Chattooga River Watershed Coalition

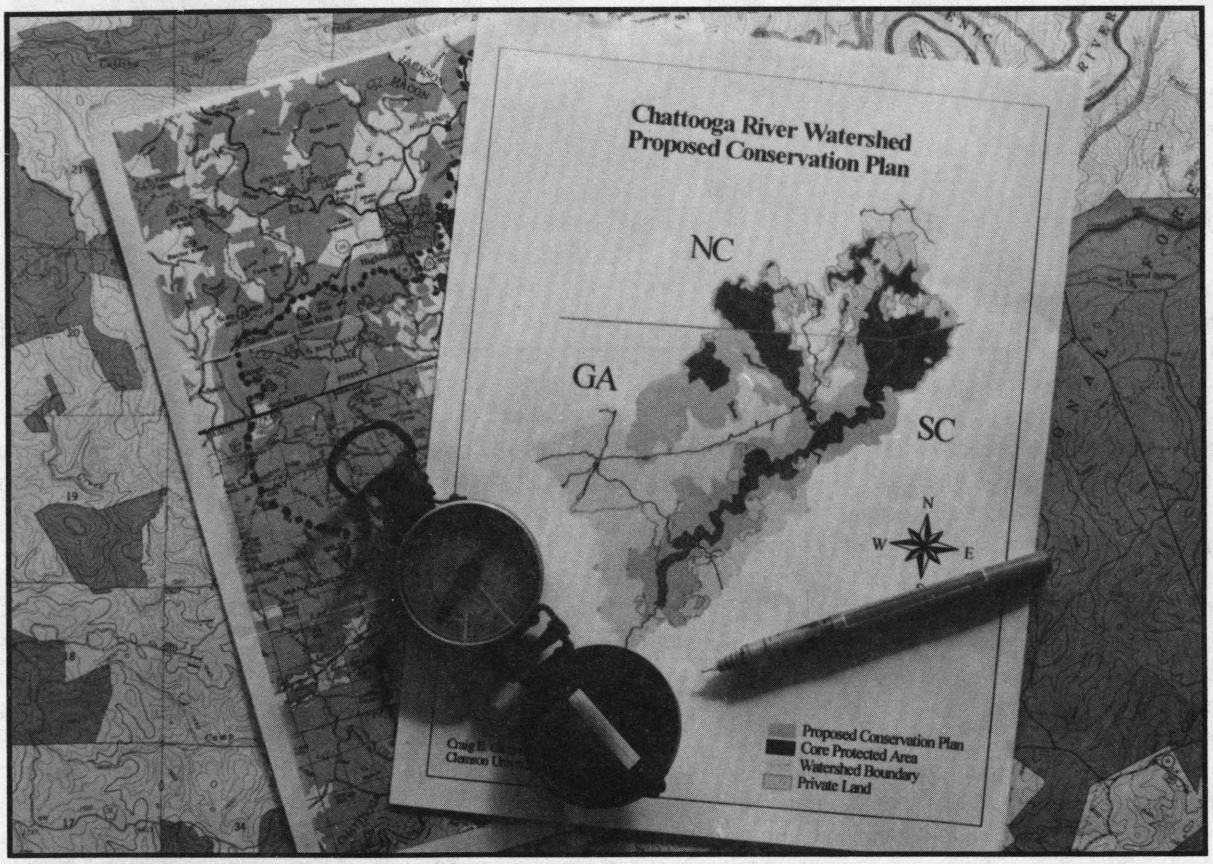
The Chattooga Quarterly

Winter ◆◆◆ 1996

$ 1.00

Planning for the Future

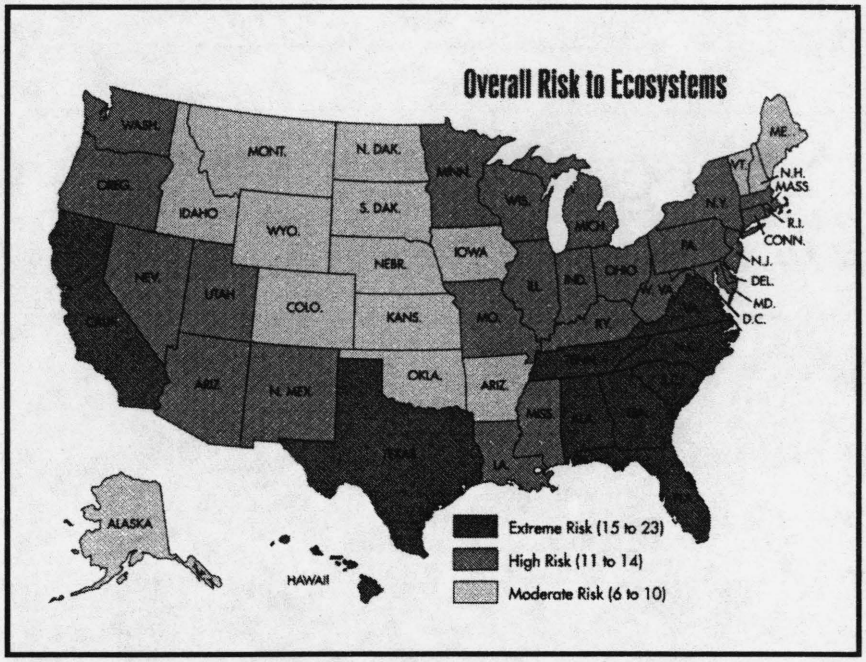
Protection and Restoration



I n s i d e . . .

Director's Page

Buzz Williams,
Executive Director



My grandfather wouldn't even dig a post hole without checking the "signs" There is wisdom in reading the signs. Since January is the traditional month to make plans for the new year I have been looking for a few signs to help us achieve our goal to become better stewards of the land in 1996.

Pick up any current newsletter or other publication from the environmental community and chances are the first sentence will be about how bad 1995 was for the conservation movement. Most people blame Congress, and that critique certainly has merit. Look at the signs. Our nation's Capital has become such a disgusting place that 34 Congressmen and 12 Senators have resigned, including one whom I consider to be one of the most wise and distinguished of the lot, Georgia's Senator Sam Nunn. Why this exodus from Congress? Senator Bill Bradley said it best: "Power has replaced ideas and conviction in the U.S. Congress."

There are other indicators that things do not bode well for environmental concerns in 1996. Last week the stock market plummeted 100 points in reaction to an off the cuff remark by Speaker of the House Newt Gingrich to the press regarding his conjecture that no agreement on a balanced budget was in sight.

Then there are more significant signs. The scientific community is now beginning to warn of a possible species extinction which could exceed that of the era of the dinosaur. Some predict that as many as 100,000 species could become extinct in North America within the next 50 years. Again, how has that august institution, the U.S. Congress, reacting to this warning? By systematically tearing down the safeguards in the way of federal law that have been designed to prevent such a tragic occurrence.

There are other signs that our environment, our economy and especially, our social and political structures are becoming more stressed. I could go on with more examples but since most polls indicate that the majority of Americans are as concerned about these things as I am, I feel compelled to seek solutions in lieu of yielding to the safer position of denial which always requires more proof to justify action.

Action should be based on a combination of looking back to learn from our mistakes as well as placing our goals and objectives within the context of the very serious problems in the modern world. In short, our actions should address the following: 1) natural resources are being consumed at an unsustainable rate by a growing human population, 2) our life support systems are being threatened and 3) our government is not working to address the problem.

If we are to affect the problems of our time we must focus on the right target. We have been blaming Congress, but the truth is, Congress is merely a reflection of society. Our emphasis should then be on making citizens aware of how these problems are directly related to their well-being.

Today our culture in the U.S. reflects a society in great need of a new conservation ethic. We have allowed the great corporations far too much influence over our governing body. This has come about in part because the conservation movement has become mired in its own bureaucracy with top heavy nationals, consultants, and big-salaried executives continuously scrambling for the shifting middle ground.

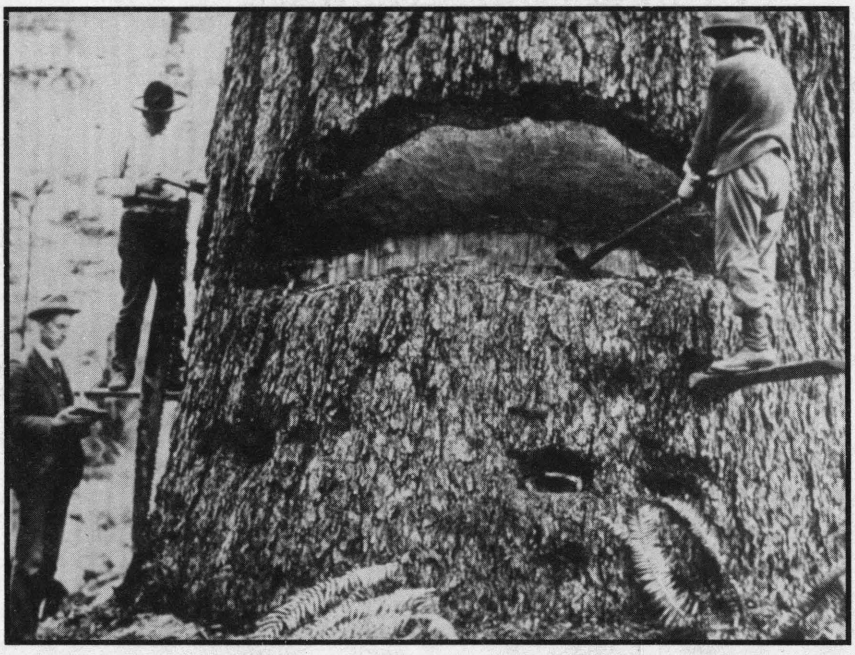
I believe the signs are clear in pointing to both problems and solutions. In 1996 the CRWC will take action to implement a program of work centered on forging a new conservation ethic. This ethic is based on the belief that human health is directly related to the health of the planet. When the people are once more in harmony with this principle they will address problems of leadership, economy and government. In 1996 we at the CRWC have as a goal to raise conservation to a new level on the political and social scale through education and advocacy.

"Ecosystem Management" Born Out of Crisis :
What Does This Mean for Old Growth on the Chattooga?

Dr. Robert Zahner

Hike any two-mile stretch of the Bartram Trail through the heart of the Chattooga River watershed. You pass through and cross over the scars of an early environmental crisis that began about 1830 and ended in 1920: old logging skid trails, still rotting stumps, pine stands delineating abandoned pastures, erosion gullies now healed over with a hardwood forest, fire scars on 200-year old oaks. Here and there you pass through a few acres of very old trees, relics of the ancient forest that once covered the entire Chattooga watershed.

The uniqueness of the Chattooga watershed is due largely to its great diversity of elevations and land forms. From high elevation oak ridges and granite dome communities to moist coves and riparian forests, about a dozen different forest habitat types occur here, each with its own distinct combination of plants and animals. All of this was very nearly destroyed in the turn-of-the century crisis. Only fragments of the original habitats remain intact.



"Of all the... 'habitats' in eastern North America, old-growth forests are the most scarce. By even the most generous estimates, they comprise less than one third of 1% of all forest land in this region." Turn of the century logging of ancient eastern old growth is shown above.

The Southern Appalachian National Forests were established in 1920. "Land conservation" and "watershed preservation" were the bywords of those times, and for the next three decades forest management was limited largely to protection and restoration. Today a mature forest has restored itself over much of the Chattooga watershed, not quite the same forest as before, but to modern conservationists this forest is regaining much of its earlier natural character. The old wounds have begun to heal, as it progresses slowly toward biological maturity.

Ironically, the rehabilitation of the Southern Appalachian forests has created another crisis. This forest in transition has now grown to commercial size, and today timber extraction has replaced conservation as the top priority for National Forest management on most of the Chattooga watershed. At the same time, modern logging engineering has mastered the art of reaching every commercial tree in the watershed, putting at risk even the remnants of old-growth forest that were too hard to reach a century ago.

Accelerated logging over the past three decades, including the clearcutting of old-growth and ancient forests throughout the United States, expanded the forest conservation crisis to every National Forest in the country. The turning point came in the early 1990s, with the political, social, economic and ecological conflict in the Pacific Northwest. A new image was clearly needed for National Forest management, a shift from the dominance of timber production to something more palatable to the American public.

The term "ecosystem management" was born out of the Pacific Northwest crisis. It was created by the Forest Service in 1992 to appeal to and appease all factions. It was supposed to lead to a more reasonable dialogue between forest managers and the diverse public and private forest interests. Although largely rebuked by the timber industry, ecosystem management has been generally embraced by the scientific community, by most conservationists, and by many foresters. Optimistically, we were soon making the most of the term in our discourse with the Forest Service here in the Southern Appalachians.

Chattooga River Crisis

The Chattooga River Watershed Coalition was born of the same national forest crisis. In the mid-1980s extensive clearcutting, road construction, and other accelerated damage to the ecosystem were occurring all over the Chattooga watershed. The devastating activities included logging adjacent to the Wild and Scenic River corridor, jeopardizing the integrity of the river itself, and timber extraction from critical areas with (at that time)

Old Growth continued...

relatively few roads.

Local conservation organizations in western North Carolina, northwest South Carolina and northeast Georgia were independently protesting these Forest Service actions in their separate states. On a case by case basis, burning up huge amounts of time and energy, we were taking the emergency room "triage" approach. It was obvious that these organizations separately were not affecting any basic change in overall Forest Service policy. What we needed was something more like "preventive medicine" for the Chattooga ecosystem.

In 1988, four years before ecosystem management was born, the Forest Service, pressured by public opinion and the emerging science of conservation biology, had announced an interest in a "gentler, kinder" management for our National Forests, with emphasis on managing for native biological diversity. To the forest activist organizations in North and South Carolina and Georgia, this concept seemed tailor-made for the Chattooga ecosystem. We united around this concept, and consolidated our focus on the enhancement of native biological diversity.

Thus was born the Chattooga River Watershed Coalition (CRWC). The Coalition formally proposed to the Regional Forester in Atlanta that he designate the Chattooga watershed as an experimental project to demonstrate the maintenance and restoration of biological diversity as the highest priority for the Southern Appalachian National Forests.

Finally in 1992, when ecosystem management became the nation-wide management policy for all national forests, the Regional Forester officially designated the Chattooga watershed as an Ecosystem Management Demonstration Project of the U.S. Forest Service. But the Demonstration Project has had no decision making power over the management of the three ranger districts within the watershed. It serves in a research and advisory capacity only. Resisting real progress, district projects have continued to be timber dominated, largely ignoring ecosystem principles.

