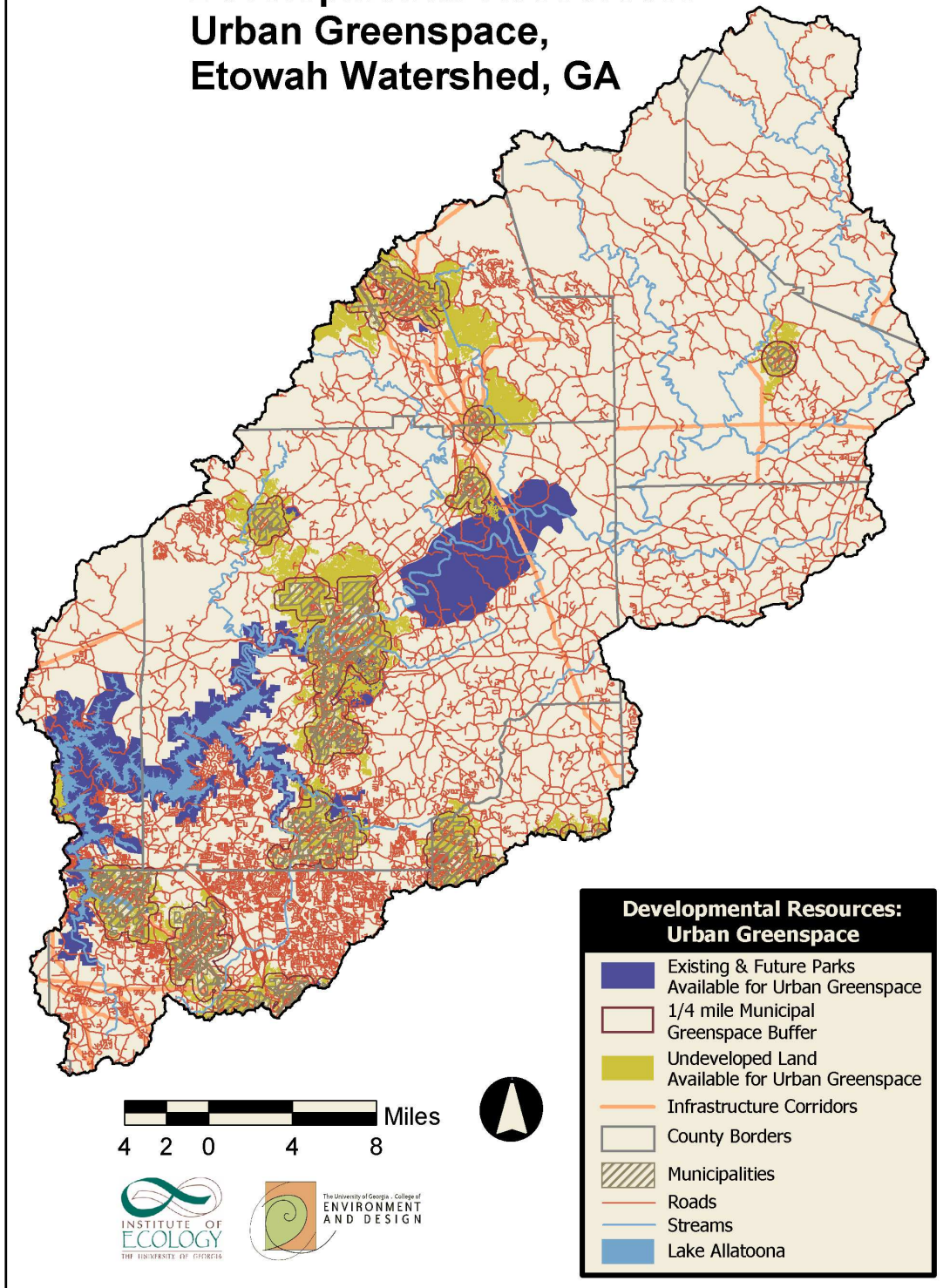
The county's experience has determined that agriculture land is best suited in large patches away from the more developed areas. In order to provide the most economically viable and contiguous farming areas, agricultural zones were identified (Map 12). These zones will help reduce the nuisance consequences of sighting residential and agricultural land uses close together and help to decrease fragmentation of the open pasture and fields associated with farming which many birds and small mammals rely on.

The following process was used to determine the agricultural zones. All agriculture land cover patches greater than 100 acres were selected and then buffered by 1mi. All patches sized 50-100 acres that fell within this 1mi buffer were also selected and buffered 1km. Within these two buffers, all agricultural patches greater than 50 acres were aggregated (labeled ">100 Aggregate Patches" in legend) and buffered with a 1-mi edge to create the regional agricultural zone.

The agricultural zones were adjusted when necessary to take into account development plans from each county's Greenspace and Comprehensive land use plans. Agricultural lands found in dense steep slope areas were also removed from the zone since the areas should be protected in an unmodified landscape such as forest cover.

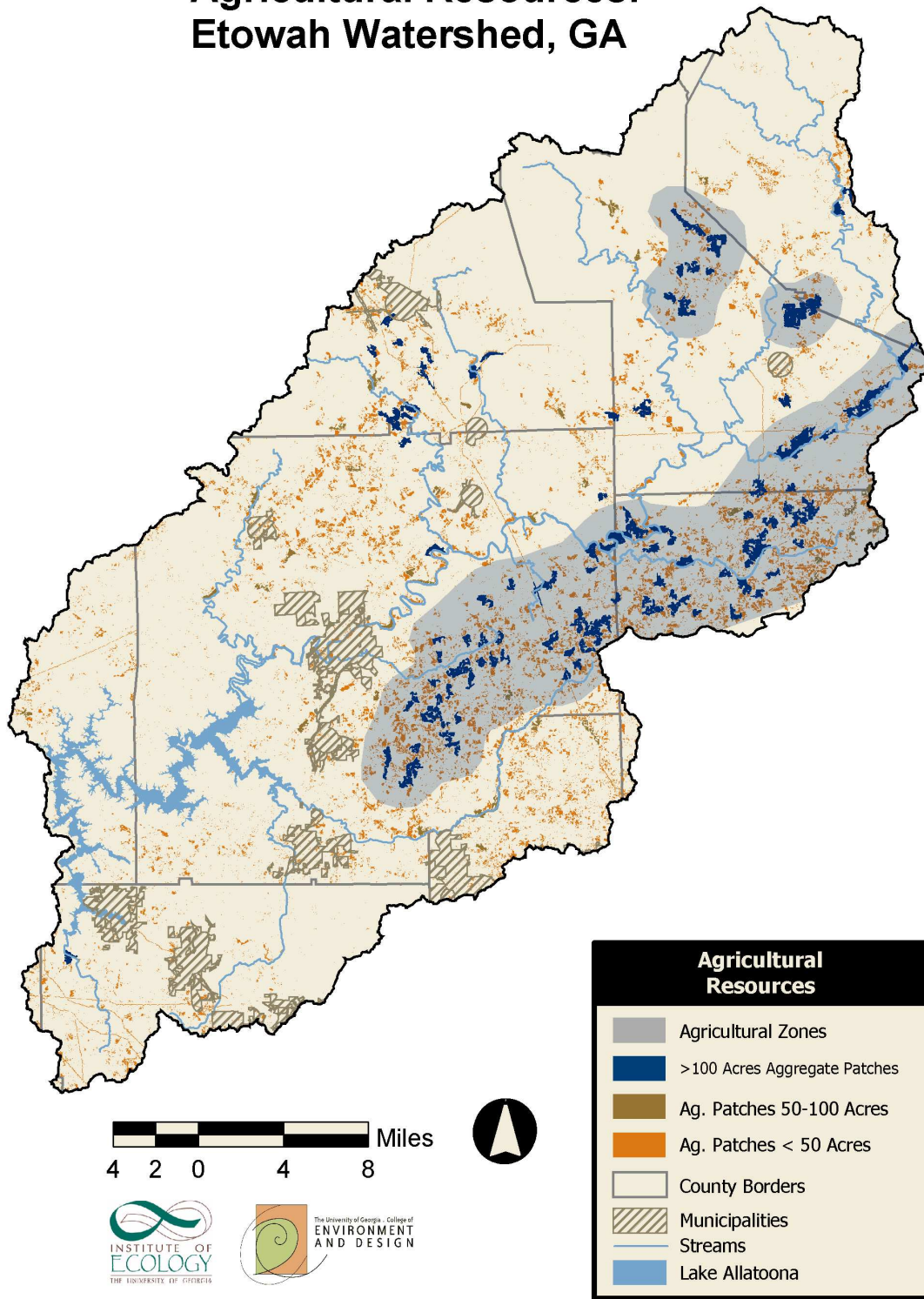


# **MAP 11: Developmental Resources: Urban Greenspace, Etowah Watershed, GA**



**Map 11: Developmental Resources: Urban Greenspace**  
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## MAP 12: Agricultural Resources: Etowah Watershed, GA



**Map 12: Agricultural Resources**  
Map Reduced From 11"x17"

## **Recreational**

The Upper Etowah Watershed's permanently protected area is composed primarily of three main passive recreational areas: the Corp of Engineer owned land surrounding Lake Allatoona; Dawson County Forest WMA; and the Chattahoochee National Forest Land in Lumpkin County. Counties within this watershed have recognized the need to expand these areas and provide more passive recreation opportunities (Map 13). The potential greenspace parks noted on the Regional Greenspace plan are a good starting place for identifying individual county needs. As counties analyze and assess their park needs and potential locations that information can be added to the Regional Greenspace Plan. The District parks are areas that the counties have identified as a priority focus for their recreational greenspace protection efforts.

The way in which the Upper Etowah Watershed Regional Greenspace Plan can be most effective in helping counties' meet their recreational greenspace goals is through trail corridors between the individual county parks. Existing trail systems are not adjacent and do not connect to each other. The Regional Greenspace plan provides a trail network design that links recreational areas along rivers and roads (Map 13).

Three regional trails are recommended as the primary focus for the Upper Etowah Watershed Regional Greenspace Plan. The Lake Allatoona Trail that Cherokee County is planning will be continued along the lake into neighboring Bartow and Cobb Counties. The Etowah River Canoe Trail in Lumpkin County will be continued along the river through, Forsyth and Cherokee County till it ends at Lake Allatoona. An Upper Etowah North-West Ridge Trail will unite the Etowah River Trail in Lumpkin County and the Lake Allatoona Trail in Bartow County to close the loop and provide a regional network of trails. These passive recreation trails will unite the urban areas and existing parks to provide non-automotive transportation options and greenspaces reachable by everyone.

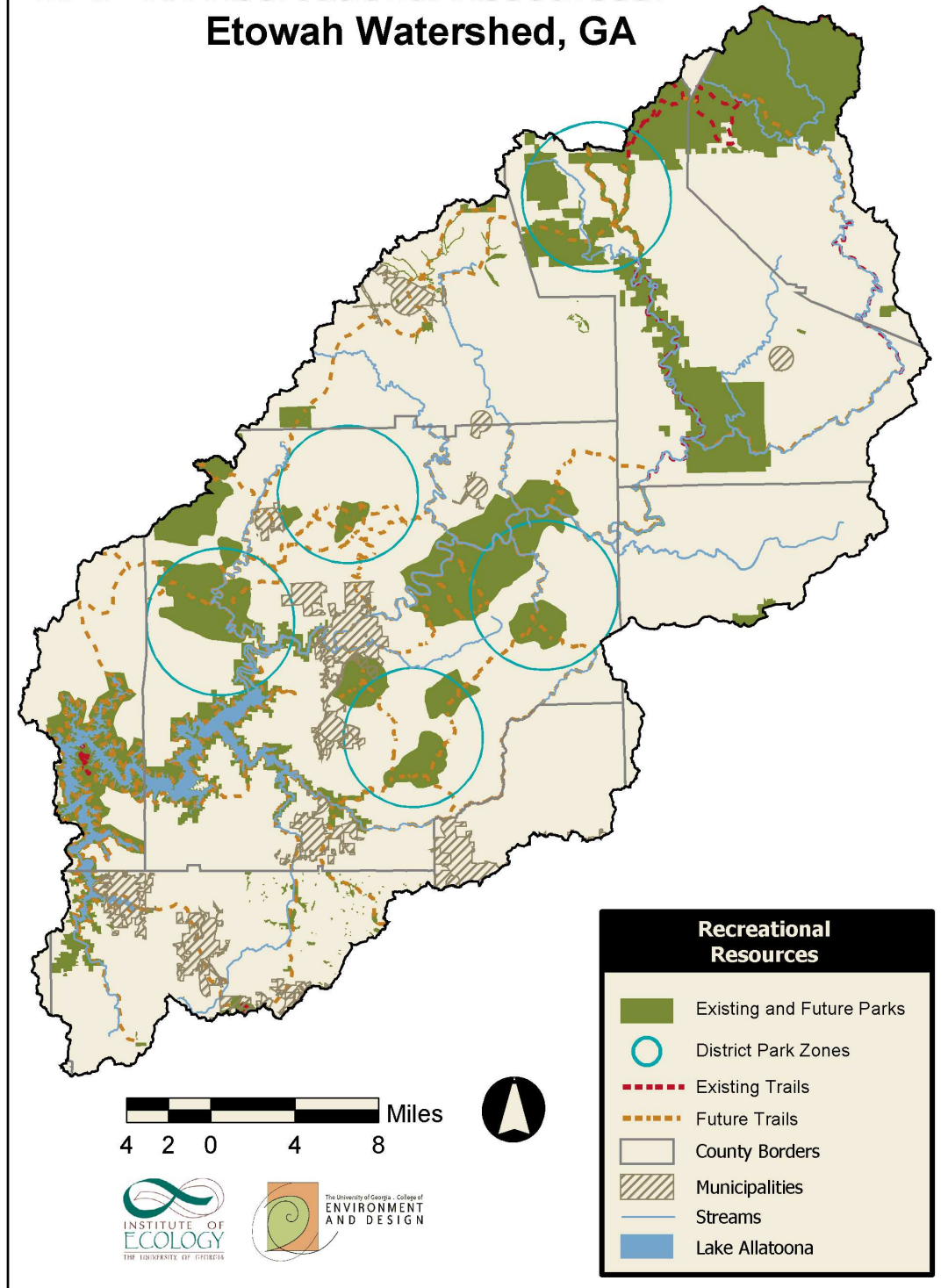
At the Upper Etowah Greenspace Workshop counties also expressed an interest in forming an Etowah River Canoe trail as a way to focus on protecting water quality, wildlife habitat, and promoting recreational needs in the Etowah Watershed. A report on developing a water trail for the Upper Etowah Watershed Regional Greenspace Plan was prepared in response to this interest and can be found in Appendix C.

## **Upper Etowah Watershed Regional Greenspace Vision**

Based on the CEDAR methodology, the Final Greenspace Map (Map 14) combines the information from cultural, ecological, developmental, agricultural, and recreational into one Upper Etowah Watershed Regional Greenspace Design. The priority designations were determined by analyzing the Upper Etowah Watershed Regional Greenspace Design in context with significant priority concerns of the individual counties and their existing greenspace and comprehensive land use plans.

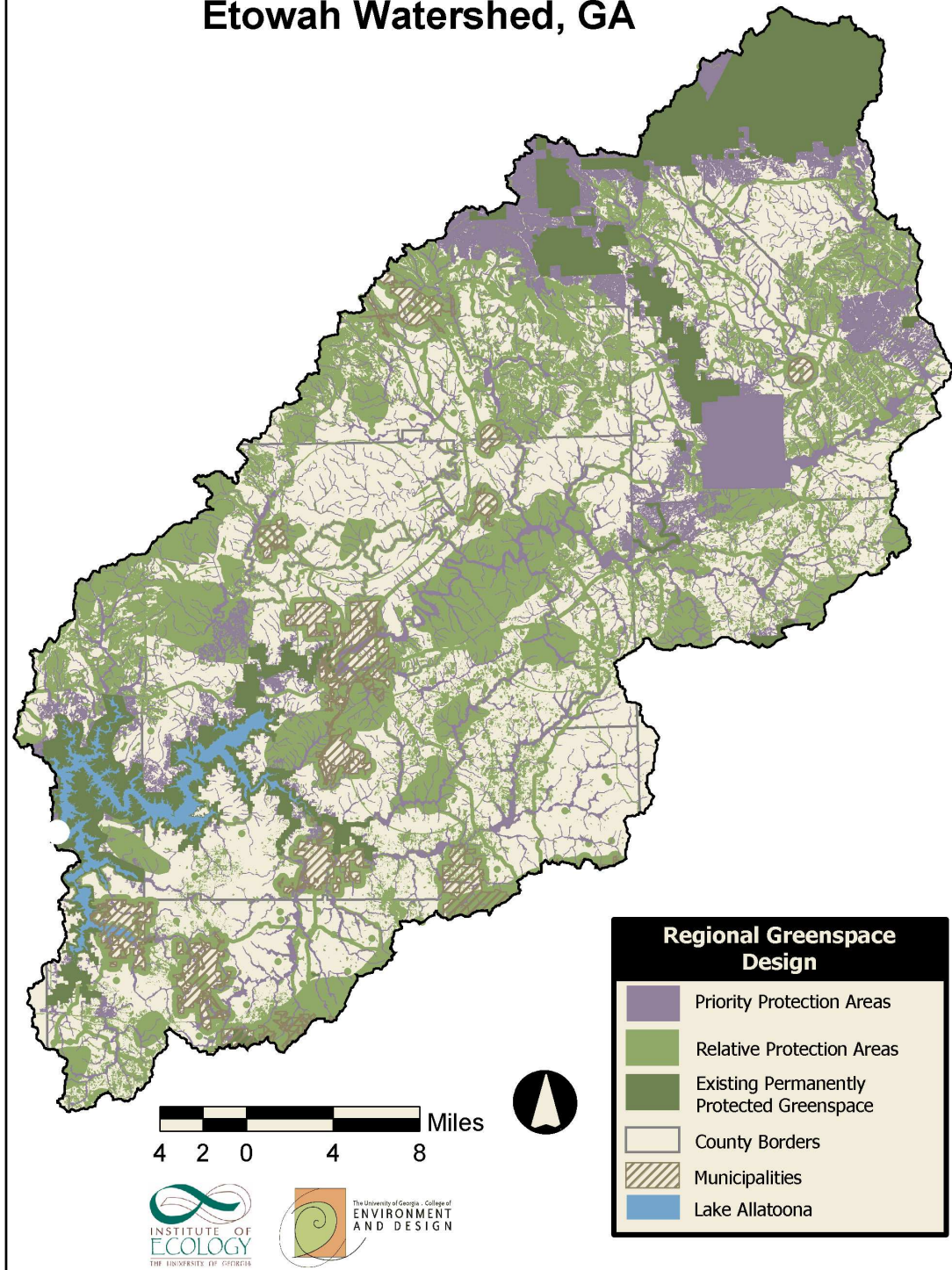


## MAP 13: Recreational Resources: Etowah Watershed, GA



**Map 13: Recreational Resources**  
Map Reduced From 11"x17"

## MAP 14: Regional Greenspace Design: Etowah Watershed, GA



Map 14: Regional Greenspace Design  
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The Upper Etowah Watershed Regional Greenspace Plan utilizes corridors as one of the main ways to reach beyond the individual county plans. In the Upper Etowah Watershed Regional Greenspace Plan, regional corridors range from small trail systems like the Etowah Ridge-River-Lake Trails, to road buffer corridors like cultural connectors and viewsheds corridors all the way to large corridors of land cover zones like the forest and agricultural zones.

The priority protection areas comprise 25% (acres) of the Upper Etowah Watershed, while the other greenspace areas make up 40% (acres). Individual Counties' primary greenspace protection areas vary depending on their specific needs and desires. However, all eight counties consider water quality as a top concern and greenspace protection as an avenue for achieving a healthy aquatic system. Research has shown that protecting the riparian zone as greenspace can buffer the streams from the effects of nonpoint pollution associated with urbanization while providing habitat for wildlife, and offering aesthetic and recreational benefits to people. Therefore, the riparian zone identified in the Upper Etowah Watershed Regional Greenspace Plan is considered a priority greenspace protection area.

The existing permanently protected areas are very important multi-use areas to the counties of the Upper Etowah Watershed. These greenspace areas are large patches of land available for wildlife habitat and they provide large forested areas that help to protect the quality of the Etowah headwaters, streams, and Lake Allatoona. They are aesthetically pleasing, and they provide the majority of the passive recreational opportunities available for local citizens. Increased fragmentation due to urban sprawl threatens the quality of these permanently protected greenspace areas. In order to combat this threat, the non-protected forest cover patches that intersected with the permanently protected areas were selected as priority greenspace protection areas.

The last priority greenspace protection area is a 10,000 acre forested tract of land owned by the City of Atlanta and located in Dawson County. The land is referred to as the Dawson County Forest Wildlife Management Area and is currently being managed by the Georgia Forestry Commission. The Georgia Forestry Commission has been managing this piece of land as a conservation use area since 1975. For over 25 years, Dawson County and the local citizens have become accustomed to Dawson County Forest Wildlife Management Area as a wilderness area and its current management as a conservation use area provides a false sense of permanent protection. In reality, any time the City of Atlanta wishes to change the management status of Dawson forest or sell it, all they are required to do is give Georgia Forestry Commission a 60 day cancellation notice. Even though Dawson Forest is not permanently protected, it is important because it has been managed in a conservation use for so long that it has become a cultural landmark and recreational park for the local citizens. It is also ecologically significant not only for its size but because it's square shape instead of a mosaic of contiguous shapes provides excellent interior forest habitat. Therefore, the Dawson County Forest Wildlife Management area has been selected as a priority greenspace protection area.

The priority protection areas, which are the primary significant protection concerns identified by the counties, already exceed the required 20% protection goal found in the Georgia Greenspace Program. Therefore the remaining areas, though desirable for permanent protection, are considered relative protection areas so that each county can tailor the Regional Greenspace Plan to their individual county greenspace plans.

The Upper Etowah Watershed Regional Greenspace Design is not mean to be a deterrent to growth. Instead it recognizes that managed growth, which develops a green infrastructure along with the gray infrastructure, will provide the best overall protection for the health of the Upper Etowah Watershed. All development should be managed so as to minimize the impact on natural resources and to protect areas of open space whenever possible by utilizing tools like conservation subdivisions and alternative building designs such as pervious surface.

## REGIONAL GREENSPACE PROTECTION TOOLS

A firm understanding of the tools available in the formation of a regional greenspace plan is essential to realizing the maximum benefits from that plan. Since most land use planning in Georgia has traditionally taken place on a county-by-county basis, the first step was to understand individual county approaches to protecting greenspace. Available greenspace plans, comprehensive land use plans, and local zoning ordinances were analyzed on a county by county basis to understand each counties tools, barriers and strategies for overcoming the barriers to greenspace protection in each county (Appendix D).

The next step was to adapt and expand the individual county tools to a regional extent. The following sections set out the basic legal tools used in protecting greenspace and adapt the tools to the Etowah Watershed including the regional barriers and strategies for overcoming these barriers. Some tools, even in their individual county forms, are new to Georgia. When appropriate, the use of these tools to protect resources in other areas of the country are presented in order to gain an understanding of how they can be modified or adapted to operate on a watershed scale. A summary of the regional greenspace protection tools, their barriers and regional strategies to overcome these barriers can be found in Appendix E.

