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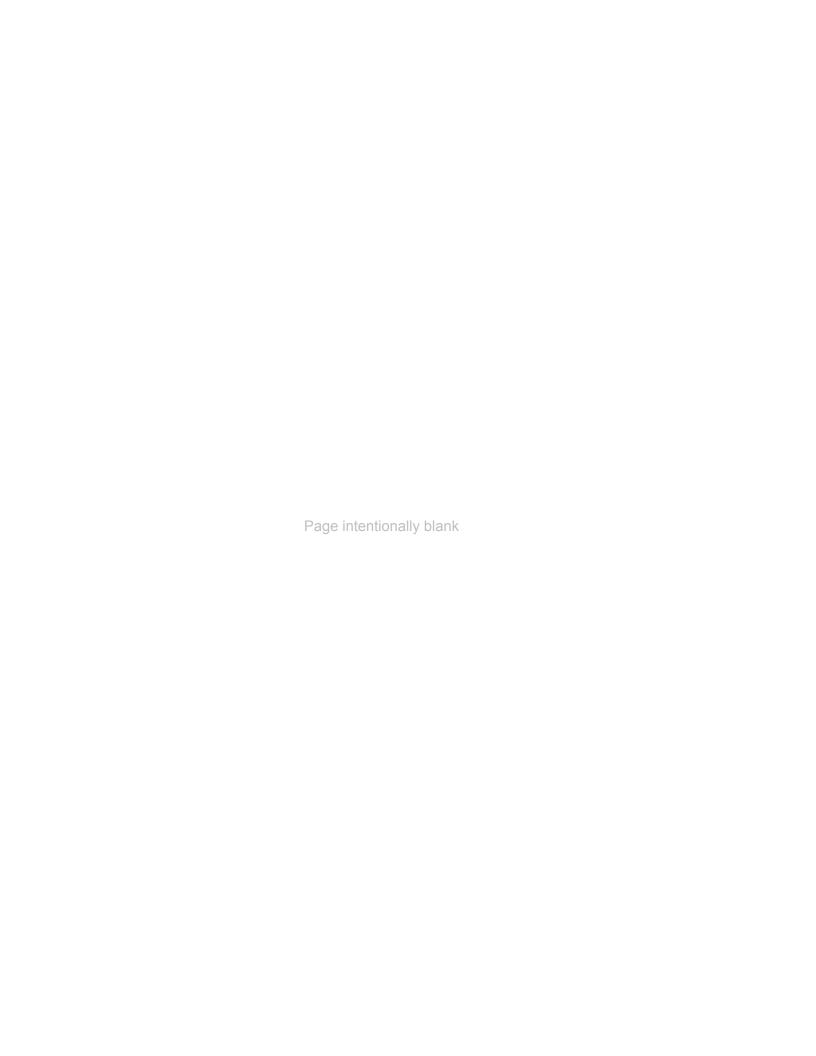
# FINAL ENVIRONMENTAL IMPACT STATEMENT **VOLUME 2 - APPENDICES**