From Timber Management to Ecosystem Management

We must keep in mind that there has never been a definition for ecosystem management that satisfies everyone; often it seems to satisfy no one. The conservation-minded publics, including most conservation biologists, read "ecosystem" loud and clear, while the commodity-minded publics, especially forest industries, read "management." There are many interpretations of ecosystem management, across the full spectrum from the preservationist to the clearcutter. District-level managers seem to find themselves caught in the same old tangle of reconciling public concerns with congressional timber directives, the same no-win dilemma that led to the National Forest crisis in the first place.

"Implementation of the new policy requires a large reduction in timber goals, which neither Congress nor the Forest Service is yet willing to authorize. "

But it's not hopeless. For the first time since the Forest Service embraced industrial style management fifty years ago, the very term "ecosystem" gives managers an insight they've not been exposed to in recent decades. The entrenched objective of "forest" management was simply "timber" management, the growing of trees for commercial use and economic profit. The intent of the shift from timber to ecosystem is, in theory at least, to recognize and protect the values of the forest community as a whole.

Forest Service policy makers are struggling with this shift - how management can ensure the sustainability of the full range of species and natural process in forest ecosystems - and still provide all the multiple uses and products required by law. Implementation of the new policy requires a large reduction in timber goals, which neither Congress nor the Forest Service is yet willing to authorize. Therein lies the current failure of ecosystem management to be implemented on the ground.

By almost any scientific assessment, ecosystem management must emphasize the long-term maintenance, or sustainability, of biological diversity in all of its ramifications. Fortunately, there is general agreement on the definition of biodiversity: the variety of life native to a region, including species and their habitats, and all the natural processes of climate, fire, water and soil that tie these elements together through time. Biodiversity is the life support system of our planet and, ultimately, of our own human species.

It should be obvious that any impoverishment of biodiversity must be avoided, and conversely, any enhancement of biodiversity must be given top priority in ecosystem management decisions. It is at the landscape level of biodiversity that ecosystem management on the Chattooga watershed must focus. A comprehensive plan is needed to restore, enhance, and sustain native biodiversity over the entire watershed.

Old Growth and Ecosystem Management

Thus, we finally come to the role that old-growth forests play in ecosystem management. Of all the natural

Old Growth continued....

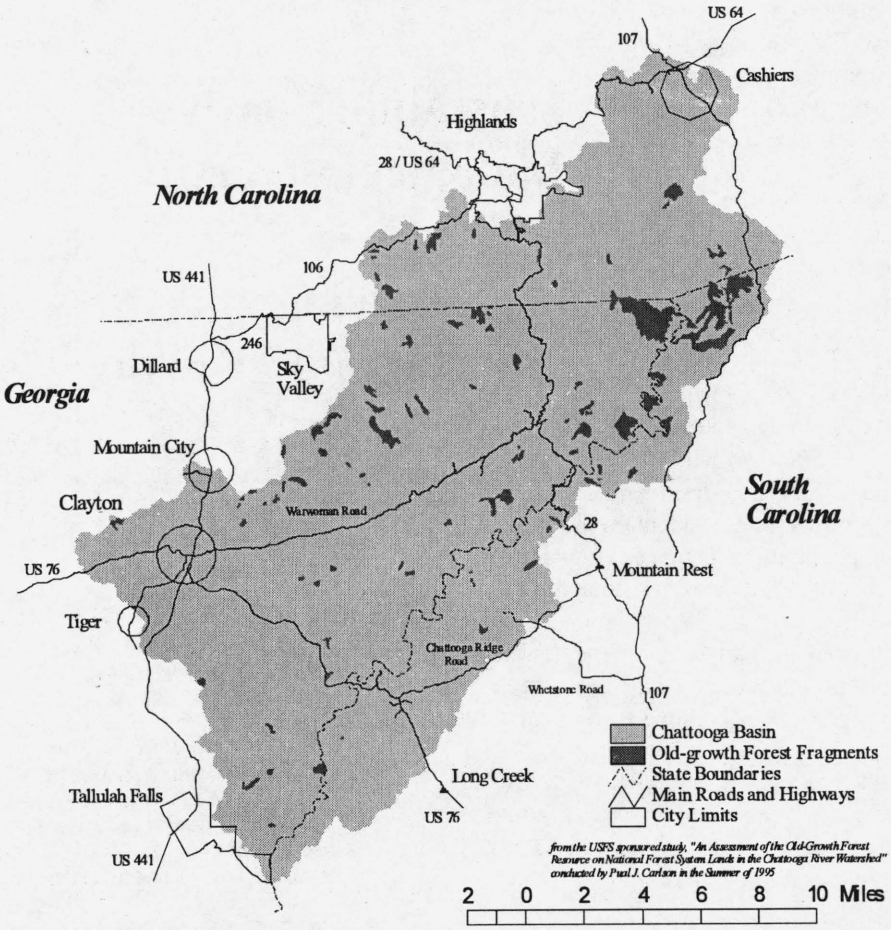
biotic communities or "habitats" in eastern North America, old-growth forests are the most scarce. By even the most generous estimates, they comprise less than one-third of one percent of all forest land in this region. On national forest land in the Chattooga watershed, a recent U.S.F.S. survey establishes that old-growth forest communities occupy only about four percent of the watershed area. Clearly, plant and animal species associated with old growth are not abundant on the watershed itself, and are barely surviving in the region as a whole.

"The necessary biological process can be restored here by linking isolated habitat to isolated habitat with corridors of old growth forest across the watershed."

Here is a simple equation to illustrate how Forest Service strategy can begin to correct this imbalance in habitat critical to native species: ecosystem management = sustaining native biological diversity = preserving and restoring old growth forest. This is not to say that "old growth" should be restored on every forested acre of the watershed; many acres, perhaps most, are too recently disturbed, or support forests that are too young and immature to be restored to old growth in the next century. But other acres support older, mature forests - lands logged a century ago that are now re-establishing many characteristics of old growth.

A review of the Forest Service's own definition of old growth will help us visualize its characteristics: "Old-growth forests are ecosystems

Old-Growth Forest Fragments in the Chattooga Watershed



Old Growth continued.....

distinguished by old trees and related structural attributes. Old growth encompasses the later stages of stand development that typically differ from earlier stages in a variety of characteristics which may include tree size, accumulations of large dead woody material, number of canopy layers, species composition, and ecosystem function".

It is the last characteristic, ecosystem function, that is most important from the standpoint of biodiversity at the landscape level. Old growth communities are reservoirs of rare plants and animals. Some are already listed as Threatened or Endangered, and others are destined to join them unless we can prevent further loss of their endangered habitat. The food chains, reproductive processes and all the other strands in an ecosystem's web of life are coupled with those of adjacent communities, from habitat to habitat across the landscape. The function of old growth is to provide centers of distribution for old-growth species throughout the forest.

But healthy populations of many mature forest species cannot be sustained in isolated fragments. As is typical for the Southern Appalachian region, most of the old growth in the Chattooga watershed occurs in small isolated fragments. Conservation biologists agree that such a distribution of old growth does not provide for the long-term viability of native species dependent on old growth forest habitat. Viable populations require healthy genetic interchange between isolated groups (to avoid the consequences of inbreeding). We are not concerned here with only highly mobile animals and wind-disseminated plants. We must provide for all of the less mobile biota that cannot migrate across disturbed forest land between fragments of old growth. These include most old growth herbaceous plants, especially perennials with limited pollination and seed dispersal, most spiders, non flying insects, and snails and many amphibians and reptiles, all essential components in the functioning of these ecosystems.

The necessary biological process can be restored here by linking isolated habitat to isolated habitat with corridors of old growth forest across the watershed. Today there are no old growth corridors between the existing old growth fragments. We can restore them now by allowing relatively mature forest between old growth fragments to continue growing.

To summarize: the scarcity of old growth throughout the region and the watershed, and the degree to which most native species in decline depend on it, make restoration of mature forest and preservation of existing old growth fragments the highest priority of ecosystem management. Any other management direction will not sustain native species. Two management decisions are required. First, further fragmentation of the forest landscape must be avoided. Mature forest communities adjacent to existing old growth must be preserved intact and permitted to restore themselves to additional old growth. Second, where there is potential to connect existing old-growth communities with mature forest corridors, such corridors must be protected from further disturbance and allowed to mature further toward additional old growth.

"Here is a simple equation to illustrate...

ecosystem management

=

sustaining native biological diversity

=

preserving and restoring old growth forest."

References:

Flather, C. H., L. A. Joyce, and C. A. Bloomgarden. 1994. Species Endangerment Patterns in the United States. *USDA Forest Service Technical Report RM-241*. Fort Collins, CO.

Noss, R. F. 1983. "A regional landscape approach to maintain diversity." *Bioscience* 33: 700-706.

Noss, R. F., and A. Y. Copperrider. 1994. *Saving Nature's Legacy: Protecting and Restoring Biodiversity*. Washington, DC: Island Press.

Odum, E. P. 1970. "Optimum Population and Environment: a Georgia microcosm." *Current History* 58:355-359.

UNESCO. 1974. *Task force on criteria and guidelines for the choice and establishment of biosphere reserves*. Man and the Biosphere Report, no. 22. Paris, France.

USDA Forest Service. 1989. *Generic definition and description of old-growth forests*. USDA Forest Service, Washington, DC.

USDA Forest Service. 1994. *Land and Resource Management Plan Amendment 5, Nantahala/Pisgah National Forest*. Atlanta: USDA Forest Service, Southern Region.

Wilcove, D.S. 1987. "From fragmentation to extinction." *Natural Areas Journ.* 7:23-29.

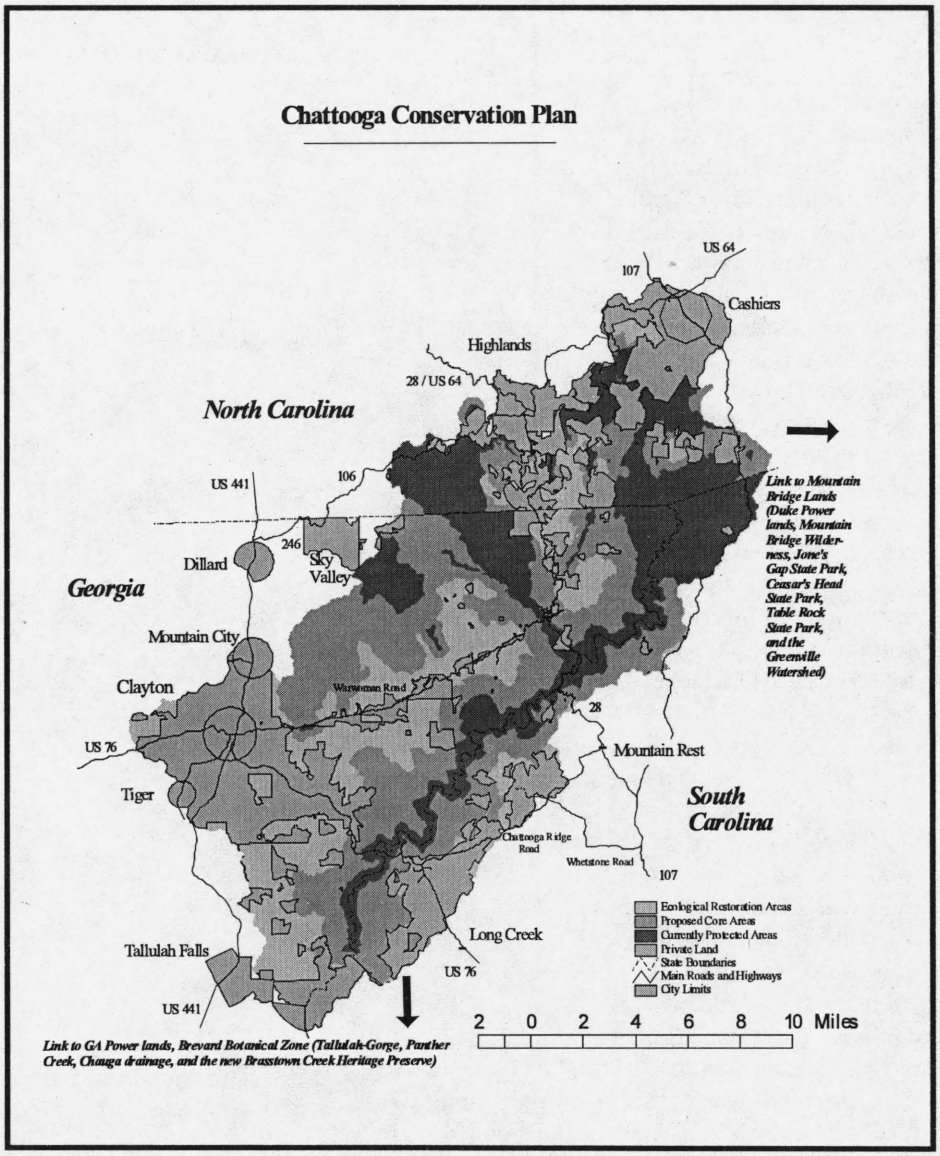
Zahner, R. 1990. "Restoring forest diversity in the southern Appalachian Mountains. " *Tipularia* Spring. Atlanta: The Georgia Botanical Society.

Zahner, R. 1996. "How much old growth is enough?" Chapter 22 in *Eastern Old-Growth Forests: Prospects for Rediscovery and Recovery*, Mary B. Davis, editor, Island Press, Covelo, CA.

Dr. Robert Zahner is Professor Emeritus of Forestry at Clemson University. He is the recipient of the 1995 Cunningham Conservation Award, and has been recommended by former President Carter to serve on a biodiversity committee of scientists.

A Conservation Plan for the Chattooga:
Three National Forests, Three States, One Watershed

Buzz Williams, with an introduction by Dr. Robert Zahner and GIS maps by Craig Campbell



Introduction

The modern science of conservation biology has devised a model for restoring and maintaining old growth across a forested landscape. In 1974 the International Biosphere Reserve concept was introduced as a means for preserving native biodiversity on a large scale. This model was adopted by the United Nations (UNESCO) for their Man and the Biosphere program. It has been implemented on a regional scale in the Southern Appalachian Man and the Biosphere (SAMAB) program, with the Great Smoky Mountains National Park as its core. The same model can be adapted on a smaller scale to individual watersheds.