### **Fee Simple Acquisition**

Fee simple acquisition results in the direct ownership of real property; it is the most complete form of land ownership. Fee simple purchase will provide the County title to the property. Within reasonable limits, the County can use the property in any manner consistent with its goals for permanent open space protection including providing for public access.

Fee simple acquisition can be very expensive. Nevertheless, it is probably the best choice for properties to be used for parks, trails, or other uses where public access is necessary. For many types of land, such as riparian corridors protected mainly for water quality purposes, public access is unnecessary or even undesirable. In these cases, it may make sense to acquire only limited development rights or to use other forms of land protection that do not require the expense of outright purchase in fee simple.

### Regional Barrier:

- There is not enough money available to purchase all greenspace outright.

### Regional Strategy:

- Work together regionally to (a) maximize funding sources that are already available to individual counties and (b) recruit new funding sources that prefer or require a regional focus such as EPA's 2003 Watershed Initiative and the U.S. Fish and Wildlife Service's Habitat Conservation Plan Land Acquisition Grants



### **Stream Buffer and Floodplain Protection**

Stream buffers, also known as riparian buffers and protected stream corridors, are areas along streams, rivers and lakes that are preserved in natural vegetation. For larger streams and rivers, the buffer can essentially be the floodplain; for smaller tributaries that lack an active floodplain, the buffer is simply the adjacent land. When protected, this maintains healthy aquatic ecosystems, and yields innumerable environmental, economic, and social benefits. Buffers help stabilize banks, provide habitat for terrestrial and aquatic species, and are useful in trapping sediment from runoff and storm water, preventing siltation of streams. Most importantly, buffers protect water quality while improving property values- a buffered stream is an aesthetically pleasant stream. Preserving buffers is a cost-effective way to protect water quality because of the pollutant filtering functions of streamside land. Also, the property is often poorly suited to development and, therefore, inexpensive.

Riparian buffers can be protected by regulation or by acquisition. The Erosion and Sedimentation Act protects all Georgia streams (with a defined channel) with a minimum buffer of 25 feet, and many counties prohibit the development of the floodplain. Yet, research on the subject shows that buffers need to be at least 100 feet in width, composed of native forests or grasses, and applied to all streams, even very small ones, to be effective. Though any buffer less than 50 feet in width would not be as effective, the width can be manipulated in response to local conditions, such as slope, flood plains, etc.

Local governments can create comprehensive, effective riparian buffer ordinances that, when properly administered, will not generate takings claims (see Appendix F). A good local buffer ordinance must comply with state requirements (found in the Georgia Planning Act, O.C.G.A. § 12-5-570, and the Mountain and River Corridor Protection Act, O.C.G.A. §12-2-8) and compile these requirements into a single set of local regulations for ease of use. Also, it will provide for flexibility and variance procedures. The slight reduction of the width of a buffer to accommodate a homeowner that does not significantly effect the buffer's performance is possible. In extreme cases, a buffer width may need to be reduced significantly to avoid a taking. Variance criteria should be stringent but fair.

A good riparian buffer ordinance should have exceptions for existing uses as well as some activities- agriculture, forestry, etc.-if these uses don't pose a risk to water quality. Exceptions for existing uses end when the usage is changed- e.g. agricultural to residential. Finally, ordinances should include guidelines for buffer crossings and buffer restoration, which are sometimes necessary. In areas with zoning ordinances in place, an ordinance that creates a buffer overlay district is very effective, but a stand-alone ordinance is a useful alternative. Buffer protection is easily incorporated into a flood plain or erosion and sedimentation control ordinance. However a buffer ordinance is implemented, good communication with property owners is key. This reduces the likelihood of opposition based on irrational fears and misunderstandings regarding the law.

It is important to note that the regulatory approach is only good for protecting buffers on developing lands, not lands that have already been developed. In addition, lands protected through regulation alone cannot be counted toward the 20 percent goal of the Georgia Greenspace Program. For both these reasons, it is recommended that counties pursue a buffer/floodplain acquisition program. The most economical approach of all may be to purchase just the development rights to these properties. This protects the land from development and degradation but maintains it in private ownership. Many landowners would be willing to agree not to alter streamside land in exchange for a cash payment—the property owner literally gets paid to do nothing while the County protects land at low cost. On the other hand, it is not possible to have public access to such land unless the landowner agrees to this as well (which is a much more difficult proposition, as discussed elsewhere). Therefore, for lands to be used as greenway trails it is preferable to purchase the land outright.

Riparian and floodplain buffers are essential tools for environmental protection, and they are important factors in the long-term economic health of a watershed.

#### Regional Barrier:

- There is not consistency between counties on buffer extent and width; some streams are not adequately protected
- While development in floodways is prohibited, most counties allow development in the floodplain

#### Regional Strategy:

- Develop a consensus on a common minimum buffer protection width and extent and adopt into law in each jurisdiction
- Develop a model ordinance prohibiting development within the 100yr floodplain and adopt into law in each jurisdiction

### **Restrictive Covenants and Conservation Easements**

Restrictive covenants are promises by a landowner not to make certain uses of his or her property. For example, the landowner could covenant not to engage in land disturbing activities within the area of a designated stream buffer. This covenant can technically be permanent and legally binding in perpetuity, even against future owners of the land. The promise that gives rise to the covenant can be the product of bargained-for exchange and purchase or can be donated by the landowner. The promise not to make the proscribed use may be held for the benefit of either another piece of property or for the benefit of a person or organization. The owner of the beneficial property, or the person or organization benefited can take legal action to ensure that the covenant is enforced.

Under Georgia law, O.C.G.A. Section 44-4-60, a restrictive covenant can protect greenspace from development in perpetuity if it is written in favor of, or for the benefit of, any federal, state or local unit of government or any corporation, trust or other organization *holding land for use of the public*. There has been no case law in Georgia interpreting the phrase “holding land for use of the public” so this concept remains somewhat ambiguous. Clearly, a restrictive covenant that prohibits development and

specifies that the general public may access the space for hiking and biking purposes would qualify. It is less clear whether a covenant that prohibits development in order to protect water quality or wildlife habitat—and does not specifically provide for public access—would be considered “for use of the public.” Any covenant that does not satisfy this requirement may be terminated by a majority vote of the affected landowners after twenty years in counties or cities that have adopted zoning laws. Thus, counties should rely on restrictive covenants to provide permanent protection of open space only under those conditions where it is sure that the covenant will meet the “holding land for the use of the public” test.

A more definitive way of protecting a piece of land in perpetuity would be to utilize a conservation easement. A conservation easement is a voluntary agreement between a property owner and a second party (the easement holder) that restricts the use of the property in order to protect natural or cultural resources. In a conservation easement a landowners can voluntarily agree to give up one or more of their development rights. The landowner sells or donates the development rights to a second party, either a government body or a charitable organization called a land trust, which “holds” the development rights and ensures that they are not used. This is documented in the form of a conservation easement that is recorded with the chain of title for the deed to the property.

In the case of conservation easements, the easement holder is generally referred to as a land trust. Land trusts can be either non-profit corporations, or divisions of local government. In either case they are responsible for ensuring that the property rights (specifically development rights) associated with the easement are not utilized. It is the responsibility of the land trust to monitor the property to ensure that all parties comply with the terms of the conservation easement. If necessary the land trust may take legal recourse to ensure compliance.

The federal and state governments provide some tax relief to landowners who donate permanent conservation easements that promote the conservation values of outdoor recreation and education, habitat protection, open space that provides a scenic view or promotes a clearly delineated governmental policy, and historic resource protection. The landowner may deduct the value of the easement from federal and state income taxes (up to 30% of the landowner’s adjusted gross income over a period of six years until the value of the easement is exhausted). Estate tax liability should decrease as well because the estate tax is levied on the encumbered value of the estate. Furthermore, property taxes may decrease because restricting various development rights may diminish the fair market value of the land.

Georgia’s Uniform Conservation Easement Act, O.C.G.A. Sections 44-10-1 et al., authorizes and promotes the use of conservation easements to “retain or protect natural, scenic, or open space values; assure availability for agricultural, forest, recreational or open space use; protect natural resources; maintain or enhance air or water quality; and preserve the historic, architectural, archeological or cultural aspects of real property.” Thousands of acres of land in the state are permanently protected via conservation easements. These include longleaf pine plantations in southwest Georgia, a meadow of

wildflowers in Gilmer County, sensitive floodplains and wetlands adjacent to major rivers and their tributaries throughout the state, the façade of a historic factory now housing loft apartments in Marietta, and large open spaces in conservation subdivisions in metropolitan Atlanta. In all of these cases, the landowner continues to hold title to and enjoy his property while forgoing only those development activities (such as subdivision of the land) that would adversely affect the conservation values set forth in the easement.

Regional Barrier:

- The state Uniform Conservation Easement Act does not provide adequate financial incentives for landowners who donate permanent easements
- There is no single database containing the location of properties protected by conservation easements or restricted covenants that can be used to document success in protecting contiguous lands.
- Many tax assessors do not know how to assess property protected with conservation easements or restrictive covenants.
- Many landowners are unaware that they can protect their land via conservation easements and restrictive covenants

Regional Strategy:

- As a group, lobby the Georgia General Assembly to allow for state income tax credits as well as deductions for the conservation easement donor
- Develop a regional conservation easement/restrictive covenant database in partnership with a conservation organization with a regional focus such as the Nature Conservancy or the Chattowah Land Trust.
- Host a regional workshop to train local tax assessors on how to calculate property tax on land protected by easements and restrictive covenants
- Provide opportunities for representatives of area land trusts and other experts (Regional Speakers Bureau) to make presentations on conservation easements to the general public, service organizations, and local government officials and staff

**Conservation Subdivision**

Conservation subdivisions are residential (or mixed use) developments in which a significant portion of the property is permanently protected as open space and development features are clustered on the remainder of the property. Conservation subdivisions represent a means of preserving significant areas of greenspace at little or no cost to taxpayers while providing increased variety in the housing market—plus infrastructure savings for developers in the bargain. In their greenspace application, Etowah counties listed the use of conservation subdivisions as one of its tools for meeting greenspace protection goals and several counties such as Cherokee County have a conservation subdivision ordinance already in effect.

Regional Barrier:

- Some counties do not provide for conservation subdivisions
- No incentives exist for preserving contiguous open space by linking conservation subdivisions
- Banks are reluctant to provide loans to uncommon types of development
- Health Departments are unwilling to allow for alternative septic

Regional Strategy:

- Adopt ordinances allowing for clustering of residential development in exchange for the permanent protection of a significant amount of ecologically functional greenspace
- Work together to identify conservation development corridors, and provide incentives for contiguous subdivisions.
- Target banks and other lenders for education/outreach efforts on the benefits of conservation subdivisions
- Provide workshop specifically targeted to Health Departments on the benefits of alternative septic

**Transferable Development Rights (TDR)**

Transferable development rights programs differ from the land use tools described above in that they require the active participation of local government. A TDR program involves placing limits on the development potential of one piece of and allowing greater development on another piece of property. Local governments select areas with significant amounts of undeveloped land and resources in need of protection and designate them as “sending areas”. They also designate areas that are amenable to greater development as “receiving areas”. Landowners with sending area properties can sell the “excess” development potential of their lands to landowners or developers in receiving areas. To create demand for the eventual transfer of development rights, the local zoning board will place a limitation, or a “floor,” on development potential within receiving areas. This is the maximum development that can take place without purchase of development credits from a sending area. At the same time the board will place a “ceiling” on development potential within the receiving area, which spells out the limit on development after purchase of credits.

Property owners within these sending areas can voluntarily choose to sell their development credits to other landowners or developers interested in building projects in the receiving zones. Credits can be used for a number of things such as increasing building height or increasing the number of units per acre. Note, however, that the local zoning board maintains a “ceiling” to prevent development to reach undesirable densities and to keep developers from stockpiling credits in one area.

Georgia's law on the transfer of development rights is found in O.C.G.A. §36-66A-1 and 2. As stated:

“the governing body of any municipality or county by ordinance may, in order to conserve and promote the public health, safety, and general welfare, establish procedures, methods, and standards for the transfer of development rights within its jurisdiction.”

Any proposed transfer from the sending area is subject to the guidelines of §36-66-4, outlining the process on hearings on proposed zoning decisions. Any proposed transfer to the receiving property is subject to the notice, hearing, and signage requirements, if any, of the municipality having jurisdiction over the property. Any proposed transfer is subject to the approval and consent of both property owners and is subject to a separate vote of approval or disapproval by the local governing authority.

New to Georgia law is an amended section on intergovernmental TDR programs that went into affect on April 28, 2001. This amendment allows municipalities and counties that are jointly affected by development to create a regional TDR program. The intergovernmental agreement that creates the program ensures that the participating counties pass interdependent ordinances providing for the transfer of the development rights.

An example of this type of agreement is not available in Georgia. In fact, a TDR program has not been implemented anywhere in the state on a county level. However, we may presume how a regional TDR program might operate based on its defining laws in Chapter 66A of Title 36 in the O.C.G.A.

Following are the sequential steps, according to Georgia law, that would lead to an actual transference of development rights in a regional TDR program:

- 1) Contracting counties earmark specific sending and receiving zones within their political boundaries
- 2) A property owner in a sending zone agrees to sell his or her development rights
- 3) A property owner in a receiving zone agrees to buy the development rights
- 4) The proposed transfer passes a vote of approval by the local governing authority of the sending area
- 5) The proposed transfer passes a vote of approval by the local governing authority of the receiving area

In addition, subsection (f) provides that any ordinances enacted pursuant to a regional TDR program may provide for additional notice and hearing and signage requirements applicable to properties within sending and receiving areas in each participating political subdivision.

The benefits of a regional TDR program in the Etowah Watershed are apparent. Working in the supply and demand conundrum of economics, one can see how adaptable a regional network of sending and receiving zones would be to the program's success,

particularly in an area as diverse as the watershed itself. Obviously, the supply of development rights being transferred out of sending areas would be generous. More importantly, however, a larger base of receiving areas would provide the needed demand to create a healthy market for the transfer of development rights.

One might assume that with the success of Montgomery County's TDR program (Appendix G) that a regional TDR program in the Etowah Watershed would work just as well. However, there are weaknesses to such a program in Georgia. First, unlike that of Maryland, the transfer of development rights in Georgia does not involve downzoning sending areas and handing out development credits to affected landowners. Instead, Georgia relies on a landowner to voluntarily apply for these credits. This is a limitation because the necessary supply of credits is not guaranteed.

Second, sending areas are out of necessity large tracts of land. It would be difficult for a TDR program to concentrate on the smaller areas of land, areas owned perhaps by a few individual landowners, which are just as critical, if not more so, in environmentally sensitive regions. Riparian zones, wildlife corridors, steep slopes, ground-water recharge areas, and other ecological drivers mentioned earlier in our report are essential elements in the success of a regional greenspace plan.

Third, the process for transferring a development right in the state of Georgia is relatively complicated. As noted supra, the transfer requires not only the consent of both landowners, but also a separate approval vote by each local governing authority. At the very least, four different parties will be involved in the transaction.

To complement these limitations, some regions have also incorporated the use of a purchased development rights program (PDR). The purchasing of development rights would not only foster a healthy market for the transfer of those rights on an open market, but it would also aid in assessing the other weaknesses of a regional TDR program. This has been the secret to the tremendous success of the Pinelands, New Jersey protection efforts.

#### Regional Barrier:

- A provision in the state's TDR enabling legislation makes this tool virtually unworkable, requiring a deliberation of the governing body prior to each transfer
- No effort has been made to look at the regional use of TDRs to protect water quality and biodiversity

#### Regional Strategy:

- Together lobby the General Assembly to eliminate this burdensome provision
- Apply for a Quality Growth grant from the Georgia Department of Community Affairs to investigate the feasibility of a regional TDR program in the Etowah

#### **Purchase of Development Rights (PDR)**

Though both federal and state law provide income, estate and property tax benefits to landowners who donate conservation easements on their property, these benefits may not fully compensate the landowner for the development potential they lose by foregoing

certain uses of their land. This makes the donation of conservation easements unattractive to many landowners. In response, over 200 local and state governments have developed Purchase of Development Rights, or PDR, programs.

In consideration of the sale of development rights, the landowner places a conservation easement on the property, which restricts specified development of the property in perpetuity. The landowner retains ownership of the property and usually continues traditional uses of the land, such as farming or forestry. The acquisition and maintenance costs associated with a PDR program can be significantly lower than that of a fee simple acquisition program, although the County's control of the property is not as complete. A purchase of development rights generally does not include a provision for public access, although this may be negotiated. The characteristic that distinguishes a PDR program from conservation easements is that rather than relying on landowner generosity in donating easements, the purchasing body in a PDR program actively seeks out owners of properties that have a high conservation value and purchases an easement from those landowners.

The counties of the Upper Etowah Watershed can duplicate the successes of a program like the Pinelands in New Jersey (Appendix G). Purchase of Development Rights (PDR) programs are readily adaptable to a regional scale and face relatively few impediments from Georgia law. The purchase of development rights allows for the solution of several of the shortfalls extant in Georgia's regional TDR framework. As noted earlier, TDR programs have their greatest efficacy in protecting large tracts of land. It is difficult to target the ecological resources discussed above by the process of designating sending areas for those environmental features. Since PDR programs involve the directed purchase of conservation easements it is relatively simple to concentrate purchasing efforts in those areas where the greatest ecological benefits can be realized. PDR programs are also simpler to administrate than the Georgia TDR process. There is no need to put together buyers and sellers of development credits and no need for the approval process required by Georgia law for the transfer of those credits. Finally, given the relative recent development and limited use of TDR programs in Georgia it should prove simpler to convince landowners to part with the development interest of their property in return for payment instead of what may be a confusing and ill-understood development credit.

To become effective regional tools only two aspects of a PDR program are of real concern. First, regional PDR programs require that purchasing decision be made with an eye towards region-wide benefits. Second, the counties in the region need to develop a mechanism or mechanisms capable of adequately funding the program. However, while there may only be two critical concerns, there are myriads of options that may be useful in addressing those concerns.

Obviously, the benefits of regional greenspace planning will only accrue if protection efforts are made with an eye towards the needs of the region. Dollars spent on the purchase of development rights can be targeted to focus on those economic and legal drivers mentioned earlier, but since those drivers themselves and their benefits and



effects cross county lines a focus on benefits solely within individual counties will result in a less than efficient allocation of resources throughout the region as a whole. To avoid this pitfall there are two readily available solutions.

Individual counties may desire to operate a PDR program benefiting the region as a whole but wish to remain completely autonomous in their purchase activities. To accomplish this they only need share information on protection needs and efforts throughout the region. If purchasers are willing to consider the issues facing the region as a whole and they have a ready source of information this is feasible. This approach would require a great deal of communication and coordination between purchasing bodies in the various counties. A “clearinghouse” for relevant information, which is updated and assessed regularly by those responsible for purchasing decisions, should effectuate this need.

In the alternative, individual counties within the region could cooperate to form a regional purchasing agency responsible for PDR acquisitions throughout the Etowah Watershed. The constituent counties would basically form a cooperative land trust to act as purchaser of development rights. Since purchasing decisions would all emanate from a central location the process would be significantly streamlined. Additionally this arrangement would make it easier to share information, as transactions in every county would be handled by the same organization.

Regional Barrier:

- Like direct acquisition, adequate funding mechanisms are limited

Regional Strategy:

- Work together regionally to (a) maximize funding sources that are already available to individual counties and (b) recruit new funding sources that prefer or require a regional focus

## **FUNDING OPTIONS**

There are a variety of funding options available to fund greenspace protection. Working together regionally the Etowah counties can maximize funding sources that are already available to individual counties and recruit new funding sources that prefer or require a regional focus. The following section will discuss funding options based on a regional scale and also the particular type of resources the Etowah regional greenspace Plan is trying to protect (Cultural, Ecological, Developmental, Agricultural, and Recreational). Some of the funding options will suit several of the greenspace goals. In this instance the funding is mentioned and discussed in the section the funding fits with best.

### **Greenspace Funding Sources for Regional Focus**

#### **Watershed Protection and Flood Prevention Program**

This program provides technical and financial assistance to address resource and related economic problems on a watershed basis. Projects related to watershed protection, water quality, and fish and wildlife habitat enhancement are eligible for assistance. Technical and financial assistance is also available for planning and installation of works of improvement to protect, develop, and use land and water resources in small watersheds. Funding is provided requiring varied cost shares, but typical projects entail \$3.5 million to \$5 million in federal financial assistance. Application for this program are accepted year round and should be sent to: U.S. Department of Agriculture, Natural Resources Conservation Service, P.O. Box 2890, Washington, DC 20013-2890; phone: (202) 720-3534; email: [rcollett@usda.gov](mailto:rcollett@usda.gov)

#### **CLEAN WATER ACT SECTION 319(H) FUNDS.**

These funds are provided to designated state agencies to implement their approved nonpoint source management strategies. States submit their proposed funding plans to EPA, and, if it is consistent with grant eligibility requirements and procedures, EPA will award the funds to the state. Current criteria focus on the implementation of Total Maximum Daily Load (TMDLs) related to nonpoint source pollution. The EPA believes that improving the integration of TMDLs and watershed plans to implement these TMDLs will provide the most effective means to accelerate the achievement of water quality standards. State or local governments are required to provide 40% of total program cost. In Georgia, these funds were used by the Broad River Streambank Stabilization Project to install tree revetments in an effort to prevent erosion. They received \$233,442 from the 319 funds and procured non-federal matching in the amount of \$160,578. (Contact Jim Wren, Oconee River RC&D Council, Inc., P.O. Box 247, Watkinsville, GA 30677 (706) 769-7922.). The funds were also used in a restoration project of a Riparian Forest focused on the Sewanee River Basin near Tifton. The project demonstrated that riparian forested wetlands can be restored to help prevent nonpoint source pollution from manure application sites. (Contact Frank Carubba, Georgia Department of Natural Resources (404) 675-6240.). The application deadline varies, but funds are generally awarded within 60 days after the application is submitted. For more information contact Lawrence Hedges, Georgia Environmental Protection Division nonpoint Source Program, 4220 International Parkway, Suite 101, Atlanta, Georgia 30354; phone:(404) 675-6240; email: [larry\\_hedges@mail.dnr.state.ga.us](mailto:larry_hedges@mail.dnr.state.ga.us).

#### Watershed Assistance Grants.

The EPA, in an effort to control habitat loss and nonpoint source pollution from urban, rural, and rapidly growing areas, establishes a cooperative agreement with one or more nonprofit organizations or other eligible entities to support watershed partnership organizational development and long-term effectiveness. The funding supports organizational development and capacity building for watershed partnerships with diverse membership. Matching grants are encouraged, but not required with a maximum funding per project of \$30,000. The Upper Chattahoochee Riverkeeper fund was the recipient of a Watershed Assistance Grant in 1999. Application deadline varies and the contact is EPA, Region IV, Atlanta Federal Center, 61 Forsyth Street, SW Atlanta, Georgia 30303; phone: (404) 562-9900.