The Chattooga is perfectly suited for implementation of a comparable Biosphere Reserve model. The Chattooga River Watershed Coalition (CRWC), with the Southern Appalachian Forest Coalition, Clemson University, and The Conservation Fund, has proposed a Conservation Plan to implement such a model in the Chattooga watershed. This plan is featured in this issue of the *Chattooga Quarterly*.

The scope of the Chattooga Conservation Plan can be envisioned thus: the Ellicott Rock Wilderness Area, the Blue Valley Experimental Forest, the Overflow Semi-Primitive Recreation Area, the Rabun Bald and Terrapin Mountain Roadless Areas are significant blocks of mature forest, each containing fragments of old growth. Nearby are other areas of mature forest, isolated old growth fragments in the central and southern portions of the watershed, and several specially protected areas. The Chattooga Wild and Scenic River serves to connect them all. Together, if properly designated and managed, all these areas would form a viable core of mature interior forest habitat so desperately needed by our native species that are in decline. With the addition of wildlife corridors, both within the watershed and to adjacent forests outside the watershed, the plan is a feasible first step toward restoring the biological integrity of the Southern Appalachian region.

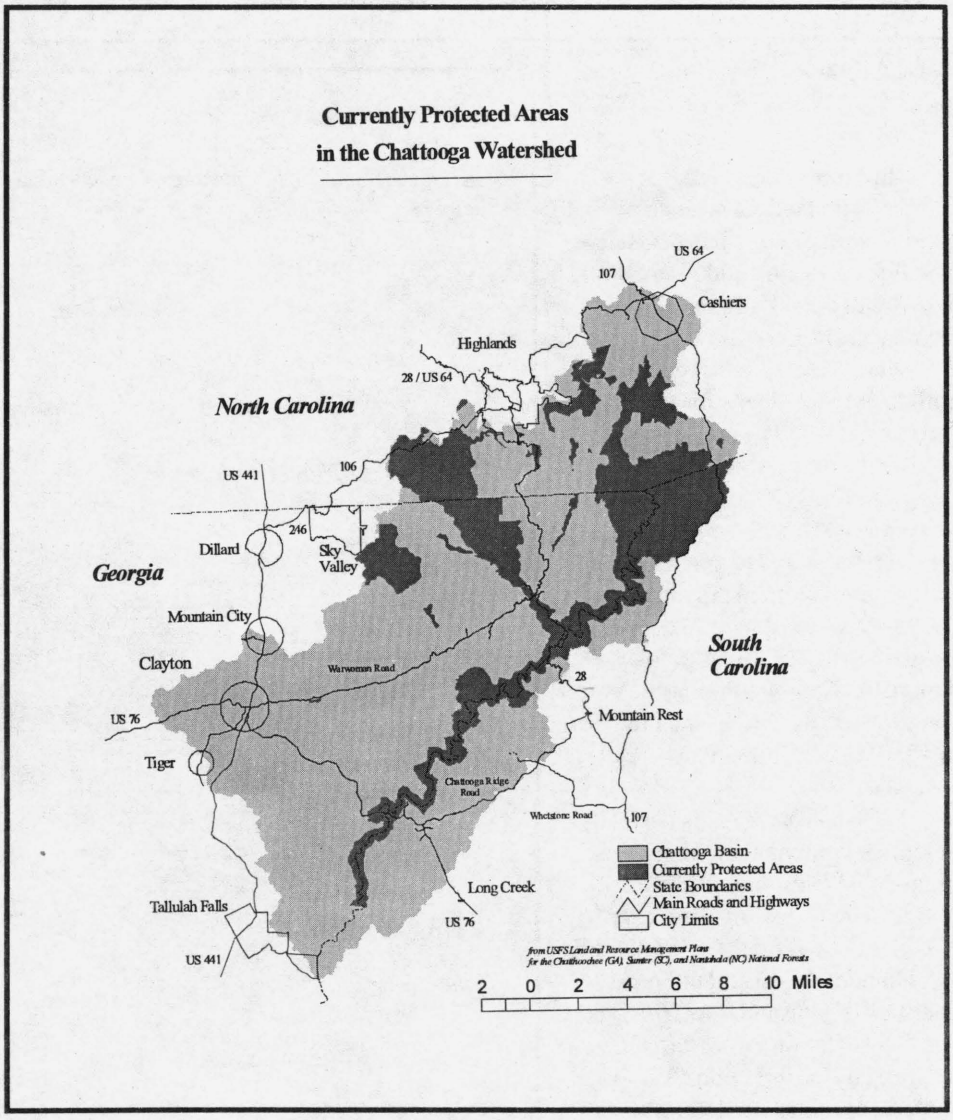
The CRWC plan places few restrictions on core areas or wildlife corridors and would support all legal hunting and fishing, along with limited trail development. In addition, outside core areas and wildlife corridors, a buffer zone called an ecological restoration area is proposed. The Conservation Plan encourages ecological restoration areas to support limited roads, forest, stream and wildlife restoration projects, selective logging, recreational development such as campgrounds and picnic areas, as well as all legal hunting and fishing. Thus, there would be no conflict with current public use.

Implementation of such a model for restoring the native ecosystem of the Chattooga watershed is hampered on public lands by the fact that three separate U.S.F.S. Forest Plans, one for each portion of the watershed in Georgia, South Carolina and North Carolina, dictate

Chattooga Conservation Plan continued...

management decisions independently of one another. Upcoming revisions of these Forest Plans will have to be reconciled so that management policy and objectives are coordinated throughout the watershed.

Encouragingly, the recently revised Forest Plan for the Nantahala National Forest prescribes the restoration of old growth through an adaptation of the Biosphere Reserve Model. The revised Nantahala Forest Plan establishes a network of old growth areas, many larger than 2,500 acres, some exceeding 7,500 acres, interconnected by forested lands. These old growth areas "serve as permanent reservoirs of biological diversity with the intent to allow the restoration of functioning old growth ecosystems at the landscape scale". The current Nantahala Forest Plan is much like the proposed Chattooga Conservation Plan. In fact, the Nantahala model is already working on that portion of the Chattooga watershed that lies in North Carolina.



The CRWC's Chattooga Conservation Plan builds on the success of the Nantahala experience. It will take us even further toward the responsible conservation and restoration of the entire Chattooga River watershed by integrating GA, SC and NC public lands management and aiding private landowners in their search for sustainable and economically viable land stewardship alternatives. Finally, by linking to other vital forests of the Blue Ridge Escarpment, and demonstrating the process of its design and implementation, the Chattooga Conservation Plan can serve as a model for conserving and restoring the native ecosystem of the Southern Appalachian region.

Twenty-five years ago Georgia's pre-eminent ecologist and founder of the University of Georgia's Institute of Ecology, Dr. Eugene Odum, recommended that at least 40% of the land area of the region remain or be restored to natural forest communities. His reasons were the same as ours for protecting the Chattooga watershed today: to enable biodiversity to achieve its full range of species and life processes throughout the Southeast. Adoption of the Chattooga Conservation Plan will be a big step toward the realization of Dr. Odum's vision for the Southern Appalachians, and our hope for a future full of the diversity of life and beneficial to the health and prosperity of our communities.

The Chattooga Conservation Plan

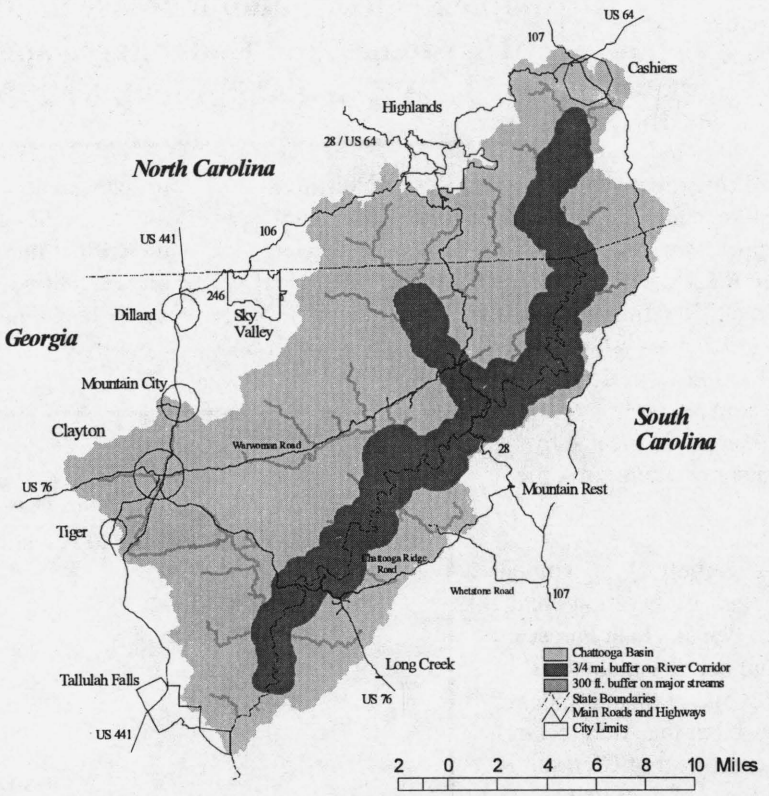
The Chattooga Conservation Plan is an extension of the original concept that was the catalyst for founding the CRWC: the Chattooga River watershed is composed of social characteristics and ecological attributes that are independent of political boundaries and therefore, should be managed altogether as a natural, functioning landscape. The Conservation Plan places a significant emphasis on implementation through the National Forest Management planning process. This reflects the fact that approximately seventy percent of the land base in the Chattooga watershed lies within the jurisdiction of three National Forests. However, private land stewardship is an integral part of the plan as well.

The Chattooga Conservation Plan has been designed to achieve restoration of the ecological integrity of the watershed. The plan is based on bedrock principles of Conservation Biology, and incorporates a landscape-

Chattooga Conservation Plan continued...

level perspective. The highest priority is to protect native biological diversity. The Chattooga watershed is an integral part of the larger Blue Ridge Escarpment, which is one of the richest ecosystems of North America. Currently protected areas under public ownership in the watershed and along the Escarpment provide the opportunity for regional collaborative planning. The potential to provide enhanced recreational opportunities is also a priority of the plan. Local economies stand to benefit from jobs created in the recreation, service and other industries. Potential job losses in the manufacturing sector (this includes the timber industry) that may result from shifting to a land management plan with a greater emphasis on biological protection is mitigated by a shift to ecological restoration and sustainable management activities. The net result is cleaner air and water, restoration of native forest and aquatic habitats, critical habitat protection, increased private property values and more jobs with less cost to the American people (subsidies and below-cost timber sales would be eliminated).

Stream and River Corridor Buffers
Proposed in the Chattooga Conservation Plan



The Chattooga Conservation Plan model is long overdue. As far back as 1932 the Ecological Society of America chartered the Committee for the Study of Plant and Animal Communities. The Committee recognized that a strategy of biological protection based on scattered blocks of native habitat was inadequate. The Committee proposed a system of nature sanctuaries which would be connected by a series of corridors and buffers in order to facilitate a natural process of genetic exchange throughout the landscape. Today's scientific community is once again speaking out for the critical need for this type of landscape planning. They have warned us that the greatest threat to our society is the continuing loss of biological diversity. The Chattooga Conservation Plan is based on a landscape model aimed at protecting native ecosystems for long term sustainability, with humans as a part of the solution to a difficult and pressing problem.

Our plan is also just plain common sense. Urban sprawl is destroying native forests and wetlands at a record pace. Undisturbed and contiguous native forests, critical for many species in serious decline, is becoming very rare especially in the East. Therefore, the Chattooga Plan calls for the protection and restoration of large blocks of unfragmented native habitat. There is a direct correlation between unfragmented forest and roadless areas as well. Similarly, remnant stands of old growth forest are more likely to exist in roadless areas. (Less than 1% of our old growth forest remains intact in the southeast, see Zahner.) Other priorities in the plan include protection for biological "hot spots" and cultural sites.

The first step in formulating the Chattooga Conservation Plan entailed data collection. Much data involving old growth, currently protected management area descriptions, criteria for roadless areas, transportation system maps and property boundaries was obtained from the Forest Service. Element occurrences of threatened, endangered and sensitive species were obtained (under certain provisions) from the Natural Heritage Programs in North and South Carolina and Georgia. In addition, our

Chattooga Conservation Plan continued...

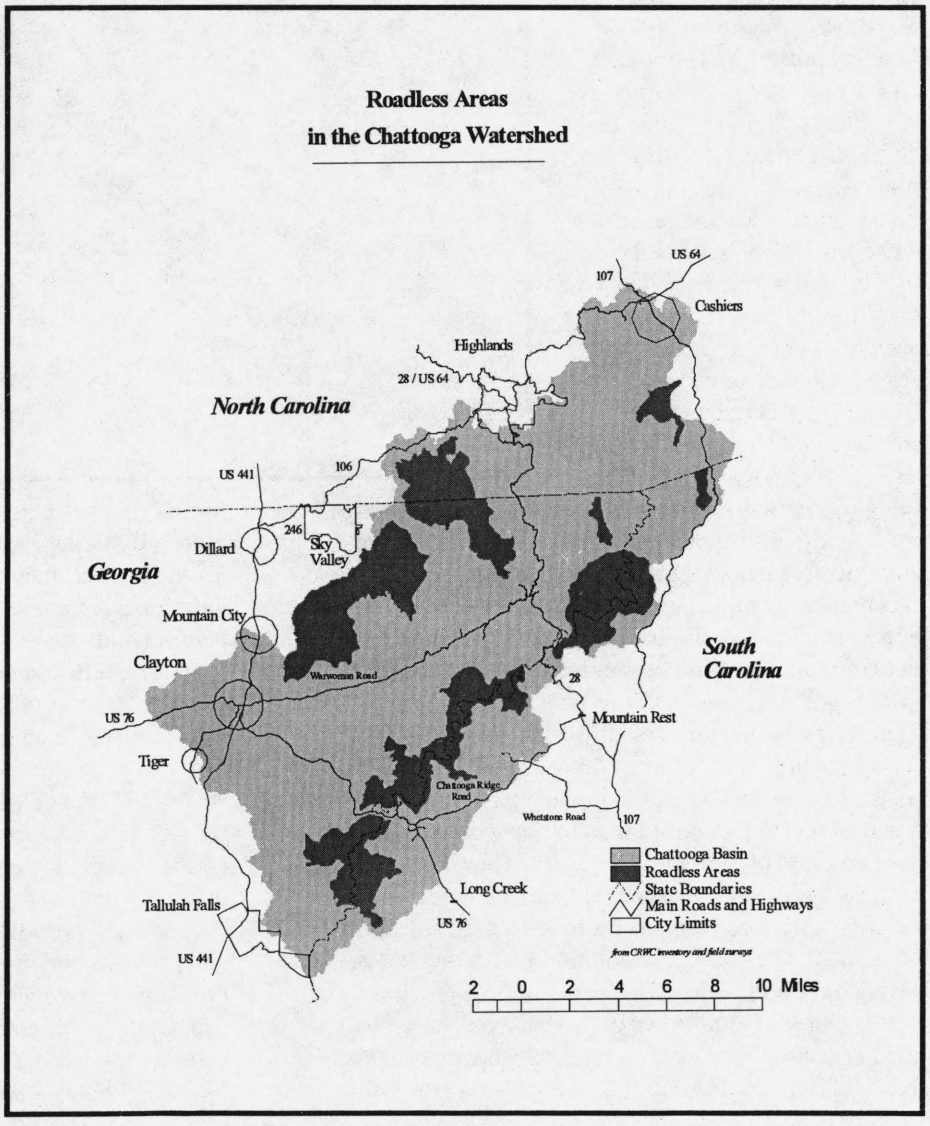
staff spent many hours ground-truthing information.

The data collected was then assimilated using cutting-edge Geographic Information System (GIS) techniques developed at Clemson University. In all, 21 layers of data were overlaid to create a composite picture of critical areas in need of protection. Isolated core areas were expanded, and connected by corridors. A new management area concept developed by Dr. Robert Zahner, called an Ecological Restoration Area, was used to buffer the proposed core areas. In Ecological Restoration Areas management techniques could be used to restore natural ecological processes. Economic Opportunity Areas were designed around areas of high population densities. Then, the latest scientific information on management area design was utilized to fashion the final draft conservation plan. An algorithm was designed to use computer mapping to establish management areas delineated by natural boundaries along sub-order watersheds.

The Chattooga Conservation Plan, if implemented, would increase protection of Threatened and Endangered species by 33% and old growth by 27%.

The Chattooga River Watershed Coalition, along with our partners at The Conservation Fund, the Southern Appalachian Forest Coalition and our consultants Dr. Kerry Brooks and graduate student Craig Campbell at the Architectural Planning Department of Clemson University, are confident that implementation of this conservation plan is essential for sustainable management of the Chattooga River watershed. However, the Forest Service that is land manager of the majority of the watershed is not likely to implement such an innovative plan given the current political climate. The Forest Service is under tremendous pressure from Congress to meet politically motivated "timber targets". Consequently, as part of the ongoing forest planning and Forest Plan revision process, we are recommending that the Chattooga be set aside as a Research Natural Area, free from "timber targets". We also recommend that the Southern Appalachian Man and the Biosphere cooperative nominate the Chattooga River watershed as a designated Biological Reserve.

For the Chattooga Conservation Plan to become reality, public participation is essential. The bottom line is: if people want this plan to be implemented, it will happen. Citizens must become involved in the national forest planning process. People must let their congressional representatives know that they want environmental protection to be a high priority in 1996. Laws must be passed which provide positive incentives for conservation to private land owners and public land management agencies alike. Above all, we must realize the critical importance of protecting biological diversity for present and future generations. Our goal, then, is to initiate a new land ethic through the Chattooga Conservation Plan.



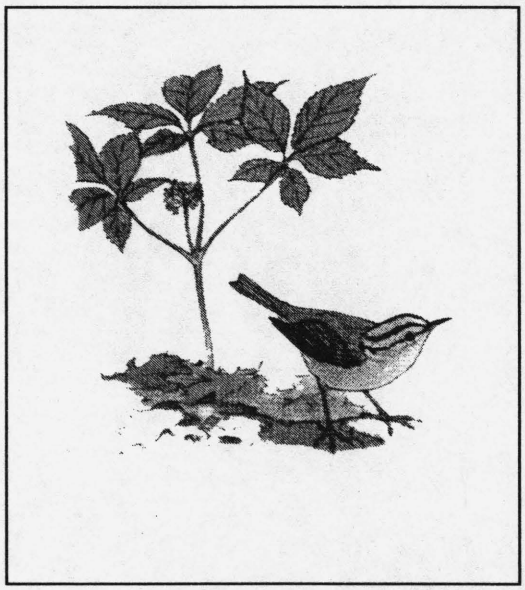
Promoting a "Delicate, Knowing Stewardship" for the Chattooga Watershed

Susan Andrew

"Natural philosophy and science have brought into clear relief what might be the essential paradox of human existence. The drive toward perpetual expansion-- or personal freedom--is basic to the human spirit. But to sustain it we need the most delicate, knowing stewardship of the living world that can be devised. Expansion and stewardship may appear at first to be conflicting goals, but the opposite is true. The depth of the conservation ethic will be measured by the extent to which each of the two approaches to nature is used to reshape and reinforce the other. As biological knowledge grows...the fauna and flora of a country will be thought part of the national heritage as important as its art, its language, and that astonishing blend of achievement and farce that has always defined our species."

E.O. Wilson

"Delicate, knowing stewardship" - the phrase is easy on the ears, but difficult to enact in practice. Competing forces - the demand for timber and other forest products, and the cry to preserve what wild lands remain - push ahead with a schedule that out paces efforts at either delicacy or thorough understanding of the natural world. In any case, our understanding of the living world, and our impact upon it, is growing. Based on direct observation and fossil records, many in the scientific community have concluded that the present rate of biological impoverishment is the single greatest threat facing the human race. The sheer numbers of extinctions and species at risk seems overwhelming and almost unmanageable. But an important change in our perspective has come about recently: as we have learned more about the complex web of interdependence among living things, attention has largely shifted from conservation of single species to conservation of entire ecosystems.



The Worm-Eating Warbler needs large tracts of unroaded forest habitat in order to flourish.

Large scale approaches - at the level of ecosystems and landscapes that maintain whole regions with their own unique assemblages of native flora and fauna - appear to be the only way to conserve the majority of Earth's existing biodiversity. Such approaches avoid the problems that plague species-by-species methods that quickly exhaust 1) available time 2) our financial resources 3) public patience and 4) scientific research resources (Franklin, 1993). A landscape approach offers the advantage of supporting the large array of "lesser" organisms: bacteria, fungi, insects, and other inconspicuous species that carry out critical ecosystem functions, like decomposition and nitrogen fixation, on which the rest of us depend. A healthy forest needs viable populations of birds, large and small carnivores, plants and fungi, and other basic ecosystem elements to assure that the whole system functions sustainably.

This ecosystem approach is supported by a straightforward look at the relative proportions of Earth's living things. Although most single-species conservation efforts are directed at vertebrates, the "charismatic megafauna" (like eagles, bears, big cats, etc.) actually represent less than 1% of living things. Invertebrates, on the other hand, probably comprise about 90% of the total. Most of these are undescribed by science. Our scarce research resources cannot immediately divulge which species could be directly useful to humans. It will take time to discover, or in some cases rediscover, and then directly apply their practical values. But for many species on Earth today time is short. They will persist, along with the ones we haven't yet discovered, only if their habitats are conserved across the landscape.

The Chattooga Conservation Plan, described in this issue, takes the necessary step to a landscape-level focus. Readers of the *Chattooga Quarterly* are already familiar with the features of this watershed that make it unique and biotically rich: its descent through a pronounced elevational gradient and numerous geological types, its inholdings of riparian, rocky outcrop, seep and bog, forest interior and other habitats, all providing for a great diversity of plants and animals, with origins in tropical, temperate, and northern regions. These features make it an excellent choice for true ecosystem-level management. The watershed is a dynamic, interconnected series of distinct habitats, each with unique living communities and each having important effects "downstream."

Interior Forest

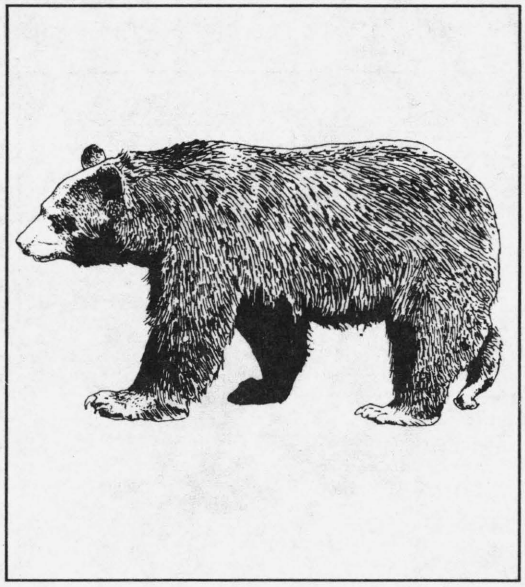
Let's consider one of the watershed's most threatened habitats: the mature forest interior. Mature forests offer a set of conditions which are not present in

Stewardship continued...

younger stands. Forest interior has more species, and a greater mass of living things above and below the ground than many other habitat types. This is in large part because they provide many different physical structures such as standing live and dead trees, downed logs and woody debris, and leaf litter. In addition, forest interior features a high degree of variability in chemistry, temperature, humidity, and other physical attributes across the terrain. All this means that a more diverse habitat, and a rich collection of organisms is found in the forest interior. Its diverse microenvironments have allowed for the evolution of some extremely habitat-sensitive species, including both plants and animals (see "Plants of the Interior Forest" by Dr. Horn, this issue).

Salamanders

The interior forests of the Southern Appalachians, including the area around the headwaters of the Chattooga, have been described as the salamander capital of the world. Dr. Bruce, a recognized expert and the lead investigator of a 1995 survey in the Chattooga says, "the salamander fauna might be the richest in the world for watersheds of comparable area" (Bruce, 1995). The area's interior forests are the evolutionary fountainhead for a widespread group, the *plethodon* family of salamanders. These animals are interesting, for although they are amphibians, the moist forest soils they inhabit permit them to skip the typical aquatic phase of amphibian life entirely. This evolutionary novelty allowed them to colonize terrestrial areas not usually accessible to most amphibians that must lay their eggs in water. Plethodons now serve an important function as insect-eaters on the forest floor. With their vast numbers -up to five or more individual salamanders in a single square yard of soil- they consume tons of insects in a forest stand every season. However, because they breathe through their skin, they must remain in moist areas all the time, and emerge from their underground burrows only at night or in the rain.



The Black Bear needs tracts of unroaded forest habitat connected across the landscape.

Their lifestyle makes plethodon salamanders quite sensitive to disturbances to their forest interior environment. It also makes them good indicators of ecosystem health. James Petranka, a biologist at the University of North Carolina at Asheville, has studied the effects of clearcutting on salamanders (Petranka, 1994). He found that they are completely eliminated or reduced to very low numbers when mature forests are clear cut. Furthermore, comparisons between different-aged stands suggest that salamanders come back very slowly after an intensive timber operation. Their numbers return only over many decades as the stand grows back, and the shaded, moist forest conditions return. Considering the logging history of the Chattooga (see article by Robert Zahner , this issue), these sensitive animals are probably just beginning to return to their pre-disturbance population levels and their proper ecological role as major forest-floor insect predators.

"There's no doubt these animals are best adapted to old growth conditions," Petranka says. "Designating subsets of the landscape as permanent non-harvestable sites is a management tool that can increase both landscape heterogeneity and regional densities of Southern Appalachian salamanders." He advocates management techniques such as leaving buffer zones along headwater streams, and reversing the current trend of industrial-style management that results in forest landscapes dominated by relatively young stands of trees.

Birds

The salamanders are an example of "site sensitive" species. Another class of sensitive species is "area sensitive." These are creatures that need large tracts of intact forest (or other habitat) to survive and flourish. Many types of birds fall into this category. The decline observed in forest songbird populations since World War II has been attributed to the loss of the large, unfragmented forests that provide homes for forest interior birds. Human development, in the form of roads, clearings and construction, serves to break up forest tracts. The result is much less interior forest breeding habitat, and more nest predation (by raccoons and opossums looking for an easy meal) and brood parasitism (by cowbirds and cuckoos looking for foster parents to unwittingly raise their young). Studies in the eastern U.S. have confirmed that many songbirds will breed only in large tracts of unfragmented forest, even though their individual territories consist of only a couple of acres (Robbins et al., 1989; Whitcomb et al., 1981). The most area-sensitive birds may only be encountered if the forest exceeds 3000 hectares.

Forests within the Chattooga watershed presently support populations of numerous forest-interior birds. Bird enthusiasts can hear the songs, and maybe the bright, colorful flash, of a resident hooded warbler, blackburnian warbler, or Canada warbler. Less conspicuous but equally

continued on page 24...

Plants of the Interior Forest

Dr. Charles N. Horn

The southeastern United States has a diversity of ecosystems, all of which make up the Temperate Deciduous Forest biome. This area, as we all know, is characterized by warm summers and cool winters, and plenty of rainfall or some snow in the winter. But it is the vegetation which truly characterizes this biome. In its natural, undisturbed form the biome develops a forest rich in a number of trees which annually have their leaves change color and drop off in preparation for winter. Of special interest to us are the interior forests of the Southern Appalachians, where these forests reach their greatest diversity. This is the result of numerous habitats created by the many hills and mountains as well as the greater rainfall than surrounding areas of the piedmont to the east or plateau to the west. These interior forests contain a number of plant species which can be classified by growth form into canopy trees, sub-canopy trees and shrubs, and herbs.

Interior forest plants can be adversely effected by nearby clearings like roads or even-aged timber harvests.

The Canopy

Historically, these forests have been classified as part of the oak-chestnut association. Early settlers saw that in many areas the canopy was dominated by the American Chestnut (*Castanea dentata*). Not only were the trees massive in size, but they provided food for a number of animals and a diversity of lumber products for the settlers. Along with the chestnut were a number of oak species including black oak (*Quercus velutina*) , chestnut oak (*Q. prinus*), red oak (*Q. rubra*), scarlet oak (*Q. coccinea*), and white oak (*Q. alba*). In addition, other commonly associated species were beech (*Fagus grandfolia*), tulip poplar (*Liriodendron tulipifera*), sugar maple (*Acer saccharum*), basswood (*Tilia americana*), buckeye (*Aesculus octandra*), birch (*Betula*) and ash (*Fraxinus*).