#### Watershed Initiative.

A new program that will begin funding community-based watershed approaches in 2003. In an effort to provide clean water for drinking, clean beaches for swimming, and a healthy environment to support fish and other wildlife the EPA will invest \$20 million in grants for efforts in 20 local watersheds and technical assistance for other communities. EPA plans to begin dispersing funds in the summer of 2003. The grants will range from \$350,000 to \$1.3 million per project. The details of the application process have yet to be determined. For more information contact Bill Cox, EPA, Region IV, Atlanta Federal Center, 61 Forsyth Street, SW Atlanta, Georgia 30303 ; phone: (404) 562-9900 extension 9351; website: <http://www.epa.gov/owow/watershed/initiativefs.html>

#### Habitat Conservation Plan Grants.

This program provides funds to states to support the development of Habitat Conservation Plans. The Georgia Department of Natural Resources received \$158,043 to assist planning for a multi-county effort to protect and improve aquatic habitats in the Etowah River system. Etowah Regional Habitat Conservation Plan will utilize The Upper Etowah Watershed Regional Greenspace Plan as part of the Regional HCP. There is a 25% non-Federal cost share required as part of the grant. Application deadline is June 10 yearly and contact is David Dell, U.S. Fish and Wildlife Service Division of Consultation, Habitat Conservation Planning, Recovery and State Grants, 1875 Century Blvd., Suite 200, Atlanta, GA 30345; phone: (404) 679-7313; website: <http://endangered.fws.gov/landowner/grants.pdf>

#### Habitat Conservation Plan Land Acquisition Grants.

This program provides funds to states to acquire land associated with approved HCPs. As part of the Etowah Regional HCP Plan money would be available for greenspace protection. The grant is in the form of matching funds where the state or local government must provide 25% of the program costs. In Georgia, Appling County received \$400,000 in 2001 to acquire land that would benefit the endangered Red-Cockaded Woodpecker. Application deadline is June 10 yearly and contact is David Dell, U.S. Fish and Wildlife Service Division of Consultation, Habitat Conservation Planning, Recovery and State Grants, 1875 Century Blvd., Suite 200, Atlanta, GA 30345; phone: (404) 679-7313; website: <http://endangered.fws.gov/landowner/grants.pdf>

#### Recovery Land Acquisition Grants.

Funds are provided to states for the acquisition of habitat for endangered and threatened species in support of approved recovery plans. The grant is in the form of matching funds where the state or local government must provide 25% of the program costs. The Kentucky Department of Fish and Wildlife Resources received \$236,250 to acquire property that houses two of the top ten critical hibernation roosts for bats in North America. There is no set deadline and contact is the U.S. Fish and Wildlife Service, Division of Consultation, Habitat Conservation Planning, Recovery and State Grants, 1875 Century Blvd., Suite 200, Atlanta, GA 30345; phone (404) 679-7086 Ann Feltner (404) 679-7275; website: <http://endangered.fws.gov/landowner/grants.pdf>

#### Quality Growth Grant Program.

All Georgia municipalities, counties, and consolidated governments are eligible to apply for these grants ranging from \$5,000-\$40,000. Suitable activities include the “preservation of critical environmental resources, wildlife habitat, prime farmland, or sensitive ecosystems.”

For more information Jim Frederick, (404) 679-3105, [jfrederi@dca.state.ga.us](mailto:jfrederi@dca.state.ga.us), or [www.dca.state.ga.us](http://www.dca.state.ga.us)

#### Arthur M. Blank Family Foundation

Awards grants based on environmental issues. For more information contact The Arthur M. Blank Family Foundation, 3290 Northside Parkway, N.W., Suite 600, Atlanta, GA 30327; phone: (404) 239-0600.

#### Funding a Regional PDR through Installment Purchase Agreements

Another funding option available for counties in the Etowah Watershed is the use of installment purchase agreements (IPA). Howard County, Maryland has successfully implemented the use of installment purchase agreements in funding the purchase of development rights. IPAs are designed to allow jurisdictions faced with a limited availability of funds to finance the purchase of development rights and begin protection efforts immediately.

Installment purchase agreements revolve around the issuance of a bond. In consideration for placing a conservation easement on his or her property, the landowner receives security interest (bond). Since these bonds do not become fully redeemable for many years, counties are able to maximize their purchase power of the funds immediately available to them. This means that property can be protected before it is developed and also helps to insure that easements are placed on property before increasing development pressures cause land prices to skyrocket making PDR programs prohibitively expensive.

Bonds issued under an IPA program are zero-coupon bonds. "Zeroes" do not generate regular interest income. Instead, they yield a lump sum when the bond matures. Because zero coupon bonds cost a fraction of their face value, the public entity leverages available funds. "Zeroes" with a face value equal to the purchase price are usually purchased the day before settlement.

At settlement, the landowner grants the jurisdiction a permanent agricultural conservation easement in exchange for an installment purchase agreement. Then the jurisdiction begins making tax-exempt interest payments twice a year. The balance of the purchase price is paid to landowners at the end of the agreement. The landowner may sell or "securitize" the IPA on the municipal bond market to recover the outstanding principal before the end of the agreement.

In Howard County, if the current yield is less than 8% (or the interest rate "floor" as established by the Board in consultation with the Dept. of Finance, Office of Budget and financial advisors) the interest paid is 8%. If the yield is higher, interest is paid at that rate. Howard County enters IPAs with a term of approximately 30 years. Every two years after execution, the County pays a portion of the purchase price (usually \$5,000) with the remaining amount of the purchase price paid at the end of the agreement. In addition, the County pays semi-annual interest on the outstanding balance of the purchase price.

There are two primary benefits for the landowner. First, the interest payments received biannually are exempt from federal, state and local income taxes. Second, pursuant to the Internal Revenue Code of 1986, the landowner may, in certain instances, defer recognition of capital gain until he or she actually receives the principal amount of such purchases.

Benefits also exist for the counties participating in the agreements. By deferring principal payments, counties can buy more easements while land is available and relatively affordable. Also, by purchasing zero-coupon bonds, jurisdictions spend a fraction of the negotiated purchase price at closing and are able to leverage available funds.

The concept of installment purchase agreements is a viable option for funding the purchase of development rights in the Etowah Watershed. The issuance of municipal bonds is already a familiar and common occurrence in Georgia. Given the rate of development within the Watershed, counties will be hard-pressed to allocate funds for the immediate acquisition of development rights on undeveloped land. Installment purchase agreements provide that needed assistance.

### **Greenspace Funding Sources for Cultural Resources**

#### **The Conservation Fund.**

The Fund protects an average of 1,000 acres of wildlife habitat, community open space, and historic sites every day. For more information contact Conservation Fund, Southeast Office, P.O. Box 1362, Tucker, GA 30085; phone: (770) 414-0211.

## **Greenspace Funding Sources for Ecological Resources**

### **Mitigation Banking**

#### **Mitigation Banking Overview**

This is intended to serve as a reference regarding the framework of mitigation banking in the state of Georgia. The Overview provides a concise explanation of how mitigation operates. In some cases, as discussed in the Overview, the decision of the Army Corps of Engineers will be to permit off-site mitigation when issuing a § 404 permit in order that the permittee may be able to begin construction and subsequent destruction of wetlands.. That is, the required wetlands mitigation will be initiated in an area completely separated in space and time from the site to be developed by the permittee. In order to arrive at this conclusion, Corps would follow a detailed schema, which will be discussed herein. The forms and protocols used by the Corps in allowing the creation of a mitigation bank, such as the model restrictive covenant to run with the mitigation bank's property title, have been included because of their details and relative brevity. For these reasons, the actual text from the forms was not cut and pasted into the body of the Overview. This approach avoids any inadvertent distortion of the Corps' regulations. Separate definitions, as given by the Corps, have been included for mitigation efforts regarding stream mitigation as opposed to wetlands and open water mitigation. Additional miscellaneous land trust and other pertinent web links have been provided as well.

#### **A Brief Overview**

The concept of mitigation banking facilitates the protection of invaluable wetland resources. Countless studies over the last several decades have only reinforced the importance of wetlands in sustaining existing ecosystems and in maintaining or enhancing human activities. Wetlands serve vitally important functions in developing or developed regions. These functions range from stormwater management and wastewater treatment to water quality and future economic growth. In observance of these findings, the Army Corps of Engineers and the Environmental Protection Agency have pursued a "no net loss" strategy in the protection of wetlands. In the furtherance of this policy, on-site and off-site mitigation measures can be used. On-site mitigation is often a preferred method for the no net loss strategy. Under certain circumstances, however, mitigation banking at off-site locations provides a better solution from an ecological standpoint.

#### **Targeted Areas**

Mitigation banking allows for the preservation, restoration, or enhancement of wetlands. Under the no net loss strategy, there is strong incentive to push developers to achieve "an acre for an acre" equivalency in mitigation efforts. For various reasons, including variability in wetland ecosystems between the development site and the mitigation site, this policy is sometimes modified. In some cases, the preservation of existing, pristine wetlands is especially important. Non-profit watershed organizations and land trusts, as well as counties and municipalities, have become more engaged in protecting such existing resources, but sometimes a mitigation bank must also include preservation as part of its mission. Similarly, the enhancement of existing wetlands may also be necessary. In some areas, the lack of regular burns or the heavy presence of non-native species or even human-produced change in hydrology impairs the health of the wetlands. Enhancement, thus, offers another approach to wetlands protection. Because of the emphasis on the no net loss policy, however, credits for preservation and enhancement will be pro-rated at a lower credit level than restoration credits.

The method of protection can apply to different parts of the riparian ecosystem. Mitigation banks typically protect prime waterways, wetlands, and adjacent uplands. The fundamental interdependence of the three areas requires that all be protected in order to offer adequate protection for any one of the three. Within each of these areas, different plant and animal populations will live and interact. Thus, the determination of how much of each area to protect will depend on the site of the proposed bank. Geology and hydrology must be considered as well. Other factors, such as the presence of endangered species, could make a site more favorable for protection.

#### Achieving Protection in Perpetuity

In order to ensure that lands preserved, restored, or enhanced by a mitigation bank receive permanent protection, several legal tools can be used. Typically, the Army Corps of Engineers will require that a potential mitigation bank, whether publicly or privately operated, be protected by a restrictive covenant before the bank is officially certified for operation. Further, the site will generally be covered by a conservation easement. This easement, which is conveyed to a certified third party such as a land trust, will allow the site to be monitored regularly to prevent development or encroachment not in accordance with the natural state of the wetlands. The deeding of conservation easements often involves a flat fee or annual fee paid to the third party to cover monitoring and/or maintenance expenses, as well as possible legal expenses if the owner of the land attempted to alter the property to a non-conforming use. In some cases, such as with the Etowah River Mitigation Bank in Dawson County, GA, the site will be deeded to a certified non-profit conservation group upon sale of all credits and the successful completion of all preservation, restoration, and enhancement efforts.

#### Appropriateness of Mitigation Banking

Generally, as mentioned before, the Army Corps of Engineers would pursue a policy on on-site mitigation. Under such a plan of action, the destruction of wetlands occurring on-site would be offset locally. This approach allows for mitigation measures to be implemented to address any on-site threats to an adjacent river or groundwater recharge area. In some instances, however, such on-site measures are not wholly effective. In such cases, the site opportunities and economy of scale that a mitigation bank offers would, in the final tally, be a better solution financially and ecologically. Below is one example of evaluation for determining the appropriateness of mitigation banking credits for a particular site:

1. Projects that require wetland and/or stream mitigation, but have no feasible, on-site mitigation areas.
2. Projects that require such a small amount of mitigation, that off-site mitigation can be demonstrated to be more environmentally beneficial.
3. Projects with minor impacts, which when considered cumulatively with similar nearby projects, would result in a more than minimal impact (e.g., non-notification Nationwide Permits, Regional Permits, etc.).
4. Linear projects, such as highways and utility lines (surface and subsurface) that generally result in numerous, minor impacts, but cumulatively could be considered more than minimal.

5. On a case-by-case basis, the mitigation bank review board will review projects with substantial adverse impacts that cannot be adequately mitigated on-site. These types of projects would be considered for banking when it is shown to be the most environmentally beneficial method of mitigation.<sup>1</sup>

#### The Crediting Method

As mentioned earlier, off-site mitigation efforts inevitably will occur in an area with at least some ecosystem variability in comparison with the site of wetlands destruction. Anticipating this variability, guidelines have been crafted to aid in determining a credit conversion framework. In Georgia, mitigation banks can use the documents prepared by the Savannah District of the Army Corps of Engineers. Credit structuring is a complex process involving a detailed ecological analysis of the various types of soils and vegetation found at the site of the mitigation bank, as well as anticipated changes in hydrology and vegetation upon completion of any site modification in preparation for the replanting and maintenance of the mitigation bank itself. The documents address both wetland and stream mitigation and are entitled, respectively, the *Standard Operating Procedure (SOP) For Determining Wetland Mitigation in Georgia* (30 April 1997) and the *SOP For Determining Stream Mitigation* (12 January 2000).<sup>2</sup> The Etowah River Mitigation Bank, while not located in the Savannah River watershed, has adopted these guidelines.

#### Procedures for Selling Credits

The selling of credits can be outlined fairly simply. After a mitigation bank has been approved and is in operation, and its proposed balance sheet for credit designation has been certified by the Army Corps of Engineers, it may commence business. Persons who are seeking to initiate building projects that would impair or destroy wetlands, which require a §404 permit, could request the use of mitigation banking credits to offset the expected damage. The Corps of Engineers would determine whether the permittee was eligible for such off-site mitigation credits, according to the appropriateness criteria listed above. If found eligible, and the permittee chooses to purchase credits, the mitigation bank will notify the Corps of Engineers of the transfer of credits through a Credit Inventory Report within thirty days of the deduction. The mitigation bank is also required to submit an annual report to the Corps of Engineers throughout the life of the bank, summarizing credit deductions and the remaining balance.<sup>3</sup>

#### Monitoring

Generally, a mitigation bank is “expected to be a low-maintenance, self-sustaining restoration project.”<sup>4</sup> Achieving that goal requires substantial multi-year planning and observation. The schedule for the development and future monitoring a mitigation bank will depend on the site. Hydrology, the presence of existing wetlands, the removal farmland drainage networks, potential drought conditions, replanting needs, and gross

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<sup>1</sup> Adapted from “Types of Corps Jurisdictional Impacts Suitable for Bank Use,” *Etowah River Mitigation Bank, Dawson County: Banking Instrument*. PBS&J, Preparers, Atlanta GA. 20 March 2000, p. 6.

<sup>2</sup> “Procedures for Determining Credits and Debits,” *Etowah River Mitigation Bank, Dawson County: Banking Instrument*. PBS&J, Preparers, Atlanta GA. 20 March 2000, p. 8.

<sup>3</sup> “Accounting Procedures for Tracking Credits and Debits,” *Etowah River Mitigation Bank, Dawson County: Banking Instrument*. PBS&J, Preparers, Atlanta GA. 20 March 2000, p. 8.

<sup>4</sup> “Contingency and Remedial Actions and Responsibilities,” *Etowah River Mitigation Bank, Dawson County: Banking Instrument*. PBS&J, Preparers, Atlanta GA. 20 March 2000, p. 8.



acreage of the bank could all influence the timetable. The Etowah River Mitigation Bank initially planned for a five-year process, from the beginning of the bank to the completion of restoration and monitoring. Such an amortized schedule serves two functions: (1) It permits all necessary site modification, including the planting and monitoring of plant species, with monitoring to assess success in the process and (2) It sets up a reasonable financial framework to allow mitigation bank expenses to be spread out over time in accordance with revenue levels as credits are sold.

#### Questions and Opportunities

Because of the recent appearance of wetlands mitigation banks in Georgia, several questions arise. Because of the relative newness of such legal tools and financial accounting, some the outcome of some future scenarios is not entirely predictable. The bankruptcy of a commercial, for-profit mitigation bank would create a legal morass. The restrictive covenant and conservation easement placed on the land would remain in force, however, insolvency notwithstanding. The willingness of the Army Corps of Engineers to extend its approval to projects beyond riparian wetlands areas and into isolated wetlands, particularly after the Cook County decision by the U.S. Supreme Court, is up for speculation. Traditional legal problems are also relevant. Mitigation banks created on land with a faulty chain of title would be subject to legal challenges in court.

Mitigation banking offers an excellent opportunity for preserving, restoring, and enhancing wetlands in Georgia's watersheds. Since the structuring of the system allows private sector involvement, entrepreneurs may establish their own mitigation banks and encourage wetlands preservation at a rate faster than would otherwise be possible by state and local governments. The cost of banking thus need not fall entirely on taxpayers. In fact, even well managed, publicly run mitigation banks can be revenue producers. Such revenue could then be used by local governments as matching funds for money from the Governor's Greenspace Program. In this way, mitigation banks can be leveraged to bring in a substantial amount of government funds for use in protecting the natural resources of the community and enhancing the quality of life for all.

#### Creating a Mitigation Bank in Georgia

Due to Georgia's rapid growth and development, mitigation banking has become an increasingly important component of the "no net wetlands loss" policy of the Army Corps of Engineers (ACE). Particularly in the metropolitan Atlanta region, mitigation banking offers a crucial way of handling off-site mitigation when general conditions prevent feasible on-site mitigation. The Etowah River Mitigation Preserve, maintained in a joint operation by the government of Dawson County and the Etowah River and Sewer Authority, offers an excellent example of how a mitigation bank is created in practical terms.

Site selection is the first step in beginning the bank creation process. Whether the project is initiated by a local government or a private enterprise, the same procedures apply. A mitigation bank may include all three types of approved mitigation – preservation, restoration, and enhancement. Because of the no net wetlands loss strategy, restoration remains the most important of the three. Enhancement follows in importance, followed by preservation. The exact requirements on each category depend on the kind of credit to be created.

A mitigation bank may sell either stream or wetland credits, or both. For each kind of credit, there may be any of the three types of mitigation measures mentioned above. Under the current *Standard Operating Procedures (SOP)* issued by the ACE, no more than seventy percent of compensatory mitigation for stream credits may be devoted to preservation, and the remaining thirty percent may come from restoration or enhancement measures. For wetland mitigation, however, the *SOP* requires that no more than forty percent of compensatory mitigation may come from preservation measures. The other sixty percent would come from restoration and enhancement activities.

Potential owners of mitigation banks should take these restrictions into account when choosing possible bank sites. These criteria, depending on how they apply to the site in question, will affect the bank's future revenue. Certainly, a bank owner seeking to maximize income will often attempt to choose a site that will offer the fewest site preparation expenses, along with the greatest potential for future revenue. Preservation measures will generally be the least expensive of the three approaches, both for the creation of stream and wetland credits. Enhancement and restoration measures, however, can vary widely in cost. In some cases, for instance, conversion of abandoned farmland back into wetlands may simply involve plugging a few drainage ditches and adding supplemental planting the site. Over time, the original hydric qualities of the soil will return. This would be much cheaper than a site that required the intensive use of earth-moving equipment and the construction of an extensive network of berms.

Similarly, stream restoration can swing widely in preparation costs. In some cases, restoration may require riparian buffer reforestation or enlargement, fencing to keep out cattle. In others, however, a channelized stream might require restoration of its earlier dimensions, pattern, and profile. This latter approach would significantly increase restoration costs.

The Etowah River Mitigation Preserve was several years in the making. While the Etowah Water and Sewer Authority (EWSA) had considered the site as a possible mitigation bank for several years, no action was taken. The issue was pushed forward when Martin Nelson finally came forward with a proposal for a bank on the site. The proposed bank was sited on a tract of about 1,200 acres, and the owner was not interested in subdividing the land. Alternative uses to the additional land were reviewed, from school construction to industrial park creation. In the end, the EWSA finally purchased the entire tract in order to use a portion of it to expand the Authority's wastewater sprayfield acreage. The remaining parcels were to be subdivided at a future date.

Under the consultation of Mr. Nelson, work on the mitigation bank moved forward. A draft banking instrument was prepared and sent to the Mitigation Banking Review Team (MBRT).<sup>5</sup> Mr. Nelson then arranged a site visit for the MBRT, and received the initial go-ahead for his proposal. He completed his final draft banking instrument and sent it on the MBRT. Upon final approval, the Etowah River Mitigation Preserve was able to begin operation. Currently, the EWSA owns the land on which the

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<sup>5</sup> The MBRT is composed of representatives from the Army Corps of Engineers, the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, and the Georgia Environmental Protection Division. For mitigation banks operating in the coastal region, the National Marine Fisheries Administration would likely be added to the team.

bank is sited, which Dawson County leases. The two entities jointly run the mitigation bank.<sup>6</sup>

While the overall process went relatively smoothly, Mr. Nelson expressed one major disappointment. Final approval on the banking instrument came after months of delay. The COE, along with the other constituent members of the Review Team, generally would be swamped with work and faced with serious understaffing. After repeated contacts, the MBRT finally refocused its attention on the application and began to meet on a monthly basis.<sup>7</sup> Once all deliberations were complete, the certification was passed on to Mr. Nelson.

The mitigation bank in Dawson County owes its existence in large part to other land demands by local governmental entities. This approach of purchasing a large tract of land for subdivision into a mitigation bank and other parcels needed for government use can serve as a possible model for other counties. Unfortunately, there have been some political drawbacks to this approach. Because of the large cost of the purchase, several commissioners voiced concerns during the early existence of the bank over its irrelevance and of the general fiscal imprudence of spending so much money on such an ostensibly unnecessary activity. Fortunately, complaints have died down as the bank began to produce income. Other county administration officials who support mitigation banks in their counties should be prepared for initial grumbling from dissenters during the bank's initial year or two in operation.

Uses of revenue from the mitigation bank in Dawson County are still largely conceptual, as all revenues to date have been used to pay off the principal on the loan obtained to purchase the land initially. For this reason, private landowners and governmental entities, which already possess land suitable for use as a mitigation bank, are ahead in the game, since they will have fewer costs in terms of acquisitions. According to Harvey Young at the Georgia Greenspace Program, proceeds from mitigation banks would likely be eligible as matching funds for one or both of the new discretionary grant programs being created.

To date, fifty percent of the stream credits have been sold in the Etowah River Mitigation Preserve. Only a marginal amount of wetlands credits have been sold. According to Mr. Nelson, however, the demand for wetlands mitigation credits is not as high currently as for stream mitigation credits, thus explaining the current situation. Presently, the market value for credits is as follows: Stream mitigation credits -- \$40/credit AND wetlands mitigation credits -- \$8,500/credit. Comparing these costs is misleading, since the nature of quantifying credits for each kind is different, and the typical manner in which destruction occurs often differs from one kind to the other. With the influx of several other mitigation banks into the Etowah River watershed, the cost of credits will likely decrease notably over the next several years. It should be noted that, even though supply will increase, demand is also expected to rise. The increase in the need for water will increase the demand for more reservoirs. While reservoir construction is unpopular, the need will likely mean that at least a few more are constructed. There will thus be more need for stream and mitigation credits for such projects. The purchases to date in the

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<sup>6</sup> Technically, Dawson County may be considered to be the lead entity in the operation of the bank, but both government organizations are deeply involved in the project.