However, in 1904 a fungus was discovered to be killing most above ground biomass of chestnut trees in New York City. The fungus soon started spreading and within several decades had infected essentially every tree east of the Mississippi River. The result has been that chestnut is now only known as a root sprout which can grow to 30 feet tall before being infected again. Obviously, loss of the American Chestnut from the forest canopy resulted in a change in community structure where the trees were previously dominant. Other species which are taking their place include white oak, chestnut oak, several species of hickory (*Carya*), and red maple (*Acer rubrum*).

The canopy trees within the forest are sensitive to moisture. Dry upland forests are dominated by the oak and hickory species. Extremely dry sites of mountains, especially on the south facing slopes may even be dominated by pines (*Pinus*). The extreme high elevations cannot support trees and are known as balds. These are quite exciting botanically as they contain a number of species common much further north. Especially of interest here are the thickets of rhododendron shrubs which make up the canopy. In quite a contrast, forests along streams and in coves are much more likely to be dominated by the tulip poplar, birch, beech, and sugar maple. High elevation coves, especially on northern facing sides of mountains, commonly are dominated by hemlock (*Tsuga canadensis*).

The Subcanopy

The subcanopy of the interior forests includes only a few species of trees and shrubs. Dogwood (*Cornus florida*) trees in flower have always been one of the signs of spring in the forests. However, like the chestnut, dogwood is being attacked by a disease, which in this case kills the entire tree. The disease, which initially shows symptoms of spotted leaves and ultimately leads to death, was first detected on trees in Pennsylvania and has been moving progressively southward. Some scientists say that the disease will not hit as hard in the southern Appalachians since the winters are not as cold. Perhaps our area will be spared from the worst.

A number of other trees and shrubs are characteristic of the southeastern forests. The magnolias are always interesting to look at, especially the umbrella tree (*Magnolia tripetala*), which has the largest leaves and flowers of any plant in the forest. Other trees and shrubs include mountain maple (*Acer spicatum*), striped maple (*Acer pensylvanicum*), buffalo nut (*Pyrularia pubera*), mountain laurels (*Kalmia*), blueberries (*Vaccinium*), gooseberries (*Ribes*), and rhododendrons (*Rhododendron*). The maples are mostly scattered in upland or mountainous

Interior Forest Plants continued...

forests while the magnolias, umbrella tree (*Magnolia tripetala*) and cucumber tree (*Magnolia acuminata*), are more common in valleys. The mountain laurels, blueberries and rhododendrons tend to be clonal. The rhododendrons can form thickets along stream and slopes which are essentially impossible to pass through. But in the spring they produce a beautiful explosion of flowers ranging anywhere from pure white to a dark pink.

The Herbaceous Understory

Herbs in the forest present a real challenge to both the amateur and professional botanist simply as a result of the many species present. Numerous herbs are restricted to the forest floor and cannot survive clearcuts, or even natural openings due to forest fires or tornadoes. In general, ferns are typically restricted to forests, and these interior forests provide habitat for a number of species including the bristle fern (*Trichomanes boschianum*), dwarf filmy-fern (*Trichomanes petersii*), glade fern (*Athyrium pycnocarpon*), mountain spleenwort (*Asplenium montanum*), hay-scented fern (*Dennstaedtia puntilobula*), shield ferns (*Dryopteris marginalis* and *D. intermedia*), and silvery spleenwort (*Athyrium thelypterioides*) . Since the ferns do not produce flowers (just spores) they are commonly overlooked.

Numerous flowering plants are found along the forest floors. Two of the most conspicuous plant groups well represented by numerous species in mature forests are the lily and the orchid families. In most cases these species require a mature deciduous forest canopy over them in order to do well. Within the lily family are the wake robin, painted trillium, large-flowered trillium (all three are of the genus *Trillium*), bluebead-lily (*Clintonia*), mandrum (*Diosporum*), false lily of the valley (*Maianthemum*), lily of the valley (*Convallaria*), twisted-stalk (*Streptopus*), turk's cap lily, and wild yellow lily (both of the genus *Lilium*). The more well know orchids include lady's slippers (*Cypripedium*), showy orchis (*Orchis spectabilis*), habenarias (*Habaneria*), appalachian twayblade (*Listera*), and spotted coral root (*Corallorhiza*). Other species of interest include wild ginger (*Hexastylis*), baneberry (*Actaea pachypoda*), 5-leaved windflower (*Thalictrum quinquefolia*), papooseroot (*Caulophyllum thalictroides*), ginseng (*Panax*), spikenard (*Aralia racemosa*), waterleaf (*Hydrophyllum*), and bee-balm (*Monarda*).

"to the herbs with shallow roots and with exacting microhabitat needs, this [fragmentation from roads and clearings] is just the change which may be detrimental to their survival."

In summary, even though the forests are defined by the canopy trees present, the real biodiversity of an interior forest is in the shrubs and herbs, which commonly go unnoticed. We quickly note the loss of trees with urbanization and the logging process; at times even emphasize their loss when talking about the loss of forest habitats. Yet I do not know of a single species of tree in the eastern United States which has become extinct. On the other hand, the small herbs live within such a small area (a microhabitat) that they have specialized to specific soil, sun, and moisture conditions. The herbs do fine as long as the canopy trees remain intact. But, with humans has come fragmentation of the forests such that all we commonly see are small areas of forest which are exposed to what Dr. Lovejoy (of the World Wildlife Fund) calls the "edge effect": where greater wind and sun influence microhabitats, hence the forests are dryer and warmer during the summer. To the trees this is commonly not much of a problem, but to the herbs with shallow roots and with exacting microhabitat needs, this is just the change which may be detrimental to their survival. So, as we look forward to preserving the biodiversity of our forests, don't just think of the trees which define the forests, but think of the many more species of herbs which make their forest so interesting and important to save.

For further reading:

Bratton, S. P. 1994. Logging and fragmentation in broadleaved deciduous forests: Are we asking the right ecological questions? Cons. Biol. 8: 295-297.

Brewer, R. 1980. A half-century of changes in the herb layer of a climax deciduous forest in Michigan. J. Ecol. 68: 823-832.

Duffy, D.C. and A.J. Meier. 1992. Do Appalachian herbaceous understories ever recover from clearcutting? Conserv. Biol. 6: 196-201.

Duffy, D.C. 1993. Seeing the forest for the trees: Response to Johnston et al. Cons. Biol. 7: 436-439.

Johnson, A.S., W.M. Ford and P.E. Hale. 1993. The effects of clearcutting on herbaceous understories are still not fully known. Conserv. Biol. 7: 433-435.

Matlack, G. 1994. Plant demography, land-use history, and the commercial use of forests. Cons. Biol. 8: 298-299.

Runkle, J.R. 1982. Patterns of disturbance in some old-growth mesic forests of eastern North America. Ecology 63: 1533-1546.

Ecological Applications, November 1995. Whole section on plant diversity in managed forests, including an article by Meier, Bratton, and Duffy.

Dr. Charles N. Horn is Associate Professor of Biology and Curator of the herbarium at Newberry College, Newberry SC.

Making the Law of the Forest: The Public and the Forest Plan Revision Process

Jim Loesel

If you are interested in how public lands in the Chattooga watershed are managed, take note, you will have opportunities in the years and months ahead to influence their long-term management. It stands to reason that the public would have a say in how our public lands should be managed. They are, after all, lands which belong to all of us.

Though it may seem reasonable, it hasn't always been that way. Until Congress passed the National Forest Management Act (NFMA) in 1976, there was no direct way for citizens to influence the management of national forests. We could go to our elected representatives in Washington and try to get specific direction written into law. That has been a common way for big, influential timber and mining companies to affect management of public lands. But for most ordinary citizens, direct lobbying of congress among crowds of well-funded competition is too expensive and time consuming.

But another way of effecting public lands management was opened up to the general public with the passage of the NFMA in 1976. Congress said that the U.S. Forest Service must prepare a long-range plan that would guide how each national forest would be managed for the various uses they are mandated to provide - recreation enjoyment, watershed protection, timber harvesting, wildlife, grazing, and mineral extraction. The theory was that if comprehensive plans were developed, conflicts among the various uses would be minimized and the benefits maximized for all. The law required that the public be given a role in developing the forest plans.

The Forest Service didn't have much experience in creating plans to cover an area as large as a national forest. They didn't have much experience in creating plans that integrated all the uses required by law. Finally, they didn't have much experience in bringing the public into their work. It took most national forest officials at least ten years to complete the first plans, which were implemented in the mid-1980's. These are the outdated plans which currently govern National Forest management.

Today, the plans don't look so good, and that is not entirely from the benefit of hindsight. Many of us who were working with the Forest Service in making these plans thought that at the time they were adopted, they leaned far too much toward emphasizing timber production and road building. Since Congress had built into the 1976 law a mechanism for the public to challenge plans if they were defective, some of us filed challenges to these original plans with the Chief of the Forest Service. We even won on some of our appeals. The Forest Service managers of the Pisgah/Nantahala National Forest had to re-do parts of the original plan, and only just finished with that work in 1994.

The law requires forest plans to be revised every 10-15 years. Since the plans for the Sumter National Forest and the Chattahoochee National Forest are now 10 years old, it is time to start making new ones. Although the Forest Service thinks that it has learned enough to redo the plans in less than three years, it is more likely that it will take four years to finish the job. That will give the Forest Service little very time to actually get the new plans implemented by the 15 year deadline dictated by NFMA. Since the Pisgah/Nantahala forest plan just went through a major overhaul, the Forest Service is going to wait another two years before it starts revising that one again.

So, over the next several years the Forest Service is going to redo the plans which guide the management of the national forests in the Chattooga River watershed, and by law they have to involve the public in the process. But, what exactly will you be able to do? When will you be able to participate? And how do you do it?

1) First, get on the plan revision mailing list and send them a letter right now with your ideas about how the national forests should be managed. The Forest Service planners in the Sumter and the Chattahoochee National Forests are in a listening mode

"First, get on the plan revision mailing list and send them a letter right now with your ideas about how the national forests should be managed."

The addresses are:

Planning Staff Officer
Chattahoochee National Forest
508 Oak Street, NW
Gainesville, GA 30501

Planning Staff Officer
Sumter National Forest
4923 Broad River Road
Columbia, SC 29210

Planning Staff Officer
Nantahala National Forest
P.O. Box 2750
Asheville, NC 28802

Law of the Forest continued...

right now. That's because they are compiling a preliminary list of issues to be considered during plan revisions. They are particularly interested in what you think is wrong with the current management. Also, tell them you want to be put on the mailing list to receive anything they send out about the revisions of the forest plans in the years ahead.

2) When the planners on the Sumter and Chattahoochee National Forests finish compiling the preliminary list of issues and required information on the current status of the forests, they will put it all into a formal notice in the Federal Register around the end of March or early April 1996. No normal person would subscribe to the Federal Register. But don't worry, as long as you are on the proper USFS mailing list, you'll get all the relevant information. If you haven't written that letter yet, now is the right time. Even a post card will do. The Forest Service will officially ask for your comments on the material they sent you. They will ask if anything is missing from the list of issues they developed. They will ask if the background material on the forest is accurate and if you have any additions or corrections to offer. You will have four months to read the materials and send back your comments. The due date for sending your comments to them will be the end of July or early August, 1996. The comment period is required by law. This is your official opportunity to have your say.

Issues list published	spring '96
Public comment period	4 months
"Vision mapping" sessions	late '96
Draft plan published	winter '97/'98
Public comment period	90 days
Final plan published	winter '99

3) After the official comment period this spring and summer, there will be plenty of additional opportunities to participate in the creation of the new plans. These extra steps are not required under the law or according to Forest Service regulations. But the Regional Forester, who is the official above the Forest Supervisors (who manage each of the 17 National Forests in the Region), has made a strong commitment to including the public in many of the steps which the planners must go through. He believes the public has important things to say all along the way and wants us involved. If you are on the plan revisions mailing list, you will be informed of the additional opportunities for public involvement. One opportunity may be a chance to design our own vision of how each national forest should be managed. They will probably ask us for this vision at the end of 1996, but that shouldn't stop people from thinking about it right now. In this issue of the *Chattoga Quarterly*, the Chattooga River Watershed Coalition outlines a vision they have been working on.

4) After the Forest Service planners have written up a draft plan, which we hope will look like the public's plan, they will present it to the public for comment. If you are on the mailing list, you will be sent a package with all the documents probably toward the end of 1997 or early 1998. There will follow a legally required comment period lasting at least 90 days in which the public has an opportunity to go on record telling the Forest Service what is right and what is wrong, and how you want them to change what they have done in the draft plan. This is an important step for the public to take. There may be several thousand comments sent in by the public at this step, and adjustments may be made to the draft plan based on this input.

5) If the past is any guide, it will take almost a year for the changes to be completed. At that point, probably late 1998 or early 1999, the Forest Service will publish a final forest plan. Again, you will be sent the material if you are on the mailing list. Let's hope that public participation has influenced the plan well. If you are still dissatisfied with the final version of the new plan, you have the right to challenge the plan in an administrative appeal. The opportunity will likely come in 1999.

6) Finally, you should get on the mailing list to receive notices for timber sales and other on-the-ground projects which will be carried out according to the new plan. As important, you should get on the mailing list to receive notices for on-the-ground projects which are being planned and carried out right now under the current, old plan. One of the ways you shape the new plan is to participate in the development of projects right now. The officials at the District level, Supervisor's Office, and the Regional Office are ready to hear the public's thoughts about individual projects. Forest Service officials may not do what we say on that particular project, but they often take into account the "cumulative" weight of all those comments when they consider projects for the years ahead. Likewise, the planners get a sense of what the public wants for the plan which is yet to be created by listening to what the public has to say on a day-to-day basis about current projects.

So, get on those mailing lists. Read the material sent. Send in your comments. Talk with your friends and neighbors and Forest Service officials. Make a difference. Be a citizen. Walk the forest. Create a vision of the future. Think about how you want to leave the forests for your children and grandchildren.

Jim Loesel is Secretary of the Citizens Task Force on National Forest Management, a Forest Watch group in Virginia which has worked for more than a dozen years for the improvement of the Jefferson and the George Washington National Forest Plans. Jim is also a consultant to the Southern Appalachian Forest Coalition, for the revision of the Forest Plans in the national forests of the Southern Appalachians.

Public Opinion:
The Forest Service Numbers Game

C.J. Berrier

As we all know, the proposed Tuckaluge Timber sale is a very controversial project, yet Chattahoochee National Forest land managers continue to promote it as sound and publicly supported. The public approval implied by the Forest Service is inaccurate and in fact, could be construed as a misrepresentation of the public record. To sort fact from fiction, I carried out an investigative search through the contents of the Tuckaluge project file.

As many as 300 people took part in a vigil on top of Rabun Bald expressing their opposition to the Tuckaluge project

The need to research the file was prompted by the signing of the Decision Notice to go ahead with this project. The Forest Service's press release that accompanied this Decision Notice cited only fourteen responses or comments during the "official 30 day Scoping Period" which they state as being from May 25 , 1995 through June 26, 1995. This information seemed a bit odd because of the large number of people and organizations who were aware of this project and were opposed to it. So we followed our intuition and contacted the Tallulah Ranger District office to request access to the project file.

The first file I reviewed contained 162 letters sent during the project's original scoping period of July-August 1994. Seventy five of the letters were written by people from all walks of life expressing their concern with and opposition to the proposed project. Twelve letters were simply neutral comments or questions. Then there was an odd bunch of letters all bundled together with a little note saying "for." I opened the plain envelopes, which lacked any postage/postmarks or return addresses, and discovered letters that were all the same except for the first two sentences, which were changed in three different ways. None of these letters were dated, and all appeared to be typed by the same typewriter but signed by different people. There were 55 of these letters, and an additional 12 form letters with the exact same wording, signed by nine individuals with the same last name, and three with different last names. Last, there were 8 letters from various organizations like the Southern Timber Purchaser's Council, the Ruffed Grouse Society, and the "Wise Use". All approved of the project, and some recommended that more clearcutting be included. The last document I found in this folder was a tally sheet which indicated how many letters were "for" the project and how many were "against" The Tallulah District tally sheet counted 77 "for" and 69 "against". The numbers "for" and "against" did not coincide with the letters I had just reviewed. In what should be the same project file, I read 55 form letters and 8 industry/special interest letters "for", while 75 individual letters and one petition (with 30 signatures) were "against" the Tuckaluge timber sale.

This prompted me to schedule another session to delve deeper into the discrepancy of the contents of the project file, compared to the information that the Forest Service presented to the public. Just then I was interrupted by District Ranger David Jensen, who informed me of a "rule" pertaining to the project file. There would be a $20.00 per hour "supervision fee" for any time period over two hours. At that time I had already been there for five hours. I reacted to this new information with surprise and returned to the CRWC office. None of us had ever heard of such a policy on examining public records. Our director, Buzz Williams, immediately contacted the District Ranger to verify.

That one phone call started an interesting chain of events. The following day we received a telephone call from the Forest Supervisor's office in Gainesville, Georgia, informing us that "Mr. Jensen made a boo-boo", and the $20.00 per hour fee did not apply to this situation. However, because of a precedent set in Texas we would only be able to view the remaining file after it was "sanitized". Apparently, all the names and addresses of those who wrote letters would have to be removed before we could continue our examination of the public record.

So on Wednesday November 8, I was given one file at a time as they were "sanitized", and I proceeded with my investigation. This time I discovered a new file

Numbers Game continued...

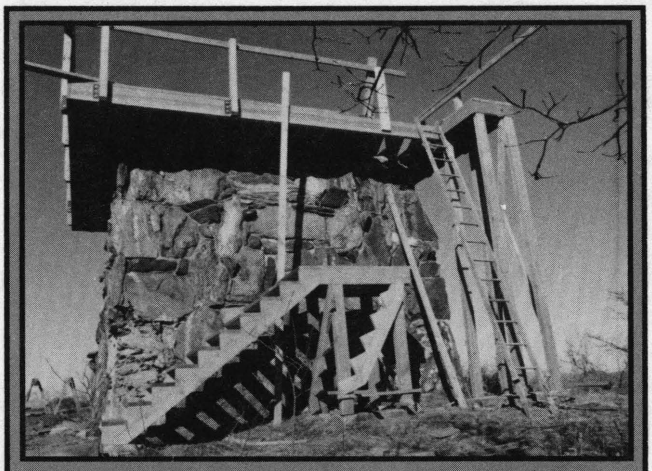
that contained the 14 letters that the Forest Service was promoting as the only comments made on the Tuckaluge project. But in fact, these letters were just those written in response to the Environmental Assessment (EA), which is just one stage in the process of public involvement. The majority of these 14 letters opposed the project as it's currently designed. Only three letters ("Wise Use", Southern Timber Purchasers Council, and Ruffed Grouse Society) supported the project, or commented on and agreed to many points of the EA. I then looked at another file with the heading "untimely comments received after 30 day scoping period". This file contained additional letters of opposition to the Tuckaluge project.

When I checked in at the CRWC office Thursday morning, we learned that the USFS Washington Office had determined that the Tallulah District project file "ground rules" were contrary to agency policy. They were instructed that we were to have full access to the project file.

I was pleased at this ruling, and wondered why we had encountered so many obstacles to examining the public record? I arrived at the District office later that afternoon, and was met by an "open file" policy. Now there was a new file folder with 26 letters addressed to Forest Supervisor George Martin. Curiously, this file folder had not been in the project file prior this time. Of this folder's 26 letters, twelve were in favor of the project, thirteen were opposed, and one was neutral. Once again the twelve in favor of the project were from the timber industry and the Ruffed Grouse Society, and the ones opposed were from ordinary citizens.

Reviewing the public record confirmed that the Forest Service was presenting an inaccurate picture of public opinion regarding the proposed Tuckaluge timber sale. For example, the Forest Service reported that the Georgia Department of Natural Resources supported the project, when in fact the letter reads: "I do have one major concern, however, about proposed additional roading, especially in a brook trout watershed. Please look closely at the costs and benefits of more roads, especially as they relate to impact on streams. Please go beyond...model outputs and assess how much erosion and sedimentation is likely and whether the stream community can handle the stress". The Forest Service also documented the input from a well-respected forest products consultant as "significantly for" the project, when in fact, he had stated that a full-scale Environmental Impact Statement was needed.

Recapping all of the public comments I had reviewed painted a very different picture of public opinion than that portrayed by the Forest Service. I discovered that with the exception of a handful of narrow special interests, the majority of the public has grave reservations or is totally opposed to the current design of the Tuckaluge timber sale.



Dangerous Situation on Rabun Bald!

After more than four months, a USFS maintenance project is still incomplete, leaving an accident waiting to happen at the viewing platform atop Rabun Bald.

As the reader may recall, hundreds of volunteers kept a vigil at the summit of Rabun Bald from late August to September 28 1995, demonstrating their opposition to the Tuckaluge project.

Right before the vigil started, the Coalition received notice that for some time a "maintenance job" had been planned, to tear down and then rebuild the aging observation platform on top of the mountain. In fact, it had been planned to include preparatory work so that volunteers could actually finish the job on one day, "Public Lands Appreciation Day" (September 28, 1995). The Coalition offered to organize some additional volunteer labor to help out, but then we were unable to find anyone willing to help the Forest Service, in lieu of their Tuckaluge Project plans. September 28 came and went, leaving a job half done. In the weeks following, no more was completed, and lumber, nails, and other materials and trash were left strewn around. Volunteer monitoring and letter writing may have helped to get construction moving again. More work was done, but this left half a staircase and a tall, free-standing ladder as the only access to the unfinished platform. Tourists not used to navigating construction sites were disappointed that they couldn't get a good look from the tower after hiking all the way up there. Those that tried might have missed the barely legible caution sign scratched into an old board lying on the structure, and could easily have been seriously injured climbing up or down.

Today, more than four months after the start, there's a set of stairs, but no handrail. There's a complete floor but no kiddy rail to keep small children from falling off the edge of the 20' tower. The Tallulah District should finish the job it started on Rabun Bald, before a visitor to our mountains gets hurt and screams "negligence!"

photos and monitoring by W. S. Lesan

A Logger With a Mission

Environmentally Sensitive Logging & Lumber, Inc.

David E. "Jason" Rutledge
Ridgewind Farm
8014 Bear Ridge Rd., SE
Copper Hill, VA 24079

The Environmentally Sensitive Logging & Lumber Company is a small business that offers the option of generating income from your woodland without destroying its aesthetic appeal or its environmental integrity. They are dedicated to the art of sustained yield forestry with uneven-aged management techniques like single tree selection. This is a harvesting service for owners of woodlands of all sizes, and is an alternative to clear cutting or other even-aged management techniques.

The method of selection is based on proven silvicultural practices and site specific conditions. Single tree selection seldom removes more than 25% of the mature trees, and it can be repeated on 10-20 year rotations. Such frequent periodic timbering with minimal environmental damage is made possible by using draft horse power and a mechanical arch to skid log-length sections. There is no need for construction of skid roads through the woods, just paths and trails. Directional felling is used to minimize damage to the remaining growing timber. Knuckle boom loaders are used to lessen damage at the log landing site. This method provides for the highest return on the long-term management of your land investment, while maintaining its aesthetic and environmental integrity. State Foresters are encouraged to participate in the harvesting plans, and all work will exceed Best Management Practices (BMP) standards.

CRWC

Horse logging Demonstration

The Hambidge Center
Saturday
February 17, 1996
with
Jason Rutledge & David Matherson

The demonstration day will cap off a week-long workshop including site and timber assessment and preparation, and log grading, bucking and skidding. Chainsaw safety and directional felling techniques will be demonstrated by Kermit Gussler.

for more information or directions
call the CRWC office at (706) 782-6097

Environmentally Sensitive Logging and Lumber, Inc. offers the following goods and services:

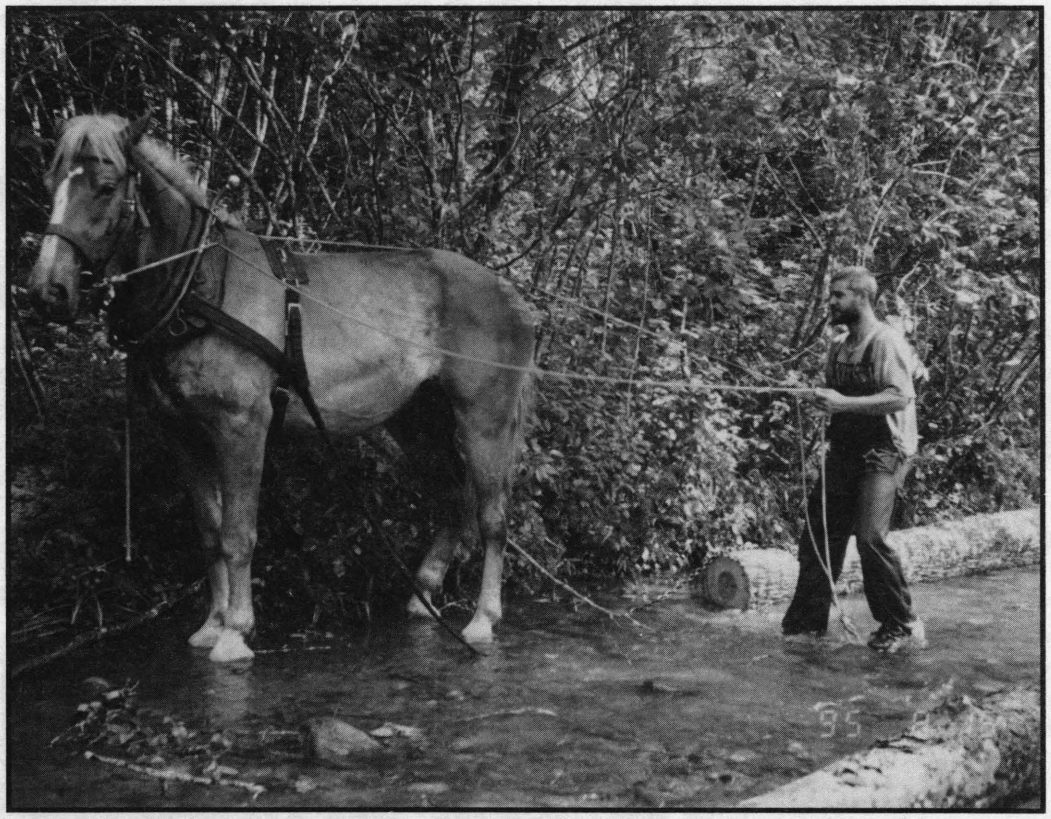
- Timber value estimates
- Consultation
- On-site sawing of logs
- Farm building construction with your materials
- Sustainable forestry seminars, lectures and workshops
- Draft horse logging demonstrations
- Referral service for horse loggers in the Eastern U.S.
- Sustainably harvested Appalachian hardwoods

Home-town Horse Loggers

Custom Sawing & Horse Logging

Richard "Snuffy" Hall
Mountain Rest, SC

Snuffy uses Belgian draft horses, two geldings and one mare, to move logs singly or in tandem. He specializes in salvage and selective timber management timber operations. With his portable band saw mill, Snuffy can mill your lumber on the site. This means no expensive hauling, and because no heavy equipment is used, there's little impact to forest, soil and water quality.



Snuffy and "Casey" make quick work out of a fish habitat restoration job for the U.S. Forest Service.

David & "Tom" hard at work.

David Matherson Horse Logging

Brasstown, NC

David has earned extra income from horse logging for around six years. He has logged with standard heavy equipment as well, for years. Now he hopes to sell off his heavy equipment, eliminating its high payments and repair costs, and move into horse logging full time. David's Percheron horses are descended from Arabian horses that were bred with draft horses in the middle ages. This resulted in a battle steed that could carry both its own suit of armor and an armor-clad warrior. David's Percherons, Tom and Bud, can move most any size log. David has worked timber jobs for the Brasstown Ranger District of the Chattahoochee National Forest, and on private lands needing delicate timber extraction.

Update on Forest Service Projects: Watershed Monitoring Report

CRWC staff

Below are listed just a few ongoing, taxpayer - funded Forest Service projects in or plans for the Chattooga River watershed. These activities are administered by the US Forest Service's (FS) Tallulah District of the Chattahoochee National Forest in Georgia, the Andrew Pickens District of the Sumter National Forest in South Carolina, and the Highlands District of the Nantahala National Forest in North Carolina.

Tuckaluge Creek / Rabun Bald Roadless Area
Tallulah District Compartments 37,42,43,44
The CRWC filed an official appeal on this proposed project with the FS Regional Office on December 26, 1995. We're awaiting the decision of the appeal deciding officer, Regional Forester Bob Joslin. You can let him know how you feel at 1720 Peachtree Rd. NW, Suite 760-S, Atlanta, GA 30367. Stay posted on this one.