<sup>7</sup> The MBRT's monthly meetings generally alternate month-by-month from mitigation banks in the Piedmont and Atlanta area to the coastal region.

ERMP have been by less than ten buyers. One buyer was even another mitigation bank (the Etowah River Mitigation Bank??? – unsure of name) to be used as leverage for a project of its own.

Credits have some degree of transferability. Inter-basin transfers are not permitted out of the Etowah River watershed. Within different parts of the overall Coosa River basin, however, transfers are permitted on a regulated basis. A one-for-one exchange occurs within the Etowah River watershed. For credits that are transferred to the Conasauga River watershed, for instance, a multiplier will be used, such that more credits will have to be purchased by the “receiving” site in the Conasauga River watershed than were actually destroyed.

The COE requires that success be defined early on. Failure will constitute a breach of contract. Mitigation banks should therefore set money aside for potential problems, natural or human-induced, in order to prepare for remediation if problems arise. Trees may have to be replanted, for instance, if drought or floods or hungry deer should decimate the young saplings planted the first time around. Once the MBRT has certified at bank as complete, the project is essentially done. Perhaps in the case of the ERMP, the county will continue to own it in perpetuity. There are additional credits made available when a conservation easement is placed on the land, although the timing is not right for that currently at the ERMP. The COE requires only that restrictive covenants be placed on the land to protect in perpetuity, according to Mr. Nelson. Conservation easements or conveyances to land trusts are encouraged through incentives, but not necessarily mandatory.

County-run mitigation banks have an important future. Mr. Nelson is a strong proponent of such an approach, especially in counties expecting substantial growth and needing large expansions of county infrastructure. Such county governments will incur the need for mitigation credits in the course of such construction. Even if such counties do not operate their mitigation banks as commercial enterprises, they should nonetheless operate banks in order to meet the counties’ own needs for future credits. Perhaps interstate cooperation will result in larger mitigation banks that can help protect large parts of the Etowah River and its tributaries. Mr. Nelson proposed a tri-state mitigation bank between Pickens, Dawson, and Cherokee counties as a plan well worth pursuing.

#### POSSIBLE CONTACTS:

Doris Cook  
Dawson County government/Etowah Water and Sewer Authority  
(706) 216-6168

Bill Johnsa  
Dawson County Administrator  
(706) 344-3501

Joey Homans  
county attorney, Dawson County  
(706) 216-3090

Dawson County Chamber of Commerce  
(706) 265-6278  
(877) 302-9271 [toll-free]

Martin Nelson  
Register and Associates  
McDonough, Henry County, GA  
office: (678) 432-2636  
cell: (404) 862-1665  
email: marksnelson@attbi.com

Harvey Young  
Georgia Greenspace Program  
Atlanta, GA  
(404) 656-5165 [DNR's number – ask for the Georgia Greenspace Program]

#### Wetlands Reserve Program

The Department of Agriculture also provides direct payments to private landowners that agree to place sensitive wetlands under permanent easements. This program can be used to fund the protection of open space and greenways within riparian corridors. It is administered by the NRCS in Georgia (Gwinnett County Open Space and Greenway Master Plan, 2002).

#### Wildlife Habitat Incentives Program.

This is a voluntary program for people who want to develop and improve wildlife habitat on private lands. It provides both technical assistance and cost sharing to help establish and improve fish and wildlife habitat. Average payments under the program are \$4,800 with a cost-share requirement. In Georgia the priority habitats are longleaf pine ecosystems, early successional plant habitats, and habitats of special concern including riparian areas and endangered or threatened species habitats. For more information contact U.S. Department of Agriculture, Natural Resources Conservation Service, P.O. Box 2890, Washington, DC 20013-2890; phone: (202) 720-3534 or (706) 546-2272; email [leslie.deavers@usda.gov](mailto:leslie.deavers@usda.gov) or [richardoliver@ga.usda.gov](mailto:richardoliver@ga.usda.gov)

#### General Challenge Grants.

The National Fish and Wildlife Foundation operates a conservation grants program that awards challenge grants, on a competitive basis, to federal, state, and local governments, educational institutions, and non-profit conservation organizations. Grants typically range from \$10,000-\$150,000, based upon need. The grants are awarded to projects that: “address priority actions promoting fish and wildlife conservation and the habitats on which they depend; work proactively to involve other conservation and community interests; leverage available funding; and evaluate project outcomes.” The Foundation is mandated by Congress to ensure that each federal matching dollar awarded is leveraged with a non-federal dollar or equivalent goods and services. The Foundation refers to these funds as “challenge funds.” As a policy, the Foundation seeks to achieve at least a 2:1

return on its project portfolio -- \$2 raised in challenge funds to every federal matching dollar awarded. The Georgia River Network was a recipient of this grant to research and restore populations of the endangered robust redhorse fish species to critical sites along the Ocmulgee River. The project pre-proposal application is available at <http://critters.nfwf.org/eprojects/Preproposal.php>. The pre-proposal is due in mid-June to the U.S. Fish and Wildlife Service Region IV, 1875 Century Blvd., Atlanta, Georgia 30345; phone: (404) 679-4000; website: <http://www.nfwf.org/programs/guidelines.htm>.

#### Five-Star Restoration Challenge Grants.

The Five-Star Restoration Program provides modest financial assistance on a competitive basis to support community-based wetland, riparian, and coastal habitat restoration projects that build diverse partnerships and foster local natural resource stewardship through education, outreach, and training activities. The program is open to both public and private entities. In 2000, Georgia recipients of the grant were Chattahoochee High School students in partnership with Fulton County Government, Georgia Institute of Technology, and other private and state organizations, in order to construct a wetland treatment system as part of a larger Active Riparian Commensal Habitat Education Network to raise awareness about habitat and water quality protection in the Chattahoochee River Watershed. The average grant is \$10,000 with an application deadline of March 1<sup>st</sup>. Applicants are notified of awards in May. For more information contact the U.S. Fish and Wildlife Service Region IV, 1875 Century Blvd., Atlanta, Georgia 30345; phone: (404) 679-4000; website: <http://nfwf.org/programs/5star-rfp.htm>

#### Bring Back the Natives Grant Program

This program provides funds to restore damaged or degraded river habitats and their native aquatic species through watershed restoration and improved land management. Local and state governments along with local non-profit organizations are eligible. Grants range from \$20,000-\$450,000 with the full proposal due mid-August. Contact the National Fish and Wildlife Foundation at 1120 Connecticut Ave. NW, Suite 900, Washington, DC 20036 (202) 857-0166 for more information.

#### Forest Legacy Program

The program purpose is to protect private forestlands from being converted to non-forest uses. It is a limited funding option that is based on a cost-share program. The state or private entity would be responsible for 25% of the costs. The funds from the Governor's Greenspace Program would be a good match. If a project is interested it must be visited by Georgia's Forest Legacy committee to be considered, but the final funding decision is set in Congress. Program is limited to private landowners. For more information contact Doug Parsons at Georgia Conservancy, phone: (706) 543-4311; email: [gaconservancy@hotmail.com](mailto:gaconservancy@hotmail.com); website: <http://www.fs.fed.us/spf/coop/flp.htm>

## Community Forestry Bonds

*Community Forestry Bonds*<sup>TM</sup> (taken directly from [www.rffi.org/finance .htm](http://www.rffi.org/finance.htm))

- Non-exempt bonds issued for the acquisition of forest and agricultural lands by non-profit, section 501(c)3 organizations.
- Revenue bonds backed by the revenue stream generated by the low-impact management of the land.
- Process
  - A community citizens' group, or a local government, or both who want to protect a specific parcel of land as a "working" green belt would create a balanced board of directors representing all interested parties (landowners, environmentalists, financial leaders, forest and agricultural professional and others concerned about managing the land in question) to develop an agreement on what land would be acquired and at what price and how the land would be managed.
  - Following the agreement, a local governmental entity on behalf of the non-profit organization would issue revenue bonds to fund the acquisition of the land.
  - Actual title to the land would be acquired by the non-profit organization established to manage the land pursuant to the agreement.
- In forming a non-profit organization, community leaders would be required to meet strict standards, before bonds are issued, to ensure public benefits are achieved and to prohibit potential abuse. These standards include:
  - Drafting a renewable resources management plan that exceeds state and federal law;
  - Entering into a conservation easement in perpetuity;
  - Securing the commitment of a third party 501(c)3 organization or governmental entity to hold the conservation easement;
  - Providing the third party with financial resources needed to monitor compliance with the easement; and
  - Establishing a board of directors, in which no more than 20% of its members are controlled by a for-profit entity that has or does business with the non-profit.
- The bonds will have to be repaid. This will be done through the harvest of forest and agricultural resources in compliance with their new management plan.
- Legislation will be required. To ensure that the issuance of bonds is fully consistent with the intent of Congress, clarifying language would be required. A sample bill is available at [www.rffi.org/finance.htm](http://www.rffi.org/finance.htm).

### *King County, Washington*

King County, Washington is the pilot for a new kind of forest conservation. The Evergreen Forest Trust, a nonprofit company, bought the entire Snoqualmie Tree Farm, 104,000 acres, for \$185 million. The deal is expected to go through this summer and the farm will become the Evergreen Forest at Snoqualmie. The trust hopes to finance the deal with Community Forestry Bonds<sup>TM</sup>. These bonds are tax-exempt bonds, which are similar to the bonds that finance hospitals. The only problem is that these bonds may not

be legal. US Forest Capital, a financial and forest services company, is in the process of passing legislation to make these bonds legal.

Because of the large amount of interest that people from all over the world have showed in Community Forest Bonds™, a website has been created to illustrate how the bonds will work. [www.rffi.org/finance.htm](http://www.rffi.org/finance.htm) Joe Euphrat and Tom Tuchmann are the brains behind the bond.

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### **Greenspace Funding Sources for Developmental Resources**

#### **Conservation Subdivision**

Conservation subdivisions represent a means of preserving significant areas of greenspace at little or no cost to taxpayers while providing increased variety in the housing market—plus infrastructure savings for developers in the bargain.

#### **Community Development Block Grant Program**

The U.S. Department of Housing and Urban Development (HUD) offers financial grants to communities for neighborhood revitalization, economic development, and improvements to community facilities and services, especially in low and moderate-income areas. Several communities have used HUD funds to develop greenways, including the Boulding Branch Greenway in High Point, Georgia (Gwinnett County Open Space and Greenway Master Plan, 2002).

#### **Tax Increment Financing**

Tax Increment Financing (TIF) is a local governmental finance tool used to finance infrastructure for the redevelopment of depressed areas, and for certain new developments, specifically in cases where the local government appears justified in “speculating” on the probability of increased property tax revenues (the tax “increment”) in a specific geographic area in the near future. When tax revenues in a discrete redeveloping or developing area can reasonably be expected to increase in the near future, a municipality, county, state, or other political subdivision may designate that particular geographic area as a tax increment district, and pledge a portion of, or all, future property tax increments above the base or starting level from that district to



infrastructure development projects in that district. Money may be borrowed by issuing bonds to be repaid by these future tax increments. State TIF laws generally require the State to certify that the use of TIF is reasonable and justified based on the relevant figures and projections, and that no unfair burden of taxation is placed on any portion of the community. The potential to use TIF for green space protection and development of what has come to be known as “green infrastructure” has not been explored in this State. The Committee considered recommending an amendment to the TIF statutes. However, the Committee believes that TIF financing may currently be used by local governments, under the Redevelopment Powers Law, for many important green space purposes, namely the development of greenway corridors, local parks, and other green space associated with new or redeveloped residential and/or commercial subdivisions, or city neighborhoods, with no change to existing statutes (Georgia Greenspace Program Committee Report, 1999).

### **Greenspace Funding Sources for Agricultural Resources**

#### Conservation Reserve Program

The U. S. Department of Agriculture, through its Agricultural Stabilization and Conservation Service, provides payments to farm owners and operators to place highly erodible or environmentally sensitive landscapes into a 10-15 year conservation contract. The participant, in return for annual payments during this period, agrees to implement a conservation plan approved by the local conservation district for converting these sensitive lands to a less intensive use. Individuals, associations, corporations, estates, trusts, cities, counties and other entities are eligible for this program. This program can be used to fund the maintenance of open space and non-public use greenways along water bodies and ridgelines (Gwinnett County Open Space and Greenway Master Plan, 2002).

#### Conservation Contracts

The USDA Farm Service Agency can forgive debt from Farm Loan Program loans in exchange for conservation contracts on environmentally sensitive portions of a borrower’s property. Contracts can be set up for conservation, recreational and wildlife purposes on farm property, including properties adjacent to streams and rivers. Interested individual borrowers should contact their local Farm Service Agency office to apply (Gwinnett County Open Space and Greenway Master Plan, 2002).

#### Agri-Tourism

##### Synopsis

The broad industry of agri-tourism offers an excellent vehicle for promoting heritage awareness, eco-consciousness, understanding of the farm-to-kitchen process for foodstuffs, and preservation of open space in rapidly developing suburban areas. Because of growth in the metropolitan Atlanta region, the latter benefit is of special importance. Agri-tourism can be used to allow lands currently used for livestock or under cultivation to remain primarily agricultural in nature. Under the aegis of the Governor’s Greenspace Program, open space protection has received renewed interest. Local governments can directly or indirectly support the diversification of farming techniques, thus allowing them to meet their twenty percent goal of greenspace protection.

### Agri-tourism

Agri-tourism is a many-faceted activity. Also known as agri-tainment, it shares overlapping programs with eco-tourism, historic preservation, conservation promotion, and agricultural economics in general. Whatever the appellation, the rise of agri-tourism is a response in large part to heightened eco-consciousness of Americans and nostalgia for the rural aesthetic that permeates city dwellers nationwide.

Popular interest for pastoral imagery in Western culture reaches at least as far back as the Roman Empire. Cicero and others, most of whom were intimately associated with the urbanity of metropolitan Rome, expounded on the virtues of rural life. With industrialization and the rapid rise of the urban-dwelling population in England in the late 1700s and early 1800s, the nascent Romantic movement quickly gained favor. Artists of the time, such as Constable and Turner, delighted their patrons with paintings of rural England. Writers and poets once again espoused the wonders of life in the country, both in Great Britain and in America. These idyllic portraits of agrarianism often overlooked the harsh realities of life on farms, but their popularity nonetheless continued to rise with urbanization. The picturesque landscaping and house designs of Americans like Frederick Law Olmsted and A.J. Downing fed the growth of the urban public park movement and suburbanization. The widely published works of such individuals only reinforced the popular nostalgia for simple, yet stately, houses in the country, or, alternately, countryside in the city.

Dwellers in urban/suburban America today are still strongly influenced by these distorted views of life for their country counterparts. The American desire for detached houses with large yards in suburbia exemplifies this continuing trend. Ironically, however, over a century and a half of suburbanization has devoured hundreds of thousands of acres of cropland and driven farmers out of business due to escalating real estate prices and property taxes. In the melee between suburbia and the countryside, a new industry has been born.

Agri-tourism has developed to meet the city dweller's thirst for the "farm experience" while preserving a certain rural ethos. Meeting this thirst has led to various solutions, most of which reflect an alternative to the reality of today's modern agri-business farms, where advanced computer technology and mechanization have long since replaced the mule and plow of prior generations. Sometimes, this rural ethos is completely contrived and artificially constructed, such as at the newly opened 1870 "Crossroads" Village at Stone Mountain Park just east of the city of Atlanta.<sup>8</sup> In other cases, the ethos serves to protect Georgia's rich farm heritage, such as the two centuries of history carefully preserved at the Shields-Ethridge Heritage Farm near Jefferson, Georgia.<sup>9</sup> In yet other instances, a working farm has chosen to supplement its main agribusiness operations with tourist-oriented activities, such as at Cagle Dairies.<sup>10</sup> Agri-tourism thus functions for a variety of purposes, from serving as a primary profit-center in itself to enabling the

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<sup>8</sup> [http://www.stonemountainpark.com/newsite/attractions\\_crossroads.asp](http://www.stonemountainpark.com/newsite/attractions_crossroads.asp)

<sup>9</sup> <http://www.shieldsethridgefarm.org/>

<sup>10</sup> <http://www.caglesdairy.com/>

preservation of historic farm resources to supplementing the budgets of modern-day farms.

Of the many shapes which agri-tourism has taken, certain approaches offer the best method of protecting the largest amount of open space possible. Heritage preservation and pure entertainment projects provide important opportunities, and these avenues should be promoted. In order to support large tracts of open space, however, currently operating farms must be encouraged to continue in operation in the face of approaching suburbanization.

Farmers in areas subject to approaching development will almost certainly have to take into account legal methods of open space protection if they desire to continue farming. Some private land-use tools can help them in their efforts. Conservation easements in perpetuity on their farmland will preclude future development into subdivisions, thus lowering the market value of the land and holding property taxes down. Because of the emphasis on greenspace protection in Georgia, especially in rapidly developing counties, local governments may be willing to buy such easements or facilitate their transfer to local land trusts. Depending on the historic resources available, the landowner may also be eligible for certain tax breaks and preservation grants for heritage preservation. Restrictive covenants do not provide the same benefits up front as conservation easements, but covenants can be used in tandem with easements on such projects as historic resource protection and wetlands preservation, restoration, or enhancement in order to guarantee greater watershed stability for the farm. Finally, a special ten-year farming easement program can be implemented by eligible farmers. Such easements do not tie up the land in perpetuity, but allow for property tax deductions over the course of ten years because of restrictions on land use during the specified period. This method offers greater flexibility than the permanent and irrevocable protective measures under a conservation easement in perpetuity, but this short-term approach also fails to take full advantage of possible tax benefits.

Alternative farm uses are becoming ever more necessary in the metropolitan Atlanta area because of escalating real estate prices. As a comparison, based on an analysis of average per-acre nominal sales prices from 1977 to 2001, farmland in primarily agricultural southwest Georgia averages \$1,797 an acre, while much of the metro Atlanta and north Georgia area sees sales of \$8,406 an acre.<sup>11</sup> Property taxes are assessed on the basis of market valuation for land, making land ownership much more expensive in developed or developing areas of the state. Traditional row-crop market prices are insufficient to allow farms to make a profit when faced with such real estate costs.

Georgia faces a tough challenge in sustaining its agricultural economics and its rural heritage in the face of mounting development pressures. According to a recent study, Georgia ranks third nationwide in prime productive farmland loss.<sup>12</sup> The greatest amount of farmland loss occurs in the rapidly growing metropolitan Atlanta region. Protecting farmland allows for the preservation of Georgia's agricultural heritage and provides

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<sup>11</sup> <http://www.agecon.uga.edu/%7Ecaed/Farmdoc02.pdf> (completed April 2002).

<sup>12</sup> [http://www.farmland.org/news\\_2002/051602\\_ga.htm](http://www.farmland.org/news_2002/051602_ga.htm)

ecological stability to natural ecosystems that help to clean the air and water on which all Georgians depend.

The federal government also sponsors efforts at farmland preservation. The Farmland Protection Program, operated by the Natural Resources Conservation Service in the U.S. Department of Agriculture, offers matching funds to aid in the acquisition of development rights in order to allow farm and ranchland to remain in productive agricultural uses. The USDA would provide up to fifty percent of the fair market value of the easement. To qualify, certain criteria must be met. The land proposed for the easement must be all or part of a farm or ranch and:

1. Contain prime, unique, or other productive soil or historical or archaeological resources;
2. Be included in a pending offer from a State, Tribal, or local government or non-governmental organization's farmland protection program;
3. Be privately owned;
4. Be covered by a conservation plan for any highly erodible land;
5. Be large enough to sustain agricultural production;
6. Be accessible to markets for what the land produces; and
7. Be surrounded by parcels of land that can support long-term agricultural production.<sup>13</sup>

Some agricultural activities provide reminders of the disjoint between the reality of farm life and the idyllic notions of many suburbanites. Chicken farms and dairy operations, for instance, are well-known for their unfavorable odors and smells that are carried by air currents into nearby subdivisions. In Georgia, suburbanites in such cases have sued for injunctions against the farmers. These court challenges hinge on several issues, including the common law principle of protection for farmers if the complainants can be shown to have come to the nuisance (i.e., that the agricultural operations existed before the residential development of neighboring land). The outcomes in these lawsuits will depend in large part on the particular facts of each case.

Agri-tourism is essentially a catch-all category that embraces many otherwise unrelated activities and endeavors. Three major principles help to define the far-reaching activities that fall under this umbrella concept. Customer involvement, which has several levels, distinguishes agri-tourism from traditional agriculture or typical trips to the grocery store. Relative timeliness defines different types of agri-tainment. Finally, coordination among producers/service providers allows the creation of sustainable markets in rural areas that otherwise could not support such activities.

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<sup>13</sup> Farmland Protection Program. <http://www.nrcs.usda.gov/programs/fpp/>  
Farm Bill 2002: Farmland Protection Program. <http://www.usda.gov/farmbill/>

Customer involvement is a hallmark of agri-tainment. Sometimes the consumer is relegated to the position of observer. These consumers observe working dairy farms, parades, festivals, county fairs, and historic resources. They take guide-led tours of vineyards, orchards, and organic farms. To these consumers, agri-tourism is a spectator event, to be watched from a detached point-of-view.

The next level of consumer seeks more active involvement in the agri-tainment enterprise. Such participants venture out to the countryside or to agrarian history- and heritage-related sites in order to enjoy some semblance of the rural experience. These consumers go out to pick their own strawberries and peaches, or to take part in the music and cider making and dancing at the roadside apple stands in the north Georgia mountains in the fall. They seek out an afternoon of hayrides, horseback adventures, Civil War re-enactments, farm festivals, fishing, and hunting. Some consumers are so drawn to certain agri-tourism activities that they become regular, active participants. On a frequent basis, they venture out to farmers markets for fresh produce or buy a weekly subscription to organically grown foods. Such subscriptions can cost \$350 for upwards of twenty-five weeks, such as at East Lake Commons in the Atlanta area.<sup>14</sup> The higher quality of locally grown organic food has created its own high-end market, allowing farmers to earn more per acre on such crops. Organic farmers can set up the aforementioned subscription services and/or sell their produce at various farmers markets. Several in Atlanta cater to a large organic foods consumer group.<sup>15</sup> Some consumers choose to lease plots in pine plantations for regular hunting during open season on particular animals (e.g., deer, turkey, quail).