Big Creek, headwaters of Chattooga River
Tallulah District Compartment 5
4 million board feet of timber is currently being harvested in the sensitive headwaters of the Chattooga, accompanied by 5 miles of road construction, despite strong objections from many residents of the Satolah Community (62 members of this small community signed a petition opposing this project), other concerned citizens, and an appeal filed by the CRWC. The total timber harvest volume was reduced by 20% from the FS's original proposal. This reduction was due to the FS withdrawing some recently purchased lands from the original project; they were forced to do so because these lands did not yet have a "management area" designation. **Note:** Forest Service paperwork now shows this recently acquired land is targeted for harvest in July of '96. Expect a FS "scoping notice" soon.

Southern Pine Beetle Salvage
Tallulah District
Southern Pine Beetle salvage operations are now exempt from all environmental laws and citizen appeals, due to the 104th Congress's Timber Salvage Rider on the 1995 Rescissions Bill. Of note is the official "project area" designation, which encompasses nearly one-quarter of the entire Tallulah District, and most of the forest which lies adjacent to the Chattooga River. Actions include road construction, "cut and leave" or "cut and remov[al]" of the affected trees, along with harvesting unaffected green trees as a "buffer strip", at 75 individual spots in the Tallulah District. More beetle spots are possible. Pine monoculture plantations (which lack a natural diversity of species) are especially vulnerable to the beetle "epidemic".

Monitoring Journal
November 16, 1995
Pat Hinchey

"'Compartment 5, where's that?' I ask. Shortly afterward I'm on way with a topo map, camera, and a mission: document new logging and road building near highway 28 just south of the North Carolina state line. I'm not very familiar with the area.

I soon find out that the affected areas provide drinking water for area residents. Then these same springs and streams feed directly into Big Creek, the east fork of the Three Forks. Now Compartment 5 is less some jigsaw puzzle piece of the watershed: it is people, habitat, and a major tributary for the West Fork.

A network of bulldozed, steep, and obviously temporary roads enable access to the trees of Big Creek's headwaters. These roads will definitely produce muddy runoff. I can only hope the springs don't get buried in silt. Why does this area need new roads at all?

I wonder how many roads like these are in the watershed. I also wonder if there are alternatives to these new roads. I don't have to wonder anymore why Big Creek turns chocolate brown when it rains. That much is obvious now."

Compartment 59
Tallulah District
This area is located directly adjacent to the Wild and Scenic Chattooga River corridor on Section IV. Public concerns prompted only minor changes, and timber cutting and road building can be implemented at any time. These activities will likely be audible to persons using the river, according to the FS. A stand of timber on Stekoa Creek will be clearcut.

Long Creek
Andrew Pickens District Compartments 48, 49, 50
500 acres of thinning "30 year old loblolly pine plantations". "Temporary" roads will access the stands, and then be closed. One access route is via the road that was stopped by the nonviolent/civil disobedient actions of "Mr. Forest Green" in 1989. CRWC comments reminded district personnel of the reasons for the major controversy during that time, which was generated by the FS's activities in this same sensitive area.

Southern Pine Beetle Salvage
Andrew Pickens District
100 separate spots all around the district. These spots will receive the "cut and leave" treatment. However, salvage operations are now exempt from all environmental laws and citizen appeals! This includes road construction, and current protection for threatened and endangered species, and sensitive habitats.

Congressional Score Card: Voting on Our Future

Congress has been quickly dismantling, over the past few months, twenty-five years of U.S. environmental law. So far each blow has been dealt by amendments or "riders' attached to important budget bills passed every year. Amendments find their way to a full vote faster, and with less discussion if they are riding on the tail of such an appropriations bill. The "sneak attack" technique has been used successfully to revamp, repeal and suspend environmental laws without facing the full public debate that would usually accompany such sweeping policy changes. Below are a few key votes, the decisions made by our Senators and Representatives, and their resulting conservation score.

In the House	key votes			conservation score
CRW representatives	1	2	3	
Nathan Deal (R-GA)	+	+	-	= 66 %
Charles Taylor (R-NC)	-	-	-	= 0 %
Lindsey Graham (R-SC)	-	+	-	= 33 %

In the Senate	key votes				conservation score
CRW senators	1	2	3	4	
Sam Nunn (D-GA)	+	+	+	+	= 100 %
Paul Coverdell (R-GA)	-	-	-	-	= 0 %
Lauch Faircloth (R-NC)	-	-	-	-	= 0 %
Jesse Helms (R-NC)	?	-	-	-	= 0 %
Ernest Hollings (D-SC)	+	+	+	+	= 100 %
Strom Thurmond (R-SC)	-	-	-	-	= 0 %

Details of the House votes

1. H.R. 260 "National Park System Reform Act of 1995"; vote on 9/19/95 failed (180 Y, 230 N).
Motion to suspend House rules and pass H.R. 260 as amended, to provide for the development of a plan and a management review of the National Park System and to reform the process by which areas are considered for addition to the National Park System. This motion would have created a commission to decide which of our **National Parks would be closed or sold off!**

2. H.R. 1977 "Department of Interior & Related Agencies Appropriations Act of 1996"; vote on 9/29/95 passed (276 Y, 147 N).
Motion to send the bill back to the conference committee with instructions to include the provision to establish a one year moratorium on mining patents that was previously approved by the House. The **mining moratorium** would temporarily stop the giveaway of national minerals to private companies.

3. H.R. 2099 "Departments of the VA and HUD and Independent Agencies Appropriations Act of 1996"; vote on 11/2/95 failed (226 Y, 194 N).
Motion to instruct the conference committee to drop provisions (riders) that prohibit or limit the EPA's ability to enforce or implement environmental laws such as the Clean Water Act, Clean Air Act, and food safety laws. This was the third attempt to strike language that **blocks EPA from protecting the environment and human health.**

Details of the Senate votes

1. H.R. 1977 "Department of Interior and Related Agencies Appropriations Act of 1996"; vote on 8/8/95 failed (46 Y, 51 N).
Motion to add amendment to prohibit patenting (purchasing) of any federal lands by mining companies for one year. This is the Senate vote on a similar **mining moratorium** previously approved by the House. The moratorium would temporarily stop the giveaway of millions of dollars worth of national minerals.

2. H.R. 1977 "Department of Interior and Related Agencies Appropriations Act of 1996"; vote on 8/9/95 passed (50 Y, 48 N).
Motion to table (kill) the Helms (R-NC) amendment to **eliminate the red wolf reintroduction program**. If it hadn't been tabled, this amendment would have halted the recovery of the red wolf, a federally listed Endangered Species.

3. H.R. 2099 "Departments of the VA and HUD and Independent Agencies Appropriations Act of 1996"; vote on 9/27/95 passed (55 Y, 48 N).
Motion to pass the bill as is. In this case "as is" means an EPA budget cut by 23% with riders and amendments that prohibit or limit the EPA from implementing or enforcing national law concerning air pollution, water quality, and toxic dumping. This bill would **block the EPA from protecting the environment and human health.**

4. S. 1357 "1996 Budget Reconciliation Act"; vote on 10/27/95 passed (51 Y, 48 N).
Motion to table (kill) the Baucus amendment to strike provisions that **allow oil drilling in the Arctic National Wildlife Refuge**. A yes vote says yes to oil drilling on the breeding grounds of the last great caribou herd in Alaska.

Compiled by Rick Hester from material provided by the League of Conservation Voters in Washington, D.C. at (202) 785-8683. The facing page used material from "The Year of Living Dangerously" published by the Natural Resources Defense Council in Washington D.C. at (202) 783-7800.

The 104th Congress: Assault on Nature

Below are some examples of our Congress, predominantly the freshman class, serving narrow economic interests at the expense of our shared natural resources. Further action on the bills below could begin as soon as the second session opens at the end of January 1996.

H.R. 925 / S. 605 "Omnibus Property Rights Act" - Compensates owners if potential land values decline from compliance with environmental regulations. Senate version covers all property and applies to all regulations. Passed in House 3/3/95. Approved by Senate Judiciary Comm. 12/21/95.

H.R. 9 / S. 343 "Comprehensive Regulatory Reform Act" - Forces analytical procedures prior to adoption of new regulations, and creates new opportunities for industry to challenge existing environmental protections in courts. Passed House 3/3/95. Stalled in Senate. Attached to debt limit extension vetoed 11/95.

H.R. 260 "National Park System Reform Act" - As described on the facing page, this bill failed to pass the House 9/19/95. An attempt to attach similar legal language to the Budget Reconciliation Bill also failed, but H.R. 260 could resurface in 1996.

H.R. 1580 / S. 506 Mining "Reform" - Allows public lands to be sold for "fair market value" of surface land, virtually giving away the minerals below ground. Bills are in committees. Attempts made to add similar language to the Budget Reconciliation Bill.

H.R. 961 / S. 851 "Clean Water Act" - Reauthorization reduces sewage treatment and water quality standards, wetlands protections, and control of industrial pollution. Passed the House 3/3/95. In the Senate Environment and Public Works Comm.

H.R. 1675 "National Wildlife Refuge Improvement Act" - Opens refuges to hunting and fishing, requires congressional approval of new refuges, and prohibits restrictions on ranchers or farmers who lease portions. Approved by House Resources Comm 12/95.

H.R. 2542 / S. 1373 "Conservation Consolidation and Regulatory Reform Act" - This farm bill weakens conservation programs linked to farm subsidies. In Senate & House Agriculture Comm's. Could attach to a Budget Reconciliation bill.

S. 1316 "Safe Drinking Water Appropriations Act" - Weakens EPA's proposed radon standards, implementation of arsenic standards, allows waivers for local water systems, impedes EPA's ability to set emergency standards. Passed Senate 11/29/95.

H.R. 2275 / S. 1364 "Endangered Species and Conservation Act of 1995" (Young, Pombo/Kempthorne) - This reauthorization eliminates recovery as a primary objective, eliminates habitat protection, removes public comment process, and requires payments to owners to protect Threatened or Endangered species on their land. House floor action and Senate hearings next. Other reauthorization bills (Rep. Gilchrest bill, Rep. Saxton bill, and Sen. Gorton bill) also weaken the original ESA. Sen. Reid (D-Nev) is working on a better alternative to be introduced in the Spring of 1996.

H.R. 1745 / S. 884 "Utah Wilderness Act" - Opens 20.2 million acres of Red Rock Wilderness to strip mining, off-road vehicles, dams, power lines, and communications towers. Approved by House Resources Comm. 8/2/95 & Senate Energy and Natural Resources Comm. 12/6/95. Expect floor action in both Houses early in 1996.

H.R. 2032 / S. 1031 "Lands Administered by BLM to Certain States, Conveyance Act" - Transfers 268 million acres free to states, if the state takes title to all BLM lands in its borders within 10 years. No strings attached. Stalled for now.

H.R. 479 / S. (Faircloth, R-NC) "Clean Air Act" - This reauthorization stops controls on urban smog, toxic air pollution, ozone depletion, and acid rain. Senate version is worse, crippling pollution enforcement, allowing polluters to keep their discharges secret, and precluding public participation in permit review process in their own communities. Expect Senate action in early 1996.

S. 1151 Reorganization of Federal Land Management - Creates commission to revamp ownership and management of USFS, BLM, and Bureau of Reclamation lands, and proposes abolishing these agencies. In Senate Energy & Natural Resources Comm. Of all land disposal bills, this one is expected to move the most quickly in 1996.

H.R. 2500 / S. 1285 "Superfund Appropriations Act" - Gives polluters more control over quality of clean up, reduces public participation, and excludes groundwater from industry clean up responsibilities. House version restricts public's ability to obtain restoration or compensation for natural resource damages. In House Commerce and Transportation Comm.'s and Senate Environment and Public Works Comm.

H.R. 2413 / S. 1054 Tongass National Forest Management - Transfers to state of Alaska all lands encompassing the 17 million acre Tongass National Forest (last intact U.S. temperate rain forest), mandates extensive road building in wilderness areas and increased logging and mining. Failed to pass House. Similar language was once attached to the Interior Appropriations Bill.

Don't Let it Continue:
These Bills Need Your Support!

H.R. 2745 "Restoration of Natural Resources Laws on the Public Lands Act" - Would immediately and completely repeal the disastrous "Emergency Timber Salvage Amendment" that has suspended 25 years of environmental laws for ambitious logging corporations.

S. 1219 "Campaign Finance Reform" - Would ban or limit Political Action Committees' influence on federal electoral campaigns, and provide public television air time for candidates to avoid the need for expensive advertising budgets.

Stewardship continued...

beautiful songsters like the wood thrush or the veery may be heard on a walk through these rich forests as well. The solitary vireo, an uncommon bird nationwide, is found here. The ovenbird is a warbler species that is highly sensitive to the effects of forest fragmentation. Their presence suggests that these forests provide at least some interior habitat for this ground-nesting species, which is a frequent cowbird victim in more disturbed areas

Birds serve important functions in the forest interior: the huge numbers of insects they eat, the plants they pollinate, the seeds they disperse, and the nutrients they return to the soils, contribute to a web of life on which many other plants and animals depend. Consolidating remaining interior forest habitat and buffering its edges, across the watershed and the region, will help recover forest-interior song birds from their precipitous decline. Bird watchers, and everyone concerned with the conservation of global biodiversity, will appreciate the opportunity to share a forest-interior species sighting with the next generation of birders.

"for many species on Earth today time is short. They will persist... only if their habitats are conserved across the landscape."

Large Predators

Large carnivores, like cougars, wolves and bears, are further examples of area-sensitive species. The presence of these animals is threatening to some people, especially livestock owners. But fears have been exacerbated by folklore surrounding wolves and other predators. These animals normally provide important controls on populations of deer and the smaller predators, which can otherwise become too numerous and destructive. The big predators are part of the natural heritage of the region, and have been a critical force in the evolutionary history of the ecosystem. Aldo Leopold recognized that large predators provide a critical test of society's commitment to conservation. Today, most have been almost entirely eradicated from our region. No one considers saving a patch of rare wildflowers terribly radical, but protecting the big predators and the large expanses they need to persist requires healthy doses of humility and courage. Conservation biologists argue that a regional plan that doesn't include the large native carnivores is incomplete (Noss and Cooperider, 1994).

Biological reserves

A conservative approach to maintaining healthy ecosystems would conserve each habitat type, approximating their proportions in the native landscape, and connect them across the landscape. It would create a secure network of reserves for large carnivores and other species that are sensitive to human activity (Noss and Cooperider, 1994). How big must a reserve system be to maintain native wildlife populations in the face of natural disturbances (fires, tornadoes and insect pests)? The answer seems to be: it must be large enough that only a small part of it is disturbed at any one time. In an area dramatically altered by natural disturbace, wildlife "colonists" can move in and re-establish themselves. But only if healthy populations are present in other areas of the landscape and can easily migrate between the two. Large, landscape-level biological reserves are more secure from the disturbances that can be caused by powerful and unpredictable natural forces.

The amount of mature interior forest habitat needed to conserve and restore the ecological integrity of the Southern Appalachian region is not known precisely. A convergence of estimates suggests that "most regions will require protection of some 25 to 75 percent of their total land area in core reserves and buffer zones" (Noss and Cooperider, 1994). In any case, protection does not imply "locking it up" by restricting access only to native wildlife. Reserve designs can accommodate a variety of human uses, so long as they are compatible with conservation objectives. The Chattooga Conservation Plan (see article, p. 7) is one of the first of its kind in this regard. As we discover that wild places contain valuable resources, and are valuable for their own sake, the prudent course is to risk erring on the side of protection.

References:

Bruce, Richard C. and Gayle Livingston, Christine Spencer, and Bryan Stuart, 1995. "Amphibian and Reptile Survey of the Chattooga River Watershed: A Preliminary Report." Highlands Biological Station, Highlands NC.

Franklin, Jerry F., 1993. "Preserving biodiversity: Species, ecosystems, or landscapes?" Ecological Applications 3:202-205.

Noss, Reed F. and Allen Y. Cooperider, 1994. Saving Nature's Legacy: Protecting and Restoring Biodiversity. Island Press.

Petranka, James W. et al., 1994. "Effects of timber harvesting on low elevation populations of southern Appalachian salamanders." Forest Ecology and Management 67:135-47.

Robbins, C.S. et al., 1989. "Habitat area requirements of breeding forest birds of the Mid-Atlantic states." Wildlife Monographs 1031-34.

Terborgh, John, 1992. "Why American songbirds are disappearing," Scientific American 266:98-104.

Whitcomb, R.F. et al., 1981. "Effects of forest fragmentation on avifauna of the eastern deciduous forest," In Burgess and Sharpe, eds., Forest Island Dynamics in Man-dominated Landscapes, Springer-Verlag.

Susan Andrew is Staff Ecologist for the Southern Appalachian Forest Coalition in Asheville, NC (704) 252-9223 phone, (704) 252-9074 fax.

The 'Concentrated Greenness' of Winter

Chas Zartman

"Now [the evergreen wood ferns] are conspicuous amid the whithered leaves. You are inclined to approach and raise each frond in succession, moist, trembling, fragile greenness. What means this persistent vitality? Why were these spared when [cliff] brakes and osmundas [Cinnamon Ferns] were stricken down? They stay as if to keep up the spirits of the cold-blooded frogs which have not yet gone into the mud, that the summer may die with decent and graceful moderation. They fall back and droop here and there like the plumes of...the departing year. Even in them I feel an argument for immortality. Death is so far from being universal. The same destroyer does not destroy all."

The quote is from one of Thoreau's journal entries late in the year - after the "destroyer" of plants, freezing temperatures, had leveled all but the most hardy plant species. Actually, hardiness, in the general sense of the word, is a term which doesn't entirely answer one of the toughest questions in Thoreau's musings: How can certain plants of our forests retain their leaves during freezing winter conditions?

Ground Juniper (juniperus communis), an evergreen found commonly in Greenland, Alaska, and Siberia, makes a surprise appearance here in the Chattooga basin.

Although technical answers to this question could be retrieved through consultation with expert plant physiologists, a simple explanation may suffice. Like most organisms on earth, the plants inhabiting our forests are intolerant of freezing conditions simply because the formation of ice within their cells will cause rupturing and inevitable death. Because the transport system in plants primarily consists of water, they must increase their internal concentration of compounds such as sugars and amino acids during the winter months in order to effectively lower the temperature at which the solution within them freezes. These plant compounds depress the freezing point in water in the same fashion that applying salt to a frozen sidewalk promptly converts the ice into water. We could apply pre-packaged amino acids to icy sidewalks, but that would be a little more costly than just using salt!

Simply put, all plants, deciduous or evergreen, increase the concentration of these compounds in their system during winter months for protection from internal ice formation, but evergreens have adapted additional ways in which to protect their leaves. "Desiccation," or drying out, is another potentially damaging phenomenon which occurs in plants during prolonged freezing conditions. Evergreen plants generally cope with this dilemma by having leaves, like the needles of pine trees, which are enclosed in a thick "cuticle", or skin, covered in wax. The well-protected leaves of most evergreens allow these seemingly immortal plants to remain metabolically active throughout the year. Evergreenness is just one example of the adaptations certain plants have undergone to cope with the competition for sunlight in our dense forests.

Winter excursions in the Chattooga's woodlands would be quite bland without the presence of these evergreen species. In the sea of winter's earthy hues, our color-starved eyes seem to have a greater appreciation for the sporadic patches of evergreen ferns inhabiting the forest floor. The Chattooga basin hosts several species of evergreen ferns which are easily recognized in the absence of the summer flora. The Marginal and the Intermediate Wood Ferns, plants which Thoreau celebrates in the above excerpt, are two of the fern species that Chattooga explorers are most likely to cross paths with during the winter months. Both the Intermediate (*Dryopteris intermedia*) and the Marginal (*Dryopteris marginalis*) ferns are large and relatively conspicuous for herbaceous evergreen plants (typically 15'-20' in length), and they can usually be found in similar forest habitats in the Chattooga's headwaters. The Intermediate Wood Fern frequently inhabits rich woods throughout northeastern North America, and it is known from locations as far north as Nova Scotia. Considering this fern's northern affinity, it should come as no surprise that its presence in the Chattooga is a rare sighting. The unique bluish-green fronds of the Marginal Wood Fern are a frequent inhabitant of the Chattooga basin at all elevations. The Marginal fern typically thrives in the interior forests usually forming clumps at the base of boulder piles and exposed rock.

Most people associate evergreen-ness with the conifers, the cone-bearing order of plants, which tend to be

Botany continued...

the dominant source of green in our winter forests. The Chattooga basin hosts nearly a dozen native coniferous plant species, many of which, like the Eastern Hemlock (*Tsuga canadensis*) and the White Pine (*Pinus strobus*), are quite common over a large range within the Basin. But a few conifers like the Ground Juniper (*Juniperus communis*) are exceedingly rare and equally inconspicuous in the southeast. The Ground Juniper, recognized as a variety called "depressa" in our region, is only known in six counties south of Virginia, and two of them are within the Chattooga watershed: Satulah Mountain (Macon Co., NC), and Rabun Bald (Rabun Co., GA). The extreme habitat preferences of this plant that contribute to its rarity in the southeast also contribute to its wide distribution throughout the north. Like the Intermediate Wood Fern, the Ground Juniper is associated with northern flora, with its range extending through Greenland, Canada, Alaska and Siberia. Its tolerance of sub-arctic environments greatly surpass that of the Wood Fern. So why, one might ask, is this particular evergreen which is continuously distributed around the North Pole found on two rocky peaks of the Chattooga Basin? Anyone who has spent time on Rabun Bald, Satulah Mountain or other high peaks of the Blue Ridge Escarpment can attest to the shallow soils, constant exposure, and frigid temperatures. Ground Juniper in the Chattooga Basin represents one of its southernmost localities in North America.

When viewed as an isolated event, the presence of the Ground Juniper in the Chattooga is at best an intriguing note in the natural history of the basin. Only when singular events like this one are considered in combination with others do significant patterns reveal themselves. In this instance, the pattern is clear. It suggests that the Chattooga basin, with its wide range of habitats and elevations, acts as a link between the mountains and the piedmont, and, on a greater scale, linking northern and southern ecosystems. The unique mix of resident plants and the variability of habitats in the Chattooga basin are increasingly valuable for the health of the Southern Appalachians. The special places of the watershed may be a source of wild plants to naturally replenish other forests of our region, and in the basin itself, that continue to suffer from excessive fragmentation.

References:
Lesan, W.S. (Personal communication regarding Ground Juniper on Rabun Bald).
Morin et al, The Flora of North America. Oxford University Press, 1993.
Parsons, F.T. How to Know the Ferns. Dover Pub., 1961.
(Thoreau quote reprinted from pg.177.)
Radford et. al., Manual of the Vascular Flora of the Carolinas. U.N.C. Press, 1964.

Charles Zartman is a Masters Degree candidate in the Botany program of Western Carolina University at Cullowee, NC. He has recently completed a botanical survey of high altitude seeps and waterfall spray zones in the Chattooga watershed for the U.S.F.S Chattoga Basin EM Demonstration Project.

1996
Time To Renew!

If you haven't done so already, please renew your membership today. Your donation will guarantee you delivery of the ***Chattooga Quarterly*** through the year, and help us to carry on the Coalition's work. It's also tax deductible.

Here's a look ahead at our 1996 agenda:

- Present the 20,000+ signature "petition for interim management guidelines" to Regional Forester Bob Joslin in Atlanta
- Demonstrate sustainable forestry techniques on public and private lands
- Publicize and promote the Chattooga Conservation Plan
- Review the recently discovered memoirs of timber baron Mr. Andrew Gennett, owner of one of the first logging companies in the Chattooga River watershed
- More on sustainable living through conservation, alternative energy sources and homestead designs
- Critique of the Forest Service's $1.5 million "Chattooga Project"
- Brook Trout survey in the watershed
- Music of the Chattooga River watershed

Chattooga River Watershed Coalition

We are a 501C3 non-profit organization incorporated in Georgia.

Board of Directors:

Carol Kerr - Friends of the Mountains, Tiger, GA.
Don Bundrick - Friends of the Mountains, Tullulah Falls, GA.
James Sullivan - GA Forest Watch Toccoa, GA.
Mort Meadors - GA Forest Watch, Rabun Gap, GA.
Robert Zahner - Western North Carolina Alliance, Highlands, NC.
Dave Barstow - Western North Carolina Alliance, Highlands, NC.
Lewis Dorn - NC Forest Watch Highlands, NC.
Richard Cain - SC Forest Watch West Union, SC.
Scott Brame - SC Forest Watch, Mountain Rest, SC.
Chris Kempton - Sierra Club, Clemson, SC.
Peter Kirby - Wilderness Society, Atlanta, GA.
Shirl Parsons - Wilderness Society, Atlanta, GA.
Rene Voss - Sierra Club, Atlanta, GA.
Don Sanders - Association of Forest Service Employees for Environmental Ethics, Mountain Rest, SC.

Staff:

Executive Director, Buzz Williams
Development Director, Nicole Hayler
Program Coordinator, Rick Hester
Administrative Assistant, Cindy Berrier

Newsletter:

Co-Editors, Buzz Williams & Nicole Hayler
Production and Layout, Rick Hester
Printing, J&M Printing

Endorsing Organizations

Foothills Canoe Club
Atlanta Whitewater Club
Georgia Canoeing Association
Higgins Hardwood Gear
A.F. Clewell, Inc.
Atlanta Audubon Society
National Wildlife Federation
Action for a Clean Environment
Georgia Botanical Society
Georgia Ornithological Society
The Beamery
Columbia Audubon Society
The Georgia Conservancy
Dagger, Inc.
Southern Environmental Law Center
Georgia Environmental Organization, Inc.
Timber Framers Guild of North America
Carolina Bird Club
Government Accountability Project
Turpin's Custom Sawmill
Dagger, Inc.

Membership

Join the Coalition and help protect the Chattooga Watershed!
Your contribution is greatly appreciated. It will be used to support the Coalition's work and guarantee you delivery of our quarterly newsletter. We're a non-profit organization, and all contributions are tax-deductible.

Name_____
Address_____
_____
_____
Phone number_____

Send to:
Chattooga River Watershed Coalition
P.O. Box 2006
Clayton, Georgia 30525

Individual: $7.oo ☐ Group: $14.oo ☐ Sustaining: $45.oo ☐ Donation: ☐

Thank You!

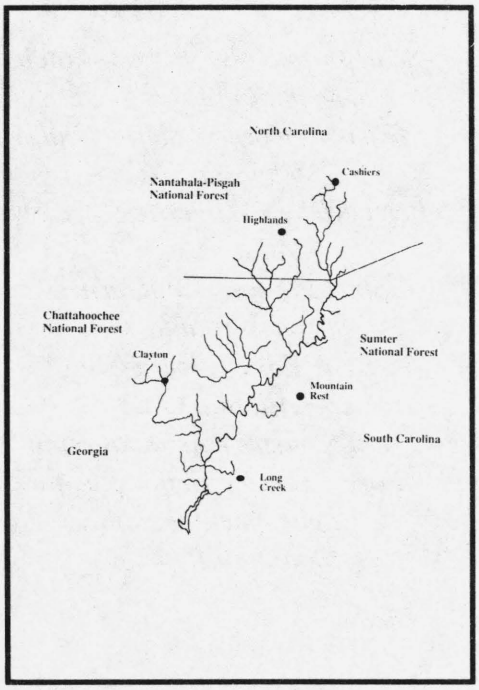
Chattooga River Watershed Coalition

PO Box 2006
Clayton GA 30525
(706) 782-6097
(706) 782-6098 fax crwc@igc.apc.org Email

Our Purpose:

"To protect, promote and restore the natural ecological integrity of the Chattooga River watershed ecosystem; to ensure the viability of native species in harmony with the need for a healthy human environment; and to educate and empower communities to practice good stewardship on public and private lands."

Our Work Made Possible By:
The Grassroots and Volunteers
Turner Foundation, Inc.
The Moriah Fund
Norcross Wildlife Foundation
Lyndhurst Foundation
Patagonia, Inc.
Frances Allison Close
South Carolina Trial Lawyers Association



Our Goals:

Monitor the U.S. Forest Service's management of public forest lands in the watershed

Educate the public

Promote public choice based on credible scientific information

Promote public land acquisition by the Forest Service within the watershed

Protect remaining old growth and roadless areas

Work cooperatively with the Forest Service to develop a sound ecosystem initiative for the watershed

Chattooga River Watershed Coalition
PO Box 2006
Clayton, GA 30525

Non-Profit Organization
Bulk Rate Permit # 33
Clayton, GA

Printed on Recycled Paper