Agri-tourism takes many forms throughout the year. Some of these activities are available for consumers year-round, such as daily farmers markets in densely populated areas and heritage tourism sites. Tours of historic farmsteads and modern agribusinesses generally operate regardless of the time of year. For instance, the revenue from agri-tourism at Cagle Dairy, such as from the year-long tours of the modern dairy barn, bring in upwards of forty percent of total annual revenue. Such seemingly frivolous or marginal efforts at allowing limited public access in fact result in a substantial income supplement.<sup>16</sup>

Others are seasonal, based on the harvest period for the fruits, vegetables, and/or nuts produced in a particular area. Typically, these seasonal events last a couple of months, from the beginning of the harvest until the last berry is picked. Pick-your-own strawberry patches, for instance, have grown markedly in popularity. The demand for such fresh fruit – offering potential revenues of \$17,000 an acre in the metro area, as opposed to approximately \$150 and acre for wheat – is sufficient to make this aspect of agri-tainment economically prosperous for farmers.<sup>17</sup> A couple of crops in Georgia have

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<sup>14</sup>“Metro Atlanta’s Urban Farming: Cash Opportunities Harvested from Growth.”  
<http://www.accessatlanta.com/ajc/business/horizon/0602/10farms.html>

<sup>15</sup> “Organic Produce Finds a Local Market.”  
<http://www.accessatlanta.com/ajc/business/horizon/0602/10market.html>

<sup>16</sup> <http://www.cagledairy.com/>

<sup>17</sup>“Metro Atlanta’s Urban Farming: Cash Opportunities Harvested from Growth.”

garnered such recognition that they command a national following and garner media attention during harvesting. Vidalia onions represent such a crop. Because of the natural limitations imposed by the cultivation requirements and growing season of a particular crop, year-round activities cannot be maintained. Some enterprising agri-tourism farmers have diversified their crops so that the harvests can be staggered across the months. Thus, year-round events, such as public-oriented farm tours, petting zoos, and commercial sod farming, can be teamed together with blueberry picking, Halloween pumpkin patch festivities, and Christmas tree farming.<sup>18</sup> Such diversified agricultural activities help to generate revenue most of the year and keep the farm operating at a highly productive level.

Single week or single day festivals and events occur throughout the state to commemorate a locality's primary agricultural products or to celebrate local history. Several municipalities are so associated with certain crops that they are known as world capitals for their respective agricultural products – Albany has pecans, Cordele has watermelons, Sylvester has peanuts, Colquitt has its mayhaw, and Gainesville is self-proclaimed Poultry Capital of the World. Since many of these festivals are crop-related, the festivals are necessarily limited in length. Further, such celebrations are generally only a day or two in length, in order to encourage participation without requiring an extended commitment. These towns use the festivals as a way of generating local enthusiasm as well as bringing in out-of-towners who stay in hotels and spend their money at the various booths, fair rides, and concession stands. Many smaller communities hold farmers markets only on a biweekly or monthly basis. Athens, for instance, enjoys two farmers markets every Saturday – one downtown by City Hall and another at Big City Bread. Both chemically treated and organic vegetables are sold at these markets.<sup>19</sup> Daily farmer markets, however, would likely not be supported by local demand at present.

Finally, establishing a critical mass of interest in particular forms of agri-tourism is vital to ensuring a sustainable market. Since rural areas are low density by nature, agri-tourism activities must have a sufficient draw to entice others to travel from their respective homes to guarantee financial solvency. Cooperation and coordination among agricultural producers and service providers are critical to create the necessary draw. Generally, by providing a diverse range of events and activities, enough interest will be generated to pull in visitors and tourists from elsewhere.

Sometimes, a single operation will offer enough opportunities to bring in tourists. Rarely would such an operation be able to survive on its own off of tourist revenues alone. While Cagle Dairy offers a variety of activities, including the previously mentioned modern dairy barn tours and a maize maze (i.e., a maze in a field a corn), the commercial

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<http://www.accessatlanta.com/ajc/business/horizon/0602/10farms.html>

<sup>18</sup>“Farmers Offer Themselves as Entertainment for City-Dwellers.”

<http://www.accessatlanta.com/ajc/business/horizon/0602/10upick.html>

<sup>19</sup> “Farmers’s Market Carries on Tradition.”

[http://www.onlineathens.com/stories/061602/hga\\_20020616064.shtml](http://www.onlineathens.com/stories/061602/hga_20020616064.shtml)

dairy operations still provide over half of annual revenues.<sup>20</sup> Westville, which is a heritage village created in the mid-1970s from a disparate collection of period buildings and tools, offers visitors the chance to observe life as it was in the 1850s in west central Georgia. Nonetheless, its remote location and funding scarcity led to several years of budget deficits early on. But for the stream of tourists attracted to the region because of stories of nearby Plains during President Carter's administration and afterward, Westville officials admit the heritage village might not have survived.<sup>21</sup> Similarly, the state-owned and operated Agrirama in Tifton has the benefit of location – its positioning on U.S. Interstate 75 on the way to Florida has certainly helped it to lure enough southward bound travelers to spend an afternoon visiting another heritage site of hypothetical nineteenth century homesteads.<sup>22</sup>

More coordinated efforts offer greater chances of success. Sometimes, such efforts will be completely handled by interested parties in the private sector. At other times, however, joint ventures with non-profits or government entities can help to spur cooperation. State farmers markets work in such a way as to bring together specialty farmers from many production niches in order to create enough interest from potential customers.

#### Conclusion

Agri-tourism offers a way to satisfy the urban/suburban demand for a rural experience while preserving important cultural resources, encouraging Georgia's strong agricultural traditions, and protecting valuable open space. This latter category offers especially important benefits in the rapidly developing counties surrounding the city of Atlanta. By helping farmers to diversify their agricultural activities and including tourism as part of their over-all farm economics, open space can be protected affordably and effectively through private sector transactions.

#### **Greenspace Funding Sources for Recreational Resources**

Recreational trails and activities can be funded in many different ways. Every source should be considered when looking for ways to fund a trail. Sources of funding include private foundations, individual donations, local funds, state grants and federal grants. Combining all sources will yield the best success. A quick internet search can lead you in the right direction to good funding sources.

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<sup>20</sup>“Metro Atlanta's Urban Farming: Cash Opportunities Harvested from Growth.”<http://www.accessatlanta.com/ajc/business/horizon/0602/10farms.html>

<sup>21</sup> The Official Westville website. <http://www.westville.org/>

<sup>22</sup> The Official Agrirama website, operated by the State of Georgia. <http://www.agrirama.org/>

## POTENTIAL FUNDING SOURCES

1. Federal government
  - Federal Surface Transportation Funds
  - Community Development Block Grants
  - Land and Water Conservation Fund
2. State government
  - Recreation, transportation, conservation, water quality programs
3. Local government
  - Taxes
  - Impact fees
  - Bond referendums
  - Capital improvements program
4. Private Sector
  - Land trusts
  - Foundations
  - Local businesses
  - Individual sponsors
  - Volunteer work
  - “Buy-a-Foot” Programs

\*Taken directly from Trails for the Twenty-First Century: Planning, Design, and Management Manual for Multi-Use Trails by Charles A. Elnik, Kristina Olko, Robert M. Seams \*

Many of the following funding ideas will be specific for canoe/water trails; however, by changing around a few words they can be used for any type of recreational trail project. Some ways to receive funding include:

- Rent canoes, kayaks and other water crafts at different points along the river trail with a percentage of the proceeds from the rentals going into a canoe trail fund.
- Charge a fee at boat ramps or parking sites along the river.
- Sales tax revenue: Charge a sales tax on canoes, kayaks and other water equipment. The money received can be used in purchasing land and easements and for maintenance of the trail.
- If there are developing communities along the river, then impact fees and development excise taxes can be used to purchase trail land.
- If sewer and utility lines run along the river, then you could ask the utilities to offer you a trail right-of-way.



## **TEN FUN WAYS TO FUND YOUR**

### **TRAIL**

1. Rent bicycles or other equipment.
2. Sell sponsorships of feet of trail.
3. Charge concession stands a fee to operation on the trail.
4. Create a gift catalog to sell trail items.
5. Charge an entry fee for a long-distance race on the trail.
6. Ask bookstores or sporting goods stores to donate profits to the trail for one day.
7. Establish a farmer's market along the trail and charge a vendor fee.
8. Have an art show and ask artists to donate their work.
9. Hold a raffle with donated items from local businesses.
10. Charge admission to a "chowder challenge" or "blues-n-brews"(microbrewery and performers) festival.

\*Taken directly from Trails for the Twenty-First Century: Planning, Design, and Management Manual for Multi-Use

- Have membership drives for an "Upper Etowah Canoe/Water Trail Organization".
- Have fundraising events such as a "Gala Black Tie Dinner Dance & Auction", benefit dinners, and "rubber duckie" races.
- Provide the public with sponsorship opportunities by mailing out brochures with what donations the trail is need of; for example benches, garbage cans, and restroom facilities.
- Sale "trail bricks": Bricks that individuals and companies can purchase that will be inscribed and placed on the trail path.
- Bond Referendum: Put trail propositions on local ballots. A good case study on how bond measures have been implemented into greenspace plans is the Oregon Metro Greenspace Plan.

There are tons of state and federal grants available for recreational trail projects. In order to be in a good position to receive funding one must read the grant description carefully, determine whether the grant requires matching funds, and find a due date for the grant application process.

#### State and Federal funding:

- **Recreation Assistance Fund (RAF)\*:** State grants which will increase the local supply of public recreation lands and/or facilities through the purchase of real property, facility development or rehabilitation of existing facilities.
- **Recreational Trails Program (RTP)\*:** Acquisition and/or development grants (80% federal/ 20% local\_ for motorized and nonmotorized recreational trails including new trail construction, maintenance/rehabilitation of existing trails, trail-side and trail-head facilities.
- **Land and Water Conservation Fund (LWCF)\*:** 50% matching grants for acquisition of real property and development of facilities for general purpose outdoor recreation.

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\* Grant descriptions taken from the Catalog of Georgia State Financial Assistance Programs.

- **Local Development Fund\***: Matching grants to fund community improvement activities of local governments in Georgia. Recreation improvements is an example of the types of activities that the could be funded.
- **Urban and Community Forestry Financial Assistance Program\***: A financial grant assistance program designed to encourage citizen involvement in creating and supporting long-term and sustained urban and community forestry programs throughout the state. Projects include greenspace management.
- **Georgia Fund Loan Program\***: Low interest loans for water projects.
- **Transportation Enhancement Program\***: Federal funding for acquisition of scenic easements and scenic and historic sites.
- **Georgia Governor's Discretionary Fund Grant**: Money that the governor chooses to award at his discretion.
- **Community Development Block Grant (CDBG)**: An eligible activity for the grant is building public facilities and improvements, such as recreational facilities. Eligible recipients include local governments with 50,000 or more residents and urban counties with populations of at least 200,000.
- **Rivers, Trails & Conservation Assistance Program (RTCA)**: Does not provide financial assistance, but offers assistance in achieving community-set goals, assessing resources, developing concept plans, engaging public participation, and identifying potential sources of funding.

Other grants available:

- **PowerBar's D.I.R.T. (Direct Impact on Rivers and Trails) Outdoor Recreational Grant Program**: Provides funding to individuals and groups that create, maintain, improve or restore access to valued recreational areas.
- **The Arthur M. Blank Foundation Grant**: Offers grants for the environment including grants supporting outdoor activities; one goal of the Environmental Initiative section of the foundation is to preserve greenspace.

## **PUBLIC OUTREACH AND IMPLEMENTATION**

Creating a regional greenspace plan without the aid of compelling state or federal regulations requires that a host of political, ecological, economic, and legal challenges be addressed. Public education and outreach offer an incredibly important tool in addressing these concerns. One of the most effective ways of encouraging collaboration and watershed based planning involves broad public support that cuts across traditional interest groups.

By making greenspace a community value instead of a political barb, implementation will become more effective. As public use and enjoyment of greenspace increase, community support for such regional planning will also grow. However, a regional greenspace program will only be successful if it truly reflects community values and responds to community concerns.

Thus far, counties in the Upper Etowah Watershed have begun to take advantage of the Georgia Greenspace Program. Their efforts at targeting twenty percent of their land for permanent greenspace protection has required a good deal of public outreach already including targeting potential interest groups as well as the general public.

Selling a regional greenspace plan will involve garnering the support of the residents as well as the elected officials who have the final decision-making authority. A public outreach program that educates residents and officials about the benefits (and cost) of a regional greenspace program, and seeks their input and assistance in its development is suggested. Components of a regional public outreach program could include:

- Informational meetings for the general public
- Meetings with county and municipal elected officials and staff
- Meetings with stakeholder groups (e.g. developers, environmentalists, industrialists, economic developers, land planners, recreational advocates, and farmers from throughout the watershed)
- Development and distribution of informational brochures made available to the public at various distribution points, including governmental agencies (e.g., the four regional development centers in the Etowah Watershed, county/municipal planning and zoning offices, selected Department of Natural Resources offices, federal Etowah-related agencies willing to help in the distribution) and at private institutions in support of the initiative (e.g., chambers of commerce, visitor information centers, heritage foundations, land trusts).
- Public service announcements for local radio stations
- Development of a Web site promoting a Regional Greenspace Approach
- Outreach through other regional organizations such as The Upper Etowah River Alliance, and the Lake Allatoona Preservation Authority, and
- Creation of a Regional Speakers' Bureau.

The Upper Etowah Watershed is already composed of two very strong public organizations that are interested in supporting the Upper Etowah Watershed Regional Greenspace Plan; The Upper Etowah Regional Alliance and the Lake Allatoona Preservation Authority. Therefore, it would only seem to diffuse efforts if a specific Regional Greenspace Committee was formed.

Instead, in order to facilitate current outreach efforts, as well as allow for coordinated outreach and prevent unnecessary duplication, a regional clearinghouse could be set up. This regional clearinghouse could be an actual 501(c)(3) non-profit, but it can also be a more informal arrangement among the more strongly interested organizations. Central to this greenspace nexus should be a Regional Speakers' Bureau. A variety of individuals who hail from various backgrounds should be recruited to serve on the Bureau. Public officials should be included, as well as ecologists, farmers, extension agents, lawyers, environmental engineers and other greenspace-interested academics, conservation subdivision planners and the like. By having such variety in the members of the Speakers' Bureau, individuals and organizations desiring to learn about regional greenspace planning can select someone who will most likely understand the issues which are close to the hearts of the particular audience.

The Regional Speakers' Bureau could be supplemented with presentation aids including brochures, handouts, audio-visual aids and a pre-designed presentation. With these ready-made resources available, a speaker can check out the presentation of their choice and use it to augment their own knowledge. Having these simple resources available at several locations throughout the watershed will help to enhance presentations, as well as the recruitment of people who are excited about greenspace but who would feel more comfortable with a prepared presentation.

In addition to the Regional Speakers' Bureau, other human resources are readily available for use in promoting greenspace awareness and regional thinking. Several non-profit organizations exist throughout the area that regularly participate in clean-ups, service projects and in-kind contribution support. Some of these have a broad focus (e.g., the Boy Scouts, the Girl Scouts, Future Farmers of America, 4H, Key Club, other high school service clubs, church volunteer organizations, civic clubs like Rotary and Kiwanis), while others are more directed toward greenspace or the environment (e.g., land trusts, watershed associations, specific bird or plant-oriented organizations). Groups from the first category can be encouraged to work on projects that promote regional greenspace. Joint projects with groups from both categories can be used as a means of promotion and of interaction, thus allowing future associations and projects to be created. Coordination of efforts, such as during a Regional Greenspace Week, would concentrate publicity and lend these organizations' public image in support of greenspace.

Pre-existing resources and networks that governmental and private groups use for disseminating information pertinent to their missions should also be noted and put to good use. Non-profit organizations, such as the Georgia Conservancy and the Georgia Trust for Historic Preservation, should be included in planning opportunities in order to allow information on regional projects to be distributed to a wider audience.

By the completion of the Upper Etowah Watershed Regional Greenspace Plan in August of 2002, two Etowah Watershed Regional Greenspace Planning Workshops will have been held (Appendix B). These workshops provided an opportunity for the counties to work together regionally to:

- Maximize the environmental and economic benefits of greenspace protection,
- Leverage financial resources, particularly from the federal government,
- Interact and share information with other greenspace and development planners within the Etowah Watershed, and
- Provide ideas, concerns, and suggestions for developing and implementing the Upper Etowah Watershed Regional Greenspace Plan, and
- Provide a facilitated forum to begin working on some of the regional strategies to overcome greenspace protection barriers.

A cooperative effort between counties in the watershed that promotes consistency between both the ecological and quality of life goals and legal structures of their greenspace plans will result in aggregate benefits across the watershed providing friendlier, healthier, and more enjoyable conditions for their citizens. However, greenspace planning cannot end at the completion of this Greenspace Plan. The Upper Etowah Watershed Regional Greenspace Plan should be adaptive and evolve with the advancement of science, technology and public interest. Greenspace planning should also become a fixture of comprehensive land use planning. The planning of development and transportation infrastructure goes hand in hand with the planning for land preservation and green infrastructure. Over the next few years, counties in the Etowah Watershed will need to work together to procure funding and public support for the Upper Etowah Watershed Regional Greenspace Plan.

## **Appendix A: Using Greenspace to Protect Impaired Streams**

### **Recommendations for areas with less than 10% impervious surface area (ISA)**

- 100 foot buffers on impaired streams
  - Undeveloped, natural land (with native vegetation)
  - Add 2 feet for every 1% slope
  - Include 100-year floodplain

### **Recommendations for urbanized areas (>10% ISA)**

- 100 foot buffer on impaired streams
  - Add 2 feet for every 1% slope
  - Add width of any existing impervious structures to buffer width
- Other options if existing development limits use of buffers
  - Restoration activities
    - Convert ISA to greenspace
    - Control runoff through stormwater best management practices
    - Preserve/restore natural topography and hydrology
    - Prevent compaction of soil
    - Replant native vegetation
  - Use greenspace as bio-infiltration areas for reducing stormwater runoff
    - Decrease the amount of connected ISA in the watershed
  - Limit/reduce ISA of watershed to 10-15%
  - Protect headwaters
  - Protect sensitive and highly erodible areas

### **Recommendations for highly urbanized areas (>25%)**

- Water quality impairments will be unavoidable over 25% ISA
- Detention ponds and constructed wetlands can be used as retrofits to control runoff in highly urbanized areas
- Smart Growth Planning
- Use better site design standards for all development in watershed
- Stormwater Management
  - Stormwater Management Manual
    - Provides guidance on effective management and implementation
    - [www.georgiastormwater.com/](http://www.georgiastormwater.com/)
  - Stormwater ordinance Model ordinance available from Metropolitan North Georgia Water Planning District ([www.northgeorgiawater.org/](http://www.northgeorgiawater.org/))

### **Policy Recommendations for All Areas**

- Use of buffers and greenspace
  - Limit use of 100 ft buffer to those with least impact (walking, birding, etc)
- Nutrient management plans for greenspace
  - Limit or prohibit use of fertilizers and pesticides
  - Address human and pet waste
- Stormwater management
  - Use on-site controls
  - Promote use of infiltration BMPs
- Site design standards
  - Goal is to maximize infiltration at the site and minimize conveyance
  - Work with natural hydrology and topography of site
  - Use simple, nonstructural methods to control runoff
  - Building placement and footprints
  - Road widths
  - Parking design requirements
    - Size
    - Materials
  - Landscaping regulations

## **Appendix B: Outreach Information**

### **Introductory Letter**

*Upper Etowah & Lake Allatoona Regional Greenspace Planning in  
Bartow, Cherokee, Cobb, Forsyth and Fulton Counties*

December 2001

Georgia is experiencing unprecedented population growth forcing the conversion of land to developed uses and the subsequent loss of greenspace. In many cases this has resulted in environmental and quality of life impairments. Issues such as air and water quality degradation, traffic congestion, and urban sprawl have moved beyond the Atlanta area and are now threatening the rural character of the north Georgia region. Regional problems such as these require regional solutions. Georgia's Greenspace Program provides no incentive for counties to collaborate and identify target areas or concerns of regional importance. An Upper Etowah & Lake Allatoona Regional Greenspace Plan carries on the principles outlined in the Georgia Greenspace Plan while providing a forum for inter-jurisdictional cooperation and planning.

Water quality and aquatic wildlife habitat concerns are critical given the number of federally imperiled fish species and impaired waters that are located in the Etowah Watershed. Federal environmental legislation such as the Endangered Species Act and the Clean Water Act preempt local Home Rule authority, constraining county land use decision-making power when local governments cannot rectify environmental problems. A Regional Greenspace Plan will provide a vehicle to meet the implementation plans that are mandated under these federal laws in a progressive, non-litigious manner. Planning greenspace on a regional scale will also provide permanent intact natural areas that sweep across the landscape creating non-automotive transportation links between high-density areas, corridors for wildlife and greater scenic preservation.

The Upper Etowah & Lake Allatoona Regional Greenspace Initiative is a group of students and faculty at the University of Georgia that seek to assist local governments in looking at regional land use trends when making decisions on the location and type of greenspace that should be permanently protected. The Initiative also strives to promote greater use of the resources available from the University of Georgia Schools of Ecology, Environmental Design, Forestry and Law. During the next few months, members of the Initiative will begin working with local governments and interest groups in an effort to foster an increased awareness of regional issues and to develop solutions aimed at helping local governments use greenspace protection to reduce some of the environmental and quality of life threats associated with growth. A Forestry Commission grant has been secured that will allow the University of Georgia to complete a Regional Greenspace Plan in 2002 for the counties that compose the Upper Etowah Watershed.

We are currently reviewing the completed Greenspace Plans for the counties listed above and comparing them to see if trends emerge. We will be contacting planning staff from the participating counties to share our findings and to receive feedback on conclusions drawn from our review. A Regional Greenspace Plan does not jeopardize or undermine any of the aspirations set out in the county Greenspace Plans already completed. This process will simply combine existing plans, regional environmental concerns and ecological science to support multi-jurisdictional greenspace planning. Any questions about the Upper Etowah & Lake Allatoona Regional Greenspace Initiative can be directed by e-mail to Raysun Goergen, Research Assistant, at leadfreeus@yahoo.com. Please feel free to contact us if we can be of any assistance.

Thank you.

Jeffrey Boring, Marcie Diaz, Raysun Goergen, Brannon Hancock and Clif Henry, Graduate and  
Law Students of the University of Georgia Upper Etowah & Lake Allatoona Regional  
Greenspace Initiative



## **Appendix B: Outreach Information**

### **Etowah Greenspace & Planners Invitee List**

1. Bartow County GS Coordinator & County Administrator: Steve Bradley  
Bartow County Zoning Administrator: Ray Sullivan  
Other: Valerie Gilreath
  2. Cherokee County GS Coordinator & Planning Director: Louis Zunguze
  3. Cobb County GS Coordinator & Planner: Jocelyn Moore  
Kennesaw City Dir. Of Parks & Rec.: Doug Taylor  
Other: Diane Coker  
Marietta GS Coordinator & Planner: Julie Zutkis
  4. Dawson County Planning Director: Lynn Tully
  5. Forsyth County Gs Coordinator & Planner: Jeff Watkins  
Long Range Planner: Marcie Diaz
  6. Fulton County GS Coordinator & Planner: Michelle Hartman  
Mountain Park: Mayor Joyce Ayers  
Other: Robert Myers  
City of Kennesaw: Holly Martin
  7. Lumpkin County GS Coordinator & Parks & Rec: Eddy Harris  
Lumpkin County Planner: Larry Robertson
  8. Pickens County GS Coordinator & Planner: Norman Pope  
Other: Rodney Buckingham
- A. Georgia Mt RDC (Forsyth, Dawson, Lumpkin)  
Larry Sparks  
Tom O'Bryant  
Ben Hulsey
- B. Atlanta RDC (Cherokee)  
Pat Stevens  
Jim Santos  
Jennifer Fine
- C. N GA RDC  
Larry Vanden Bosch

## **Appendix B: Outreach Information**

### **Etowah Relevant Parties Invitee List**

**1. LAPA**

Ron Papaleoni

Paul Rose

Ginger Raburn and Invitation extended to Authority Members

**2. UERA**

Candace Stoughton

**3. Nature Conservancy**

Candace Stoughton

Curt Soper

**4. DCA**

Chrissy Marlowe

Jim Frederick

**5. Georgia Forestry Commission**

Susan Reisch

**6. DNR**

Harvey Young, Connie Bell, Sheridan Georges, & Gail Hankerson

Eric Vande Genachte

Mike Harris

Chris Skeleton and Invitation extended to Georgia Greenspace Commission

**7. U.S. Fish & Wildlife**

Robin Goodloe

**8. North Metro Water District**

Joel Cowan

**9. Chattowah Open Land Trust**

Katherine Eddins

**10. Mnt. Conservation Trust of GA**

Barb Decker

**11. Georgia Conservancy**

Doug Parsons

Susan Kidd

**14. Georgia Stream Buffer Initiative**

Brandon C. Anderson

## **Appendix B: Outreach Information**

### **Greenspace Planners' Invitation**

March 25, 2002

Dear «FirstName» «LastName»:

You are invited to the **Etowah Regional Greenspace Planning Workshop** on Friday May 10, 2002 from 9:00am – 12:00pm in the Jury Assembly Room of the Canton Justice Center (90 North Street, Canton, GA). The workshop is hosted by the University of Georgia and the Lake Allatoona Preservation Authority, and is funded by a grant from the Georgia Forestry Commission.

The counties in the Upper Etowah/Lake Allatoona Watershed have done an excellent job of developing and implementing local greenspace plans. The Etowah Regional Greenspace Planning Workshop will provide an opportunity to work together regionally to:

- Maximize the environmental and economic benefits of greenspace protection,
- Leverage financial resources, particularly from the federal government,
- Interact and share information with other greenspace and development planners within the Etowah Watershed, and
- Provide us with your ideas, concerns, and suggestions for developing the Upper Etowah/Lake Allatoona Regional Greenspace Plan.

Please extend this invitation to all who are actively involved in planning for greenspace and development issues in your office. Please R.S.V.P. the number of participants by April 22, 2002 to Raysun Goergen at [leadfreeus@yahoo.com](mailto:leadfreeus@yahoo.com) or 706-583-0463. Feel free to contact us for more information, questions, or concerns regarding this workshop. Thank you, and we look forward to seeing you on May 10, 2002.

Sincerely,

Raysun Goergen  
Research Assistant  
UGA - Institute of Ecology  
Office of Public Service & Outreach

Laurie Fowler  
Director of Public Service & Outreach  
UGA – Institute of Ecology  
School of Law

### **Institute of Ecology Public Service and Outreach**

Athens, GA 30602-2202

706-583-0463

Fax 706-542-6040

An Equal Opportunity/Affirmative Action Institution

## Appendix B: Outreach Information

### Relevant Parties' Invitation

*Institute of Ecology - Office of Public Service and Outreach*

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#### MEMO

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**DATE:** MARCH 25, 2002  
**TO:** «FIRSTNAME» «LASTNAME»  
**FROM:** LAURIE FOWLER, DIRECTOR OF UGA INSTITUTE OF ECOLOGY'S  
PUBLIC SERVICE & OUTREACH  
**RE:** ETOWAH REGIONAL GREENSPACE PLANNING WORKSHOP

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We would like to extend an invitation to your organization to join us at the Etowah Regional Greenspace Planning Workshop because of your specific expertise and interest in greenspace and/or development issues.

On Friday May 10, 2002 from 9:00am – 12:00pm in the Jury Assembly Room of the Canton Justice Center (90 North Street, Canton, GA), the University of Georgia and the Lake Allatoona Preservation Authority are holding the Etowah Regional Greenspace Planning Workshop funded by a grant from the Georgia Forestry Commission.

The workshop invitees include all local staff whom are actively involved in planning for greenspace and development issues in the eight counties of Bartow, Cobb, Cherokee, Dawson, Forsyth, Fulton, Lumpkin, and Pickens. For more information please see the enclosed letter of invitation sent to the local staff.

Thank you, and we look forward to seeing you on May 10, 2002.

Athens, GA 30602-2202

706-583-0463

Fax 706-542-6040

An Equal Opportunity/Affirmative Action Institution

## Appendix B: Outreach Information

### Workshop Memo

Institute of Ecology - Office of Public Service and Outreach

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#### MEMO

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**DATE:** JULY 19, 2002  
**TO:** ETOWAH GREENSPACE WORKSHOP ATTEENDEES  
**FROM:** RAYSUN GOERGEN, INSTITUTE OF ECOLOGY OFFICE OF PUBLIC SERVICE & OUTREACH  
**RE:** 2<sup>ND</sup> ETOWAH REGIONAL GREENSPACE PLANNING WORKSHOP

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This is a note to let you know that on August 16, 2002 from 9:00am – 12:00pm (location undecided as of this memo), the University of Georgia and the Lake Allatoona Preservation Authority will hold the 2<sup>nd</sup> Etowah Regional Greenspace Plan Workshop. At the workshop, the Etowah Regional Greenspace Plan (text and maps) will be presented including your comments from the first workshop. More detailed information about the 2<sup>nd</sup> workshop will be provided in August so please mark your calendars!

THANK YOU, AND WE LOOK FORWARD TO SEEING YOU ON AUGUST 16, 2002.

#### Synopsis of First Regional Greenspace Planning Workshop

The first Etowah Regional Greenspace Planning Workshop held on Friday May 10, 2002 was a great success with 26 attendees representing seven of the eight Etowah Counties (see Attached Attendance List). Attendees were provided with information on maximizing the environmental and economic benefits of greenspace protection, leveraging financial resources, and the draft Etowah Watershed Regional Greenspace Maps (see attached Cherokee Tribune Article).

The attendees presented their ideas, concerns, and suggestions on the Etowah Regional Greenspace plan to the University of Georgia and the Lake Allatoona Preservation Authority staff. The University of Georgia was asked by attendees to provide more information on topics such as funding recreational canoe trails, prioritizing greenspace acquisition for wildlife, and developing regional buffer ordinances.

Athens, GA 30602-2202      706-583-0463      Fax 706-542-6040  
AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION INSTITUTION

## Appendix B: Outreach Information

### May 10, 2002 Etowah Greenspace Workshop Attendees

#### List of Attendees

Name	Title	Email Address
Valerie Gilreath	Bartow County	gilreathv@bartowga.org
Steve Bradley	Bartow County	bradleys@bartowga.org
Louis Zunguze	Cherokee County	zunguze@dca.state.ga.us
Jocelyn Moore	Cobb Com Dev.	Jocelyn.Moore@cobbcounty.org
Jeff Watkins	Forsyth County	
Robert Myers	Fulton County	robert.myers@co.fulton.ga.us
Holly Martin	City of Kennesaw	hmartin@kennesaw.ga.us
Larry Robertson	Lumpkin County	lhrobertson@alltel.net
Eddy Harris	Lumpkin County	EddieHarris@LumpkinCounty.gov
Norman Pope	Pickens County	
Rodney Buckingham	Pickens County	rodneypcldo@excite.com
Eric Van De Genachte	GA DNR	eric_vandegenachte@dnr.state.ga.us
Sheridan Georges	GADNR-GSProg.	sheridan_georges@dnr.state.ga.us
Jim Santo	ARC	jsanto@atlantaregional.com
Parrie Perryson	Cherokee County	KKandTJ@mindspring.com(?)
Glenda Jennings	Landowner	glendaj@mindspring.com
Ben Hulsey	GA Mountain RDC	bhulsey@gmrhc.org
Larry Sparks	GA Mountain RDC	lsparks@gmrhc.org
Robin Goodloe	Fish and Wildlife	robin.goodloe@FWS.gov
Brandon C. Anderson	GAStreamBuffer Initiative	upperocmulgee@yahoo.com
Jennifer Fine	ARC	jcfine@yahoo.com
Doug Parsons	Georgia Conservancy	gaconservancy@hotmail.com
Susan Reisch	Georgia Forestry	sreisch@gfc.state.ga.us
Ginger Rayburn	LAPA	
Chrissy Marlowe	GA DCA	cmarlowe@dca.state.ga.us
Candace Stoughton	Nature Conservancy	cstoughton@tnc.org
Susan Kidd	Georgia Conservancy	skidd@gaconservancy.org
Laurie Fowler	UGA	lfowler@uga.edu
Liz Kramer	UGA	lkramer@uga.edu
Ron Papaleoni	LAPA	ron.papaleoni@allatoona.org
Raysun Georgen	UGA	leadfreeus@yahoo.com
Clair Partee	UGA	mpartee@mindspring.com
Heather Benham	UGA	magnumpi357@hotmail.com
Christopher Fullerton	UGA	<u>christopher_fullerton@yahoo.com</u>

## **Appendix B: Outreach Information**

### **Media Article**

By Michael Burns  
Cherokee Tribune Staff Writer

Officials from several north Georgia counties at a workshop Friday discussed methods for preserving greenspace. The Etowah Regional Greenspace Planning Workshop was sponsored by the University of Georgia's Institute of Ecology and the Lake Allatoona Preservation Authority. Planning staff from Cherokee, Bartow, Cobb, Pickens, Fulton, Forsyth and Lumpkin counties attended the workshop at the Justice Center. Representatives from the Atlanta Regional Commission, the Department of Natural Resources and the Georgia Stream Buffer Initiative were also present. Ron Papaleoni, general manager for LAPA, opened the schedule by outlining the goal of the workshop. "We want to work together to provide the beginning of what will be an Upper Etowah River greenspace plan," he said. Laurie Fowler, a professor with the university's Institute of Ecology, led a presentation outlining certain issues counties she felt the counties could work together on. "When we're talking about water quality and biodiversity we're talking about issues that don't have political boundaries so its important to develop regional plan that goes beyond our borders," she said.

Ms. Fowler said increasing greenspace funds is a key factor in preserving these areas. Ms. Fowler presented a new program from the Environment Protection Agency designed to help fund community based watershed protection initiatives. The grants range from \$350,000 to \$1.3 million but only 20 regions in the country will receive the funds. "You all need to get together and go to the EPA and start asking about this money," she said. Cherokee County has already received more than \$1.5 million in funds from the Georgia Greenspace Commission. The money is provided to counties to allow them to purchase land to leave undeveloped or for use as a passive park. The county has chosen the 20-acre Wyngate school site off Merchant Glen Road in Towne Lake as its first greenspace purchase. The county is currently negotiating the sale with the land's owners, the Cherokee County School System. Ms. Fowler said conservation subdivisions are also an effective method for preserving greenspace especially when connected to form a continuous green area. Ms. Fowler praised the counties for their efforts to preserve greenspace but said a more concentrated initiative is needed. "Local governments are al-ready doing a lot to protect greenspace," she said. "Now we need start working together to maximize our efforts."

E-mail: [mburns@cherokeetribune.com](mailto:mburns@cherokeetribune.com)

## Appendix B: Outreach Information

### Workshop II Invitation

*Institute of Ecology - Office of Public Service and Outreach*

August 12, 2002

Dear Interested Parties:

You are invited to the **Etowah Regional Greenspace Planning Workshop II** on Friday August 16, 2002 from 9 –11am in the Jury Assembly Room of the Canton Justice Center (90 North Street, Canton, GA). The workshop is hosted by the University of Georgia and the Lake Allatoona Preservation Authority, and is funded by a grant from the Georgia Forestry Commission.

The 2<sup>nd</sup> Upper Etowah Greenspace Workshop agenda will be as follows:

<b>8:30-9:00</b>	Coffee and Muffins
<b>9:00-9:10</b>	Welcome and Introduction
<b>9:10-9:50</b>	Highlights of New and Updated Information
<b>9:50 – 10:00</b>	Presentation of the Upper Etowah Watershed Regional Greenspace Plan
<b>10:00-10:15</b>	Break and Snacks
<b>10:15-10:45</b>	Implementation of Regional Greenspace Plan and Relationship to the Habitat Conservation Plan
<b>10:45- 10:55</b>	Questions, Concerns, and Comments
<b>10:55-11:00</b>	Closing Remarks

Please extend this invitation to all who are actively involved in planning for greenspace and development issues in your office. Feel free to contact us at 706-583-0463 for more information, questions, or concerns regarding this workshop. Thank you, and we look forward to seeing you on August 16, 2002.

Sincerely,

Raysun Goergen  
Research Assistant  
UGA - Institute of Ecology  
Office of Public Service & Outreach

Laurie Fowler  
Director of Public Service & Outreach  
UGA – Institute of Ecology  
School of Law

Athens, GA 30602-2202  
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706-583-0463

Fax 706-542-6040



## Appendix B: Outreach Information

### August 16, 2002 Etowah Greenspace Workshop Attendees

<u>Name</u> <u>Number</u>	<u>Title</u>	<u>Phone</u>
Valerie Gilreath	Bartow County	770-607-6202
Jocelyn Moore	Cobb Community Development	528-2014
Norman Pope	Pickens County	706-253-8850
Ben Hulsey	Georgia Mountain RDC	770-538-2626
Jennifer Fine	Atlanta Regional Commission	404-463-3307
Candace Stoughton	The Nature Conservancy	770-704-7280
Stan Ellis	DCA Region 4	770-254-7444
Connie Gilliam	GA DNR Greenspace	404-656-5165
Marcie Diaz	Forsyth	770-886-2762
Michelle Hartmann	Fulton	404-730-8056
Vicki S. Taylor	Cherokee	770-479-0412
Leamon Scott	GA DCA	706-802-5490
Diane Minick	Cherokee	678-493-9574
Brad Paulk	Bartow	770-607-6202
Stan Herring	Bartow	770-607-6253
Audra Miller	Forsyth	770-205-4563
Lynn Tully??	Dawson	706-344-3604
Laurie Fowler	UGA Public Service and Outreach	706-583-0463
Paul Rose	Lake Allatoona Preservation Authority	678-801-4013
Ginger Rayburn	Lake Allatoona Preservation Authority	678-801-4012
Raysun Georgen	UGA Institute of Ecology	706-583-0463

## Appendix C: Water Trail Guidelines

Trails on the water are called many things including canoe trails, water trails, paddling trails, river trails, and blueways (greenways on water). “While any navigable river can be a paddling trail, the designation implies that there are or can be canoe/kayak drop in points, rest stops, camping areas, etc.”<sup>23</sup> Planning a water trail is a complicated process. Many issues including funding, acquisition of land, access points and maintenance, have to be included in a plan.

Different stakeholders should be included in planning a water trail. Some examples of stakeholders are trail users, proposed adjacent landowners, environmental groups, local businesses, and the community. If these groups are considered early in the planning stage, then major concerns can be addressed, problems will be lessened, and trail implementation will be easier.

Water trails provide many benefits. They give communities a fun, healthy, outdoor recreation. Water trails are a good source of education for all ages. They teach people about respecting water, natural resources, and water quality. Another important benefit is the stewardship that comes from water trails. People will learn to keep hold of their own trash because they will be able to see the difference between a nice healthy segment of the stream and a nasty, polluted, trashy area. The region can benefit from improved water quality. Water trails also can provide a region with tourism and economic benefits.

The southeast is behind the times in the development of water trails with Florida being the only exception. Florida has a large network of regional canoe trails that cover the entire state. Almost every waterway in Florida has been labeled as a canoe trail. Florida’s Office of Greenways and Trails has created a map of each canoe trail; maps provide information about access points, counties that the trail runs through, mileage, skill level, difficulty, usual current, and descriptions of the wildlife and vegetation that one might see along the trail.

There are many organizations available to groups who want to develop a water trail. The Rivers, Trails & Conservation Assistance Program helps groups build partnerships to achieve community-set goals, assesses resources, develops concept plans, engages public participation, and identifies potential sources of funding. The Southeastern Rivers Program of the National Park Service and the North American Water Trails organization also provide the same types of assistance listed above.

A major dilemma that trail developers face is having to acquire land along the river for access points. If the trail group has money, the easiest way to acquire land is by purchase in fee simple. The Tennessee River Blueway did not have to use any private land in their 50-mile trail.

They used government land, including state forest land and a county park. They also used land that was held in a land trust. The Broad River and Cartacay trail outfitters lease

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<sup>23</sup> [www.geoplan.ufl.edu/projects/greenways/gwayresources/html](http://www.geoplan.ufl.edu/projects/greenways/gwayresources/html)

some of their access points; this is a very expensive way to acquire the land. A Cartacay River outfitter said that many times they will just talk with private landowners along the river to see if they will let the outfitter use the landowner's riverbanks for free. Many times if there are any bridges over the river they will be used as public access points. Most of the water trails charge a \$1-\$5/vehicle fee for parking at designated access points.

There is no set distance that access points should be. Many of the organizations say that access points should be spaced on average 3 to 5 miles apart. Whenever there is public riverfront land along the water it should be designated an access point. It is best if access points have safe parking lots, restroom and trash facilities. Many of the smaller water trails in Georgia do not have any of these at their access points. Many outfitters said that the biggest problem along the rivers is trash. A Broad River outfitter deals with the trash problem by providing people with bags they can take down the river to carry loose items and trash. They also have an onsite recycling facility.

Most of Georgia's water trails do not provide any trail signs along the river. General knowledge and word of mouth are how people find out where access points and campgrounds are located. The more organized water trails, such as the Tennessee River Blueway, do have trail signs.

Many of the larger water trails provide brochures or have internet sites with access points, restrooms, and campsites labeled on a map of the river. The Tennessee River Blueway also includes a short paragraph on their brochures about respecting people's private property and not getting out of the watercrafts unless the people are at an access point. The TRB got 50,000 brochures donated to them by a publishing company that has ties to the local chamber of commerce.

Regional water trails run through more than one county. In most of the more unorganized water trails this has not seen to make a difference. The Broad River trail runs through 6 counties and Broad River Outpost said that they deal with just the laws of the county where their put-in site is located. They do not come into problems with the river trail passing through multiple counties. On the other hand, in the Northeastern Illinois Regional Water Trail Plan, it said that there does need to be cooperation and coordination between counties because "waterways cross political boundaries and canoers and kayakers are generally not aware of local rules that differ."<sup>24</sup> "A regional water trail system creates continuity between owners of access sites and consolidates information about safety and down stream access."<sup>25</sup>

All of the above needs to be taken into consideration in planning the Upper Etowah Water Trail. Preexisting access points and campgrounds along the river need to be researched and should definitely be used as part of the water trail. The water trail planners should try to find landowners that are willing to allow public use of riverfront

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<sup>24</sup> [www.nipc.cog.il.us/execsum.pdf](http://www.nipc.cog.il.us/execsum.pdf)

<sup>25</sup> [www.nipc.cog.il.us/execsum.pdf](http://www.nipc.cog.il.us/execsum.pdf)

property for day use and overnight camping.<sup>26</sup> Funds should be used to acquire other access points that are within at least 5 miles of each other. The trail should have restroom, trash, and recycling facilities at least every other access point. Most of the access points should have a safe place to leave a car. The car lots should charge a \$3 fee/car.

Brochures need to be made available at each access point and on the web. The brochures should include a map of the Upper Etowah River, descriptions of native wildlife and vegetation one might come across while enjoying the water trail, access points, day use and camping areas, hazards, historical structures along the river, etc. Another thing that might want to be put on the brochure is a short paragraph explaining private property rights along the river. The Georgia statute that pertains to the liability of the trail's adjacent landowners states:

(a) Any person who goes upon or through the premises, including, but not limited to , lands, waters, and private ways, of another with or without permission to hunt, fish, swim, trap, camp, hike, sightsee, or for any other purpose, without the payment of monetary consideration, or with the payment of monetary consideration directly or indirectly on his behalf by an agency of the state or federal government, is not thereby entitled to any assurance that the premises are safe for such purpose. The owner of such premises does not assume responsibility for or incur liability for any injury to any person or property caused by an act or failure to act of other persons using such premises.<sup>27</sup>

The water trail needs to have well marked trail signs at each access point and campground. The water planners should look into getting assistance in planning the trail from either the Rivers, Trails & Conservation Assistance Program, the Southeastern Rivers Program of the National Park Service or the North American Water Trails organization.

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<sup>26</sup> [www.dcr.state.va.us/prr/trails.htm#water](http://www.dcr.state.va.us/prr/trails.htm#water)

<sup>27</sup> O.C.G.A. 12-3-116

## Appendix D: County Greenspace Protection Tools, Barriers, & Strategies

### BARTOW COUNTY

TOOL	FUNCTION	BARRIER	STRATEGY
Fee Simple Purchase/ Donation	Allows outright ownership of open land by county.	Even with alternative funding sources, money is not available to purchase all open space. No Incentives for donation.	Continue finding alternative funding and donation incentives, but also focus on tools listed below.
Conservation Easements	Limits the ability to develop the land, development rights are deeded to county in exchange for money or tax concession.	Currently, the county Board of Tax Assessors will not allow the latter type of consideration in exchange for the granting of an easement.	Set up a method for the Board of Tax Assessors to grant tax exemptions or incentives in exchange for easements from property owners.
Purchase of Development Rights	Rights to further develop land are purchased from landowners.	Not currently in use in county comprehensive land use plan.	Present to County Planning Commission for review and approval.
Flood Plain Protection/ Stream Buffers	Prevents development in flood plains and within 100 ft. of streams	Buffers for flood plains not set, stream buffers not consistent with counties in region.	Set flood plain buffers and review stream buffers with an eye to other counties in the region.
Trade of Greenspace for High Density Development Property (TDRs)	Allows transfer of development rights from open areas to areas of high density, so as to keep open areas open.	A provision in the state's TDR enabling legislation makes this tool virtually unworkable, requiring a hearing before every right is transferred.	County should lobby the General Assembly to eliminate this right by right deliberation for TDRs, which would greatly decrease the costs of exercising them.
Adoption of New Protective Ordinances/ Laws	Regulates runoff and non-point source pollution, and ensures ground water recharge zones, trees, ridge tops and the watershed as a region are protected.	Have not yet been drafted or adopted by county.	Draft and adopt as soon as possible.
Protection of Designated Areas by Resolution	Protects streams, wetlands and groundwater zones.	Not yet drafted or adopted as part of county comprehensive plan.	Draft and adopt as soon as possible.

## Appendix D: County Greenspace Protection Tools, Barriers, & Strategies

### CHEROKEE COUNTY

TOOL	FUNCTION	BARRIER	STRATEGY
Fee Simple Acquisition	Gives county outright ownership of land and/ or conservation easements.	There simply is not enough money available to purchase greenspace outright.	Continue to explore alternative funding sources, but also concentrate on the tools listed below.
Conservation Easements	Preserves land in its current state, preventing any future development.	The State Uniform Conservation Easement Act does not provide adequate financial incentives for landowners who donate permanent easements.	County should lobby General Assembly to allow donors state income tax credits as well as deductions, and to train local tax assessors to follow a uniform state policy of <i>ad valorem</i> taxation of land with easements.
Stream Buffers	Protect land within 100 ft. of primary, secondary, and tertiary streams.	Not consistent with buffers in other counties in region.	Work with regional counties for consistency.
Conservation Subdivision Ordinances/ Traditional Neighborhood Development Ordinances	Provide flexibility in land development standards while preserving significant areas of land for ecological, recreational, agricultural, and open spaces.	Only useful in preserving significant amounts of open space when two or more of these developments are grouped together.	Provide greater incentives for contiguous conservation subdivisions or traditional neighborhood developments.
Transfer of Development Rights (TDRs)	Allows transfer of development credits from low-density “sending areas” to high-density “receiving areas”, in order to preserve open space.	A provision in the state’s TDR enabling legislation makes this tool virtually unworkable, requiring a hearing before every right is transferred.	County should lobby the General Assembly to eliminate this right by right deliberation for TDRs, which would greatly decrease the costs of exercising them.
Purchase of Development Rights	Allows a governmental body or other entity to purchase a development right and then retire it, so that it is never exercised in the “receiving area”.	Funding for purchase of development rights was to come from county’s Impact Fee ordinance, which is currently being challenged in court.	Since outcome of lawsuit is unclear, divert fund for use in fee simple acquisitions to PDRs, allowing greater open space conservation because of lesser price.

## Appendix D: County Greenspace Protection Tools, Barriers, & Strategies

### COBB COUNTY

TOOL	FUNCTION	BARRIER	STRATEGY
Open Space Community Overlay District (Conservation Subdivision) Ch. 134, Art. IV	In exchange for a set-aside of subdivision open space, developer may place maximum allowed density for whole on reduced net buildable area	No minimum or maximum percentage of open space defined in ordinance.	Require a minimum amount of open space required for permitting under ordinance, unified with other counties in region.
Stream Buffer Ordinance Ch. 50, Art. III	Minimum of 50 to 200 feet dependent on drainage area of stream.	Required buffer is not consistent with other counties in region.	Unify minimum riparian buffers among regional counties.
Flood Damage Prevention Ordinance Ch. 58, Art. III	Protects floodplain from intrusion by development and prohibits potential damage by any use.	Ordinance does not prohibit all development in the floodplain.	Amend to designate floodplains as permanently protected greenspace for conservation purposes.
Limitation of Impervious Surfaces	County will limit impervious surfaces within areas designated as Regional, Community, and Neighborhood Activity Centers that contain one or more streams or floodplains.	Impervious surfaces in non-Activity Centers remain unregulated, leading to needless runoff and pollution of streams and floodplains.	Amend to require limitation of impervious surfaces in ALL land development processes throughout the county.
Wetland Protection and Mitigation under the Clean Water Act CWA § 404	Policy of no net-loss or degradation of wetlands using a permitting process requiring restoration of disturbed wetlands or mitigation via replacement of a greater area than initially disturbed.	Policy does not require a conservation easement on all wetland areas in favor of Cobb County Government.	Clarify policy to require conservation easement on all wetland areas.

## Appendix D: County Greenspace Protection Tools, Barriers, & Strategies

### DAWSON COUNTY

TOOL	FUNCTION	BARRIER	STRATEGY
Residential Planned Comprehensive Development (Conservation Subdivision)	Allows clustering of units on small portion of tract, when rest (min. 30%) is left as permanently protected open space. Also allows mixed-use development on single tract.	Only useful in preserving significant amounts of open space when two or more of these developments are grouped together.	Provide greater incentives for contiguous conservation subdivisions or traditional neighborhood developments.
Stream Buffer	Prohibits development within 25 ft. of stream.	No county ordinance, only state regulation.	Develop a county ordinance consistent with buffer requirements in other counties in region.



## Appendix D: County Greenspace Protection Tools, Barriers, & Strategies

### FORSYTH COUNTY

TOOL	FUNCTION	BARRIER	STRATEGY
Fee Simple Acquisition	Outright purchase of lands for greenspace by county.	There simply is not enough money available to purchase greenspace outright.	Continue to explore alternative funding sources, but also concentrate on the tools listed below.
Flood Plain Protective Ordinance	Prohibits erection of structures and regulates land disturbance within the flood plain of Big Creek.	Applies only to the flood plain of Big Creek, and does not include requirement of a flood plain buffer.	Examine other waterways for flood plains in need of protection, amend comprehensive plan to include a minimum flood plain buffer.
Tributary Protection Code	Establishes buffers of 35 ft. per side for any stream, wetland or lake south of Buford Dam which drain into the Chattahoochee.	Buffer is not consistent with similar buffers in the region, and is too limited in application.	Look for other streams, wetlands, and lakes in county in need of buffers, and work with counties in region to produce consistent buffers.
Conservation Subdivision	Provide flexibility in land development standards while preserving significant areas of land for ecological, recreational, agricultural, and open spaces.	Only useful in preserving significant amounts of open space when two or more of these developments are grouped together.	Provide greater incentives for contiguous conservation subdivisions or traditional neighborhood developments.
Transfer of Development Rights (TDRs)	Allows transfer of development credits from low-density “sending areas” to high-density “receiving areas”, in order to preserve open space.	A provision in the state’s TDR enabling legislation makes this tool virtually unworkable, requiring a hearing before every right is transferred.	County should lobby the General Assembly to eliminate this right by right deliberation for TDRs, which would greatly decrease the costs of exercising them.

## Appendix D: County Greenspace Protection Tools, Barriers, & Strategies

### FULTON COUNTY

TOOL	FUNCTION	BARRIER	STRATEGY
Fee Simple Acquisition	Gives county outright ownership of land and/ or conservation easements.	There simply is not enough money available to purchase greenspace outright.	Continue to explore alternative funding sources, but also concentrate on the tools listed below.
Stream Buffers	Prohibits development within 25 ft. (Fulton) or 75 ft. (City of Atlanta) of a stream.	Not consistent with buffers in other counties in region.	Work with regional counties for consistency.
Transfer of Development Rights (TDRs)	Allows transfer of development credits from low-density “sending areas” to high-density “receiving areas”, in order to preserve open space.	Currently, only applicable to historic open space, and a provision in the state’s TDR enabling legislation makes this tool virtually unworkable, requiring a hearing before every right is transferred.	County should extend TDR program to non-historic open space, and lobby the General Assembly to eliminate this right by right deliberation for TDRs, which would greatly decrease the costs of exercising them.
Flood Plain Regulation	Prohibits erection of structures within a flood plain.	Does not include requirement of a flood plain buffer.	Amend comprehensive plan to include a minimum flood plain buffer.
Conservation Easements	Preserves land in its current state, preventing any future development.	The State Uniform Conservation Easement Act does not provide adequate financial incentives for landowners who donate permanent easements.	County should lobby General Assembly to allow donors state income tax credits as well as deductions, and to train local tax assessors to follow a uniform state policy of <i>ad valorem</i> taxation of land with easements.
Conservation Subdivisions	Provide flexibility in land development standards while preserving significant areas of land for ecological, recreational, agricultural, and open spaces.	Only useful in preserving significant amounts of open space when two or more of these developments are grouped together.	Provide greater incentives for contiguous conservation subdivisions or traditional neighborhood developments.

## Appendix D: County Greenspace Protection Tools, Barriers, & Strategies

### LUMPKIN COUNTY

TOOL	FUNCTION	BARRIER	STRATEGY
County Wide Zoning	To uniformly regulate development of land for entire county.	Lumpkin County currently has no zoning provisions, which makes regulating development of land almost impossible.	County commissioner can enact a comprehensive land use regulation, or can have another county-wide referendum with greater publicity and education campaign before vote.
Trout stream/ E&S setbacks	Require a minimum buffer of land between development and streams.	No consistent enforcement of setbacks, partially a result of not having any zoning provisions.	Increase enforcement of setbacks, create stream buffers as part of a new land use regulation scheme.
Conservation Easements	Easement placed on land prohibiting any future development.	Requires landowner to voluntarily give up development rights.	Create incentives for landowners, such as county tax breaks or a system of transferable development rights, or further flesh out the “Negotiated Acquisition” method.
Fee Simple Purchase	The purchase of properties outright by local government using greenspace program funds.	Land prices in Lumpkin County have escalated dramatically over the last few years, and there simply is not enough money to buy 20%.	Apply for other funding sources, such as LWCF, Wetland Mitigation Fund, and CDBG, and rely heavily on the tools listed above.

## Appendix D: County Greenspace Protection Tools, Barriers, & Strategies

### PICKENS COUNTY

TOOL	FUNCTION	BARRIER	STARTEGY
Fee Simple Acquisition	Gives county outright ownership of land and/ or conservation easements.	There simply is not enough money available to purchase greenspace outright.	Continue to explore alternative funding sources, but also concentrate on the tools listed below.
Conservation Easements	Preserves land in its current state, preventing any future development.	The State Uniform Conservation Easement Act does not provide adequate financial incentives for landowners who donate permanent easements.	County should lobby General Assembly to allow donors state income tax credits as well as deductions, and to train local tax assessors to follow a uniform state policy of <i>ad valorem</i> taxation of land with easements.
Conservation Subdivision	Provide flexibility in land development standards while preserving significant areas of land for ecological, recreational, agricultural, and open spaces.	Regulation has not yet been developed, and conservation subdivisions are only useful in preserving significant amounts of open space when two or more of these developments are grouped together.	Draft regulation, and provide greater incentives for contiguous conservation subdivisions.
Land Development Code Regulations	Will require developers to leave buffers between different land uses, in hopes of using the buffers as meaningful greenspace	Has not yet been developed.	Develop as soon as possible, looking to other counties in regions for guidance.

## Appendix E: Regional Greenspace Protection Tools, Barriers, & Strategies

<b>GREENSPACE PROTECTION TOOLS</b>	<b>BARRIER</b>	<b>REGIONAL STRATEGY</b>
<b>Fee Simple Acquisition</b>	<ul style="list-style-type: none"> <li>There is not enough money available to purchase all greenspace outright</li> </ul>	<ul style="list-style-type: none"> <li>Work together regionally to:               <ul style="list-style-type: none"> <li>(c) maximize funding sources that are already available to individual counties and</li> <li>(d) recruit new funding sources that prefer or require a regional focus such as EPA's 2003 Watershed Initiative and the U.S. Fish and Wildlife Service's Habitat Conservation Plan Land Acquisition Grants</li> </ul> </li> </ul>
<b>Stream Buffers</b>	<ul style="list-style-type: none"> <li>There is not consistency between counties on buffer extent and width; some streams are not adequately protected</li> </ul>	<ul style="list-style-type: none"> <li>Develop a consensus on a common minimum buffer protection width and extent and adopt into law in each jurisdiction</li> </ul>
<b>Flood Plain Protection</b>	<ul style="list-style-type: none"> <li>While development in floodways is prohibited, most counties allow development in the floodplain</li> </ul>	<ul style="list-style-type: none"> <li>Develop a model ordinance prohibiting development within the 100yr floodplain and adopt into law in each jurisdiction</li> </ul>
<b>Conservation Easements and Restrictive Covenants</b>	<ul style="list-style-type: none"> <li>The state Uniform Conservation Easement Act does not provide adequate financial incentives for landowners who donate permanent easements</li> </ul>	<ul style="list-style-type: none"> <li>As a group, lobby the Georgia General Assembly to allow for state income tax credits as well as deductions for the conservation easement donor</li> </ul>

<b>GREENSPACE PROTECTION TOOLS</b>	<b>BARRIER</b>	<b>REGIONAL STRATEGY</b>
<b>Conservation Easements and Restrictive Covenants (continued)</b>	<ul style="list-style-type: none"> <li>• There is no single database containing the location of properties protected by conservation easements or restricted covenants that can be used to document success in protecting contiguous lands.</li> <li>• Many tax assessors do not know how to assess property protected with conservation easements or restrictive covenants</li> <li>• Many landowners are unaware that they can protect their land via conservation easements and restrictive covenants</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a regional conservation easement/restrictive covenant database in partnership with a conservation organization with a regional focus such as the Nature Conservancy or the Chattowah Land Trust.</li> <li>• Host a regional workshop to train local tax assessors on how to calculate property tax on land protected by easements and restrictive covenants</li> <li>• Provide opportunities for representatives of area land trusts and other experts (Regional Speakers Bureau) to make presentations on conservation easements to the general public, service organizations, and local government officials and staff</li> </ul>
<b>Conservation Subdivision</b>	<ul style="list-style-type: none"> <li>• Some counties do not provide for conservation subdivisions</li> <li>• No incentives exist for preserving contiguous open space by linking conservation subdivisions</li> </ul>	<ul style="list-style-type: none"> <li>• In these counties adopt ordinances allowing for clustering of residential development in exchange for the permanent protection of a significant amount of ecologically functional greenspace</li> <li>• Work together to identify conservation development corridors, and provide incentives for contiguous subdivisions.</li> </ul>

<b>GREENSPACE PROTECTION TOOLS</b>	<b>BARRIER</b>	<b>REGIONAL STRATEGY</b>
<b>Conservation Subdivision</b>	<ul style="list-style-type: none"> <li>• Banks are reluctant to provide loans to uncommon types of development</li> </ul>	<ul style="list-style-type: none"> <li>• Target banks and other lenders for education/outreach efforts on the benefits of conservation subdivisions</li> </ul>
<b>Purchase of Development Rights</b>	<ul style="list-style-type: none"> <li>• Like direct acquisition, adequate funding mechanisms are limited</li> </ul>	<ul style="list-style-type: none"> <li>• Work together regionally to:               <ul style="list-style-type: none"> <li>(c) maximize funding sources that are already available to individual counties and</li> <li>(d) recruit new funding sources that prefer or require a regional focus</li> </ul> </li> </ul>
<b>Transfer of Development Rights</b>	<ul style="list-style-type: none"> <li>• A provision in the state's TDR enabling legislation makes this tool virtually unworkable, requiring a deliberation of the governing body prior to each transfer</li> <li>• No effort has been made to look at the regional use of TDRs to protect water quality and biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>• Together lobby the General Assembly to eliminate this burdensome provision</li> <li>• Apply for a Quality Growth grant from the Georgia Department of Community Affairs to investigate the feasibility of a regional TDR program</li> </ul>

## **Appendix F: Riparian Buffer Case Study and Ordinance Model**

### **Cobb County Green Space Case Study**

#### Introduction to the Cobb County Riparian Buffer Ordinance

The Cobb County Riparian Buffer Ordinance (known as the Stream Buffer Ordinance), “prohibits land disturbing activity within a stream buffer and doubles the existing state buffer of twenty-five (25) feet.”<sup>28</sup> As a result, all streams on the Cobb County Stream Buffer map must have a buffer of at least fifty (50) feet with a graduated buffer that increases to seventy-five (75), one hundred (100) or two hundred (200) feet dependent on the drainage area of the stream.<sup>29</sup> The key portion of the Code that makes it exceptional requires that “once established, a permanent natural undisturbed buffer shall be recorded on all plats and revisions and/or property deeds which encumbers this property as undisturbed buffer area to all future property owners.”<sup>30</sup>

Since the enactment of the amendments to Chapter 50 establishing the restrictive covenant system in Cobb County, sixteen (16) such covenants have been created. As of the last publication of the Cobb County Green Space Plan, “79.8 acres along Cobb’s streams have been placed in this protected state.”<sup>31</sup>

#### Language of the Ordinance

The amendments to the Cobb County Code that comprise the Riparian Buffer Ordinance are as follows:

- Section 50-75, Environment, Minimum requirements for erosion and sedimentation control using best management practices. “... a permanent natural undisturbed buffer shall be recorded on all plats and revisions and/or property deeds. Said buffer will also contain a restrictive covenant in favor of Cobb County for conservation uses.”
- Section 58-67, Floods: Development Standards, flood hazards “... flood hazard areas may be used in computations meeting open space and density requirements...when... noted as such on a recorded plat or plan and to include a restrictive covenant in favor of Cobb County.”
- Section 416, Tree Preservation and Replacement, Development Standards 416.02.02 Existing Density Factor. “Trees that exist in any 100-year flood plain, wetland or utility

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<sup>28</sup> Cobb County Green Space Plan, 10 (2001); Sec. 50-32. Protection area. The first 25 feet of the protection area extending outward from the banks on each side of all flowing tributaries shall be a natural, undisturbed buffer wherein only that land disturbance authorized pursuant to section 50-47 may be permitted. (Ord. of 2-25-86, § 1.2; Code 1977, § 3-23-55)

<sup>29</sup> Sec. 50-75(c)(15) Land disturbing activities shall not be conducted within, see Appendix.

<sup>30</sup> Sec. 50-75(c)(15)(e), see Appendix.

<sup>31</sup> Cobb County Green Space Plan, 10 (2001).



easement cannot be counted toward meeting tree density, unless in an undisturbed buffer with a restrictive covenant in favor of Cobb."

#### How the Ordinance Functions

The Cobb County Attorney created a document to explain the restrictive covenant process to land developers.<sup>32</sup> For both commercial and residential development, the county staff may determine during review of the site plan (and preliminary plat, in the case of residential development) that a stream is present. If so, a restrictive covenant is required for a stream buffer. Cobb County uses a review system called the "One Stop Conference." During the One Stop Conference, the commercial or residential applicant must "(a) illustrate the stream and buffer on the plan and (b) reference filing a Restrictive Covenant in the General Notes section."<sup>33</sup> The commercial developer then has thirty (30) days to complete the restrictive covenant process, which must be done before he can obtain a Certificate of Occupancy. Residential developers must place the deed book number and page number on the final plat before it is submitted for approval and recording in Cobb Superior Court. Again, a Certificate of Occupancy will not be issued unless the restrictive covenant is recorded and noted on the plat. The restrictive covenant is perpetual and does not created public access to the property.

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<sup>32</sup> "Restrictive Covenant Process:

- "1. Create an Article of Conveyance using the Cobb County Conservation Easement Template or draft an acceptable form
- "2. Include a Legal description of the area to be permanently protected, include metes and bounds
- "3. Illustrate the stream and buffer or other stipulated buffer on plat/plan and compute the area to be set aside and protected
- "4. Submit Article of Conveyance (Conservation Easement) and the illustrated plat/plan to Community Development for review and approval
- "5. The Article of Conveyance and illustration will be reviewed and approved then forwarded for the Chairman' of the Board of Commissioner's signature
- "6. The signed document will be returned to the Applicant to record it with the Cobb County Superior Court. It can be recorded while you wait – call 770.528.1359 for Clerk's Filing Office.
- "7. After recording, Applicant adds the Deed Book number and Page number to the Plan/Plat; return the Recorded Restrictive Covenant to Community Devel.
- "8. If a signed, recorded Restrictive Covenant is not available for the One Stop Conference, Community Development will allow a 30-day extension for commercial sites. For residential development, the Restrictive Covenant process must be completed prior to submitting the Final Plat for approval."

<sup>33</sup> The following text is acceptable: "A Restrictive Covenant in favor of Cobb County for conservation uses has been recorded for the stream buffer area per Cobb County Code, Chapter 50, Environment, with the Cobb Superior Court Clerk, Book Number \_\_\_\_, Page Number \_\_\_\_."

Excerpt from Cobb County Code

Sec. 50-75(c)(15) Land disturbing activities shall not be conducted within:

- a. 25 feet of the banks of any state waters not defined on the Cobb County Stream Buffer Map dated June 8, 1999, and as measured from the point where vegetation has been wrested by normal stream flow or wave action, except where the director determines to allow a variance that is at least as protective of natural resources and the environment, where otherwise allowed by the director pursuant to O.C.G.A. § 12-2-8, or where a drainage structure or a roadway drainage structure must be constructed, provided that adequate erosion control measures are incorporated in the project plans and specifications and are implemented.
- b. 50 feet of the banks of any stream in Cobb County, as defined on the Cobb County Stream Buffer Map dated June 8, 1999, and as measured from the point where vegetation has been wrested by normal stream flow or wave action where total watershed area (on site and off site area) intercepted is less than or equal to 5 square miles;
- c. 75 feet of the banks of any stream in Cobb County, as defined on the Cobb County Stream Buffer Map dated June 8, 1999, and as measured from the point where vegetation has been wrested by normal stream flow or wave action where total watershed area (on site and off site area) intercepted is equal to 5 square miles and less than or equal to 10 square miles;
- d. 100 feet of the banks of any stream in Cobb County, as defined on the Cobb County Stream Buffer Map dated June 8, 1999, and as measured from the point where vegetation has been wrested by normal stream flow or wave action where total watershed area (on site and off site area) intercepted is greater than 10 square miles;
- e. 200 feet of the banks of Nickajack Creek, as defined on the Cobb County Stream Buffer Map dated June 8, 1999, and as measured from the point where vegetation has been wrested by normal stream flow or wave action, from Church Road downstream to its confluence with Mill Creek No. 2 (Cross-Section AA according to effective Cobb County Flood Insurance Study dated August 18, 1992) and from Buckner Road downstream to its confluence with the Chattahoochee River.

Once established, a permanent natural undisturbed buffer shall be recorded on all plats and revisions and/or property deeds which encumbers this property as undisturbed buffer area to all future property owners. Said buffer will also contain a restrictive covenant in favor of the county for conservation uses. The buffer shall be subject to exceptions set forth below and the county retains the right on a per case basis to grant variances.

Exceptions to these buffers are as follows:

1. Where a sewerline easement exists or must be constructed to serve the general public. (This exception is not applicable to the state mandated 25-foot buffer.)
2. Where the 100-year floodplain constricts within the buffer and "buffer averaging" is permitted such that the average buffer width conforms to the widths as outlined above. (This exception is not applicable to the state mandated 25-foot buffer.)
3. Where a roadway crossing occurs and the buffer must be constricted to allow construction of a bridge or a culvert. The state-mandated 25-foot buffer will apply in these areas for a distance of 50 feet upstream and downstream of the face of the bridge or culvert headwall.
4. Where the director of the county community development agency, or his assign(s) determine to allow a variance to the requirements greater than the state mandated 25-foot

buffer that is at least protective of natural resources and the environment, or where otherwise allowed pursuant to O.C.G.A. 12-2-8.

5. Where a drainage structure or a roadway drainage structure must be constructed, provided that adequate erosion control measures are incorporated in the project plans and specification and are implemented; provided that buffers established pursuant to part 6 of article 5 of chapter 5 of the Metropolitan River Protection Act (O.C.G.A. 12-5-440 et. seq.) shall remain in force.

The developer or property owner shall maintain ownership of the buffer areas. In instances of conflict between the buffers mandated by the Metropolitan River Protection Act and the buffers required by this article, the wider of the two required buffers shall apply.

The donation (or dedication) of land for stream buffers, outside any flood plain area, may be compensated for by allocating the density of the donated (or dedicated) land to the owner's remaining property, if so requested by the owner. The owner shall make the request to the director of the community development agency and the request shall be processed in accordance with section 134-35.

### **Model Riparian Buffer Ordinance**

This model ordinance was written to serve as an amendment to an existing zoning ordinance. This ordinance complies with the state minimum standards for river corridor protection and water supply watershed protection standards that relate to riparian buffers. Some local governments may be subject to additional requirements for water supply watershed protection.

Language within this model ordinance that is optional or variable is indicated by brackets and is explained where necessary immediately afterward in parentheses. Extended legal explanations are given in parentheses, italicized, and precede the section they apply to unless embedded in the section itself.

The name of the local government adopting this ordinance should be inserted in place of [county/municipality].

#### **Article [ # ]. Riparian Buffer Requirements**

##### **A. INTENT AND PURPOSE.**

*(This section establishes the justification for the ordinance and should be tailored to emphasize the important aquatic resources of the [county/municipality]. For example, if endangered species of fish are present, insert a sentence that says "In addition, the [local river] and its tributaries provide habitat for a number of threatened and endangered species of fish." If these terms are defined previously in the zoning ordinance, they may not have to be redefined here. In a sense this section is not optional; in the face of judicial challenge, the intent and purpose of the community in enacting the ordinance will be evidenced by the ordinance itself in a well-written Intent and Purpose section. The [county/municipality] should aim to reference all of the needs the water supply fulfills for the community, such as in the sample below.)*

- (1) The streams and rivers of [county/municipality] supply much of the water required by [county/municipality] citizens for drinking and other municipal and industrial uses. [Alternatively, for regions that rely on groundwater: The quality*

of the groundwater that is used for drinking, agricultural and industrial purposes in [county/municipality] is affected by the quality of the surface water in the streams and rivers of [county/municipality].] Furthermore, the people of [county/municipality] use the surface waters for fishing, canoeing, and other recreational and economic purposes. The [county/municipality] Board of Commissioners finds that the protection of the streams and rivers of [county/municipality] is vital to the health, safety, and economic welfare of its citizens.

*(The subsequent sections seldom vary between localities because riparian buffers serve virtually the same functions on all streams if properly designed: reducing erosion and sedimentation; trapping and removing nitrogen, phosphorous, and other contaminants; protecting wildlife and aquatic habitats; and improving overall water quality for all uses, including recreation.)*

- (2) It is therefore the intent of this ordinance to amend the Zoning Ordinances of [county/municipality] to establish a Riparian Buffer restricting development and limiting land use within the 75 (seventy-five) feet (22.9 m) adjacent to all streams and rivers in [county/municipality]. The purposes of this Riparian Buffer are: to protect public and private water supplies, to trap sediment and other pollutants in surface runoff, to promote bank stabilization, to protect riparian wetlands, to minimize the impact of floods, to prevent decreases in base flow, to protect wildlife habitat, and to generally maintain water quality.
- (3) The standards and regulations set forth in this ordinance are created under the authority of [county/municipality]'s Home Rule and zoning powers defined in the Georgia Constitution (Article IX, Section 2). In the event of a conflict between or among any provisions of this ordinance, or any other ordinances of [county/municipality], the requirement that is most restrictive and protective of water quality shall apply.

#### B. DEFINITIONS.

- (4) "Ephemeral streams" have a defined channel but only flow during and shortly after rain events, as distinguished from intermittent streams, *infra*. *(Note: This level of stream is not included under the definition of "stream" or "river" below, which includes perennial and intermittent streams.)*
- (5) "Existing land use" means a land use which, prior to the effective date of this ordinance, is either:
  - (a) completed; or
  - (b) ongoing, as in the case of agricultural activity; or
  - (c) under construction; or
  - (d) fully approved by the governing authority; or
  - (e) the subject of a fully completed application, with all necessary supporting documentation, which has been submitted for approval to the governing authority or the appropriate government official, for any construction-related permit.
- (6) "Impervious surface" means any paved, hardened or structural surface which does not allow for complete on-site infiltration of precipitation. Such surfaces include,

but are not limited to: buildings, driveways, streets, parking lots, swimming pools, dams, tennis courts, and any other structures that meet the above definitions.

- (7) "Intermittent streams" do not flow year-round but carry flow between rain events for at least part of the year.
- (8) "Land disturbing activity" means any grading, scraping, excavating or filling of land, clearing of vegetation, and any construction, rebuilding, or significant alteration of a structure.
- (9) "Perennial streams" carry water flow year-round in a typical (non-drought) year.
- (10) "Protected area" means any land and vegetation that lies within the Riparian Buffer, as defined herein.
- (11) "Riparian Buffer" is a tract of land on either side of all streams in [county/municipality], measured by a line extending perpendicularly a fixed distance of 75 ft from the stream bank. [Alternative Definition: "Riparian Buffer" is a tract of land on either side of all streams in [county/municipality], measured as a line extending perpendicularly 75 ft from the stream bank plus an additional 2 ft per 1 percent increase in the slope of the land.]
- (12) "Stream" or "River" means all of the following:
  - (a) any perennial stream or river or portion thereof, as defined *supra*; and
  - (b) any intermittent stream or river or portion thereof, as defined *supra*; and
  - (c) any lake, impoundment, or similar standing body of water that does not lie entirely within a single parcel of land; and
  - (d) any other stream as may be identified by [county/municipality].
- (13) "Stream bank" means the point where vegetation has been wrested by normal stream flow. [One alternative definition is the uppermost limit of the active stream channel, usually marked by a break in slope; however, the definition above is taken from the Erosion and Sedimentation Act (O.C.G.A. §§ 12-7-6(b)(15) and (16)), which declares that no land disturbing activity may be conducted within 25 ft of warm water streams or within 50 ft of trout streams, as measured horizontally from the point where vegetation has been wrested by normal stream flow.]

#### C. RIPARIAN BUFFER LAND USE AND REGULATIONS.

- (14) The Riparian Buffer encompasses all land within a fixed distance of 75 ft [or a greater width] on either side of all streams, perennial and intermittent, in [county/municipality], as measured by a line extending perpendicularly from the stream bank. The buffer must be maintained in a naturally vegetated state. Any property or portion thereof that lies within the buffer is subject to the restrictions of the buffer as well as any and all zoning restrictions that apply to the tax parcel as a whole.
- (15) The following land uses are prohibited within the protected area:
  - (a) any land disturbing activity;
  - (b) septic tanks and septic tank drain fields;
  - (c) buildings, accessory structures, and all types of impervious surfaces;
  - (d) hazardous or sanitary waste landfills;
  - (e) receiving areas for toxic or hazardous waste or other contaminants;
  - (f) mining;

- (g) storm water retention and detention facilities, except those built as constructed wetlands that meet the approval of the Office of Planning and Zoning of [county/municipality].

#### D. EXCEPTIONS.

- (16) The following land uses are excepted from Section (C) (Land Use and Regulations):

- (a) Existing land uses, except as follows:

- (i) When the existing land use, or any building or structure involved in that use, is enlarged, increased or extended to occupy a greater area of land; or
- (ii) when the existing land use, or any building or structure involved in that use, is moved (in whole or in part) to any other portion of the property; or
- (iii) when the existing land use ceases for a period of more than one year.

*(The following two sections are optional. Non-point sources are now known to be a major cause of water pollution, especially agriculture, which is the leading non-point source pollutant. The decision to exempt agriculture and silviculture from the requirement of compliance with the Riparian Buffer ordinance is therefore left to the local government adopting the ordinance.)*

- (b) [Existing land uses that involve agricultural production and management so long as such use is consistent with all state and federal laws, all regulations promulgated by the Georgia Department of Agriculture and best management practices established by the Georgia Soil and Water Conservation Commission. In addition, drinking water quality may not be impaired. See Section (L) for additional information on water supply watershed requirements.]
- (c) [Selective logging, except within 50 ft of a stream, provided that logging practices comply with the best management practices set forth by the Georgia Forestry Commission and that drinking water quality is not impaired. See Section (L) for additional information on water supply watershed requirements.]
- (d) Crossings by transportation facilities and utilities.
  - (i) Issuance of permits for such uses or activities is contingent upon the completion of a feasibility study that identifies alternative routing strategies that do not violate the Riparian Buffer, as well as a mitigation plan to minimize impacts on the Riparian Buffer.
  - (ii) Design of transportation crossings and culverts should conform to the design guidelines promulgated in the Habitat Conservation Plan promulgated by the University of Georgia Institute of Ecology whenever reasonably possible. (Contact the Institute for more information. This document is referred to on the Public Service & Outreach website as the Habitat Conservation Plan for the Upper Etowah River Watershed.)
- (e) Temporary stream, stream bank, and vegetation restoration projects, the goal of which is to restore the stream or riparian area to an ecologically healthy state, as well as any other project carried out under the technical supervision of the Soil and Water Conservation Service of the United States Department of Agriculture.

- (f) Structures which, by their nature, cannot be located anywhere except within the Riparian Buffer. These include docks, boat launches, public water supply intake structures, facilities for natural water quality treatment and purification, and public wastewater treatment plant sewer lines and outfalls. [Local governments with port facilities may wish to except these facilities provided they meet certain requirements.]
- (g) Wildlife and fisheries management activities consistent with the purposes of O.C.G.A. § 12-2-8 (as amended).
- (h) [Construction of a single family residence, including the usual appurtenances, by or under contract with the owner for his or her own occupancy, meaning not as a subdivision, community or association of more than two lots, provided that:
  - (i) based on the size, shape or topography of the property, as of the effective date of this ordinance, it is not reasonably possible to construct a single-family dwelling without encroaching upon the Riparian Buffer; and
  - (ii) the dwelling conforms with all other zoning regulations; and
  - (iii) the dwelling is located on a tract of land of at least two acres. For purposes of these standards, the size of the tract of land shall not include any area that lies within the protected river or stream; and
  - (iv) there shall be only one such dwelling on each two-acre or larger tract of land; and septic tank drain fields shall not be located within the buffer area, although a septic tank or tanks serving such a dwelling may be located within the Riparian Buffer, notwithstanding section (C)(2)(b).] (The language of this provision, specifically subsection (a), is more strict than the applicable state law, see O.C.G.A. 12-2-28(g)(1)(a), but with suitable rationale, they would be legally defensible. The provision is offered here as an option for this reason. Contact the Office of Public Service & Outreach at the College of Environment and Design (Professor Laurie Fowler) for more information.)
- (i) Other uses permitted by the Georgia DNR or Section 404 of the Clean Water Act.

(17) Notwithstanding the above, all excepted uses, structures, or activities shall comply with the requirements of the Erosion and Sedimentation Act of 1975, shall observe applicable best management practices, and shall not diminish water quality as defined by the Clean Water Act. All excepted uses, structures, or activities shall be located as far from the stream bank as reasonably possible.

#### E. VARIANCES.

(18) A property owner may request a variance from Section (C) (Land Use and Requirements) of the Riparian Buffer ordinance by preparing the appropriate application with the [county/municipality] Office of Planning and Zoning. Such requests shall be granted or denied by application of the criteria set forth below in subsection (3) and will be subject to the conditions set forth below in subsection (4). Under no circumstances may a variance be granted which would reduce the buffer to a width less than the minimum standards established by state or federal law.

(19) Each applicant for a variance must provide documentation that describes:

- (a) existing site conditions, including the status of the protected area;
  - (b) and the needs and purpose for the proposed project; and
  - (c) justification for seeking the variance, including how buffer encroachment will be minimized to the greatest extent possible; and
  - (d) a proposed mitigation plan to offset the effects of the proposed encroachment during site preparation, construction and post-construction phases.
- (20) No variance shall be issued unless the [county/ municipality] Zoning Board of Appeals determines that:
- (a) the requirements of the Riparian Buffer represent an extreme hardship for the landowner such that little or no reasonable economic use of the land is available without reducing the width of the Riparian Buffer; or
  - (b) the size, shape or topography of the property, as of the effective date of this ordinance, is such that it is not possible to construct a single-family dwelling without encroaching upon the Riparian Buffer. *(These sections are not optional, but explanation is necessary. Section (E)(3)(a) is designed to ensure that any landowner who might have grounds for a "takings" claim can qualify for a variance; section (E)(3)(b) is specifically designed to protect those landowners with lots smaller than two acres as of the effective date of the ordinance, so they can construct a single-family dwelling within the buffer if necessary to prevent hardship (though not possibly not extreme enough to warrant a variance) notwithstanding section (D)(1)(h)(iv). Landowners with lots of two acres or larger who must encroach on the buffer because of lot shape or topography in order to construct a home are already excepted in section (D)(1)(h).)*
- (21) Any variance issued by the [county/municipality] Zoning Board of Appeals will meet the following conditions:
- (a) the width of the Riparian Buffer is reduced only by the minimum amount necessary to provide relief; and
  - (b) land disturbing activities must comply with the requirements of the Erosion and Sedimentation Act of 1975 (O.C.G.A. § 12-7-1 et. seq.) and all applicable best management practices established in O.C.G.A. § 12-7-6(b). Such activities shall not impair water quality, as defined by the federal Clean Water Act and the rules of the Georgia Department of Natural Resources, Environmental Protection Division; and
  - (c) as an additional condition of issuing the variance, the [county/municipality] Zoning Board of Appeals may require water quality monitoring downstream from the site of land disturbing activities to ensure that water quality is not impaired.

#### F. PENALTIES

- (22) The following penalties shall apply to land disturbing activities performed in violation of any provision of this article, any rules and regulations adopted pursuant hereto, or any permit condition or limitation established pursuant hereto:
- (a) A minimum penalty of [\$250.00] per day for each violation involving the construction of a single family dwelling by or under contract with the owner for his or her own occupancy, assessed and collected by the [county/municipality], subject also to subsection (c).



- (b) A minimum penalty of [\$1,000.00] per day for each violation involving land-disturbing activities or any other violation of this article, assessed and collected by the [county/municipality], subject also to subsection (c).
- (c) Where the violation creates an emergency situation or one of imminent danger to human health or the environment, the [county/municipality] is authorized to obtain and enforce an emergency cleanup order from the municipal court, and the penalty for violation of such an order shall not exceed [\$2,500.00] per day per violation. *(These are the penalties as established by the State in O.C.G.A. § 12-7-15, except for (c), which is similar to a penalty described therein.)*

**G. RESTRICTIVE COVENANTS (optional)**

- (23) Over this Riparian Buffer, as defined in section (B)(8) of this article, a permanent restrictive covenant encumbering this property shall be recorded on all plats, revisions and property deeds against all future property owners and in favor of [county/municipality] for conservation uses.
- (24) The restrictive covenant shall be subject to the exceptions set forth above. The [county/municipality] retains the right on a per case basis to grant variances.
- (25) The donation (or dedication) of land for an additional riparian buffer outside of the 75 ft area may be compensated for by allocating the density of the donated (or dedicated) land to the owner's remaining property, if so requested by the owner, at the discretion of the [county/municipality]. In considering whether or not to grant the reallocation, the [county/municipality] shall take into account factors such as a local Transferable Development Rights program, whether the project is also a conservation subdivision, and other factors of public policy. The property owner shall make the request to the appropriate development agency.

**H. REPEAL CLAUSE.**

The provisions of any ordinances or resolutions or parts thereof in conflict herewith are repealed, save and except such ordinances or resolutions or parts thereof which provide stricter standards than those provided herein.

**I. SEVERABILITY.**

Should any section, subsection, clause, or provision of this Article be declared by a court of competent jurisdiction to be invalid, such decision shall not affect the validity of this Article in whole or any part thereof other than the part so declared to be invalid.

**J. AMENDMENT.**

This Article may be amended from time to time by resolution of the Board of Commissioners of [county/municipality]. Such amendments shall be effective as specified in the adopting resolution.

**K. EFFECTIVE DATE.**

This article shall become effective upon its adoption.

**L. ADDITIONAL WATER SUPPLY WATERSHED REQUIREMENTS.**

- (26) A water supply watershed is the drainage basin upstream of governmentally owned drinking water supply intake; a water supply reservoir is a governmentally owned impoundment of water for the primary purpose of providing water to one or more governmentally owned public drinking water systems. A large water supply watershed is 100 square miles or more; a small water supply watershed is less.

- (27) The above provisions do not meet the Riparian Buffer provisions of the state minimum standards for large or small water supply watershed protection. See the Georgia Planning Act Minimum Standards of 1983 (O.C.G.A. § 12-2-8), which provide local governments with criteria designed to protect specific waterways, the Criteria for Water Supply Watersheds (Ga. Comp. R. & Regs. § 391-3-16-.01) and Criteria for River Corridor Protection (Ga. Comp. R. & Regs. § 391-3-16-.04). Below is a table roughly summarizing the requirements, but local governments should consult the statutes referred to above.

Regarding riparian buffers, the necessary provisions are as follows:

If [county/municipality] qualifies as a large water supply watershed,

- (a) Within a 7 mile radius of the water intake, the Riparian Buffer is increased to 100 ft, and a 150 ft buffer is established, to be measured in the same manner, in which there shall be no impervious surfaces, septic tanks or drainfields.

If [county/municipality] qualifies as a small water supply watershed,

- (b) Within a 7 mile radius and upstream of the water intake, the Riparian Buffer remains at 75 ft and within it there shall be no impervious surfaces, septic tanks or drainfields; variances making the buffer less than 50 ft shall not be granted.

<i>Georgia Planning Act Minimum Standards</i>	Large water supply watershed	Small water supply watershed
Within a 7 mile radius the local government must provide this buffer to all tributaries:	100 ft	50 ft
No impervious surfaces, septic tanks or drain fields within this buffer	150 ft	75 ft.

- (28) State law places other restrictions on water supply watersheds. (*Note: The EPD can approve alternate criteria for protecting drinking water standards. Because the ordinance above is generally stricter than the state minimum standards, the EPD may allow local governments to waive certain criteria, such as the 150 ft impervious surface/septic setbacks. We do not recommend waiving the other requirements described here.*)

- (a) In both large and small water supply watersheds, new facilities which handle hazardous materials of the types and amounts determined by the Department of Natural Resources must perform their operations on impermeable surfaces having spill and leak collection systems as prescribed by the Department of Natural Resources.
- (b) In small water supply watersheds only, new hazardous waste treatment or disposal facilities are prohibited, and new sanitary landfills are allowed only if they have synthetic liners and leachate collection systems. The impervious surface area (including all public and private structures, utilities or facilities) of the entire water supply watershed shall be limited to twenty-five percent (25%) of the area of the watershed or existing use, whichever is greater.

## Appendix G: Case Study Studies

### **The Pinelands, New Jersey**

In 1978, the U.S. Congress designated the Pinelands as the country's first National Reserve; the federal legislation also authorized the creation of a regional planning agency. Subsequently, the governor of New Jersey established the Pinelands Commission, a regional agency incorporating seven counties and 53 local jurisdictions. The 15-member Commission consists of seven representatives appointed by the seven Pineland counties, seven members appointed by the Governor and one member designated by the U.S. Secretary of the Interior.

As prescribed in Section 502 of the National Parks and Recreation Act, the federal government's primary roles in the Pinelands protection effort are to provide money for public land acquisition and to monitor the implementation of the plan. The federal law originally authorized \$26 million for land acquisition and planning for the Pinelands. However, a cornerstone of the National Reserve concept was that public land acquisitions could not guarantee sufficient protection for the Pinelands unless accompanied by regulatory measures. Still, government purchase was sometimes recognized as the best way to keep particularly sensitive parcels free of development. The Commission proposed in the Plan that the state acquire about 100,000 acres in the Pinelands, adding to the then current total of 265,000 acres of publicly owned open space in the Pinelands. The estimated cost of that program was \$81 million, which was obtained from various federal and state sources. To date, over 65,000 acres have been purchased with state and federal funds.

If the Pinelands had been an uninhabited wilderness under no pressure for development, it might have been feasible for the government to buy the entire area outright. But that was not the case in southern New Jersey in the 1980's. Because of its proximity to Philadelphia, New York, and Atlantic City, the Pinelands' perimeter was quickly becoming attractive real estate. The forested core was immune from that kind of development pressure for the time being, but it was also the bastion of the cranberry and blueberry farms, whose thriving operations the government had no reason to acquire. Making a wholesale government purchase even more impractical was the history of private land ownership in the Pinelands, with many families tracing their occupancy back a century or more. Then there are the large and small towns that dot the region from end to end.

The success of the Pinelands TDR program can be allocated to this early purchase of development rights throughout the region. By purchasing these development rights, the Commission not only decreased the amount of land available for development, but also concentrated the future demand for development credits in a regional TDR program. Once the TDR program was initiated, however, purchasing by governmental agencies continued in an effort to keep prices competitive on the private TDR market.

In 1981, the Burlington County Conservation Easement and Pinelands Development Credit Exchange was established by Burlington County, one of the seven counties within the Pinelands. The Exchange was funded by the issuance of a \$1.5 million county bond. The Exchange operated as a buyer of last resort for development credits severed from land in Burlington County; however, development credits purchased by the Exchange were sold for use on receiving sites anywhere in the Pinelands. From

1981 to 1987, the Exchange purchased 91.75 development credits, representing a preservation of 2,400 acres of land. The Exchange has now sold all of its development credits.

In 1987, the State of New Jersey established the New Jersey Pinelands Development Credit Bank and capitalized it with \$5 million from the state general fund. The Bank acts as a buyer of last resort, and must pay at least \$10,000 per development credit. The Bank may periodically increase its purchase price. However, state legislation prohibits the Bank from buying development credits for a price greater than 80% of market value.

The Bank sells development credits through auctions. The minimum bid must be \$2,500 per right (or \$10,000 per development credit); however, the Bank can set a higher minimum bid in order to avoid impairment of private development credit sales.

Most transactions now occur in the open private market. For example, in 1993 and 1994, the PDC Bank purchased only one development right while 156 development rights were purchased in private sector transactions. From 1990 to 1994, the Bank sold only five development rights, compared with 328 development rights transferred between private parties.

The success of the Pinelands TDR program can be contributed to its carefully designed Comprehensive Plan that combines both the purchase and the transfer of development rights. On sending sites, a four-to-one transfer ratio provides a substantial motivation for property owners to sell development rights rather than build on site. And on the other end of the transfer, the Plan designates growth centers that are capable of accommodating the transferred development. Furthermore, the Pinelands Commission has prevented local governments from increasing density, through rezoning or planned unit developments, unless purchased development credits are used. Finally, as mentioned above, the program is assisted by the Pinelands Development Credit Bank

### **Montgomery County, Maryland**

Montgomery County, Maryland is a well-known success story in the use of TDRs to preserve undeveloped land. It is not a regional program, but its successful use of TDRs is an excellent model for a well-structured TDR program. Montgomery County's program focuses on the protection of agricultural lands from the inroads of development. As early as the mid-1950's Maryland already recognized a need to protect farm lands from development, but despite several early protection efforts the 1960's and 1970's saw significant losses of farm land in the county. This led to the appointment of a task force to develop methods to stem the loss of agricultural land. The task force considered three options: purchase of agricultural rights, downzoning, and transfer of development rights. The task force concluded that purchase of development rights would be too expensive. Downzoning alone might not be politically feasible and could have the unintended effect of satisfying the demand for exurban development using 25-acre estate lots. In addition, there was a concern that downzoning without some form of compensation could make it difficult for farmers to get loans due to reduced land values. Consequently, the task force recommended a combination of downzoning and TDR.

Montgomery County followed this recommendation. They designated prime farmlands as sending areas and downzoned those properties from a zoning of 1 unit per five acres to one unit per twenty-five acres. In return, landowners were granted one

development credit for every five-acre reduction in zoning. To effect transfer of those development credits the county required that the landowner place a conservation easement on his property permanently protecting the tract as undeveloped or agricultural land. Increased development pressures and an increase in the number of receiving areas in which the credits could be used created a functional market for the credits and to date 45,000 acres have been permanently protected in Montgomery County.