# **NATURAL RESOURCE PLAN**

Alabama, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, and Virginia

> **PREPARED BY:** TENNESSEE VALLEY AUTHORITY

> > **JULY 2011**



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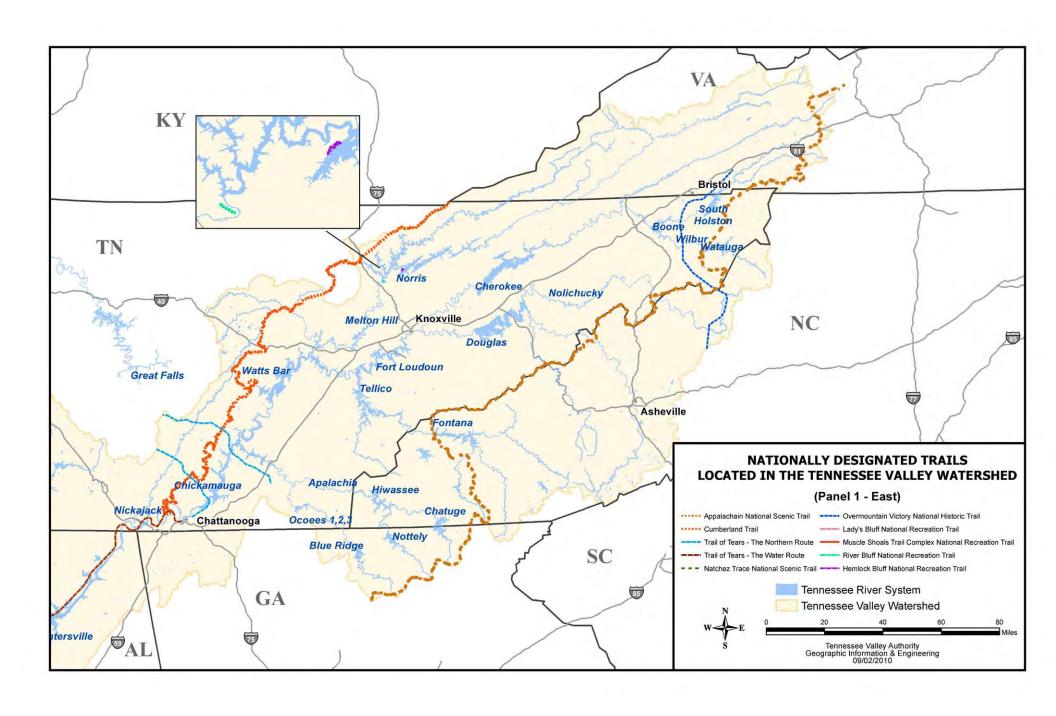
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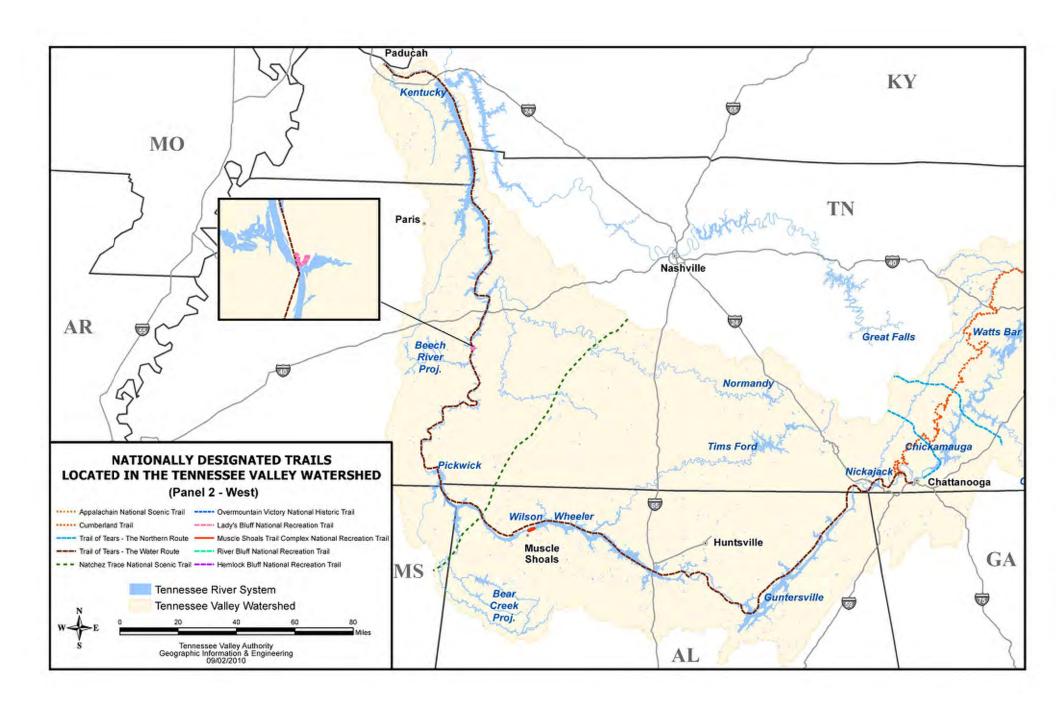
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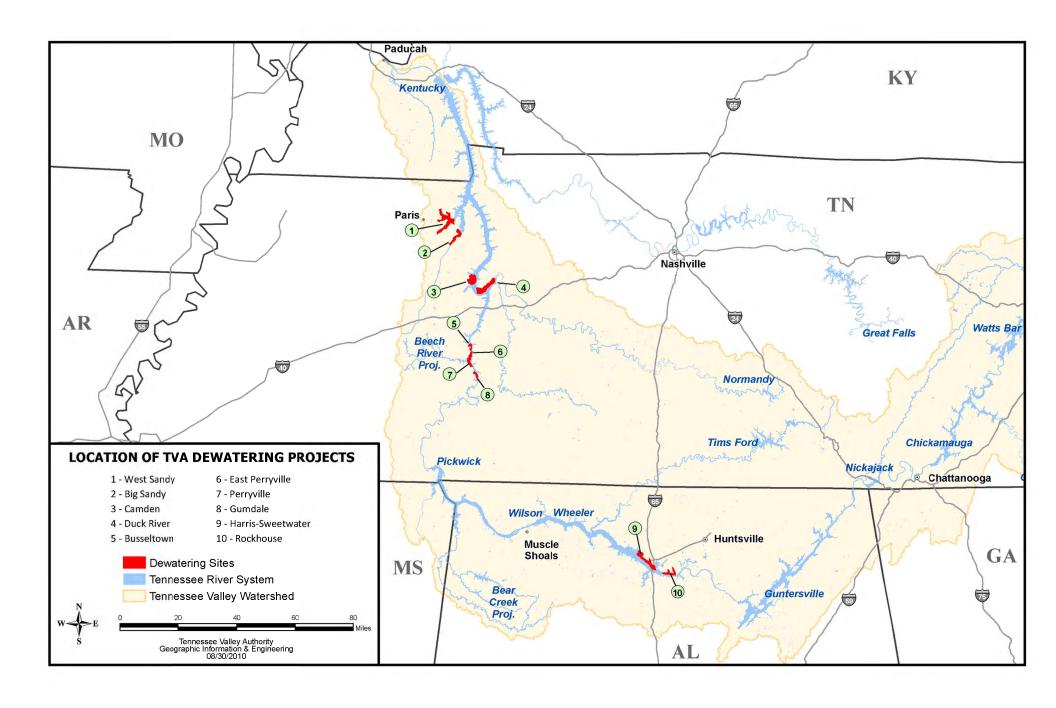


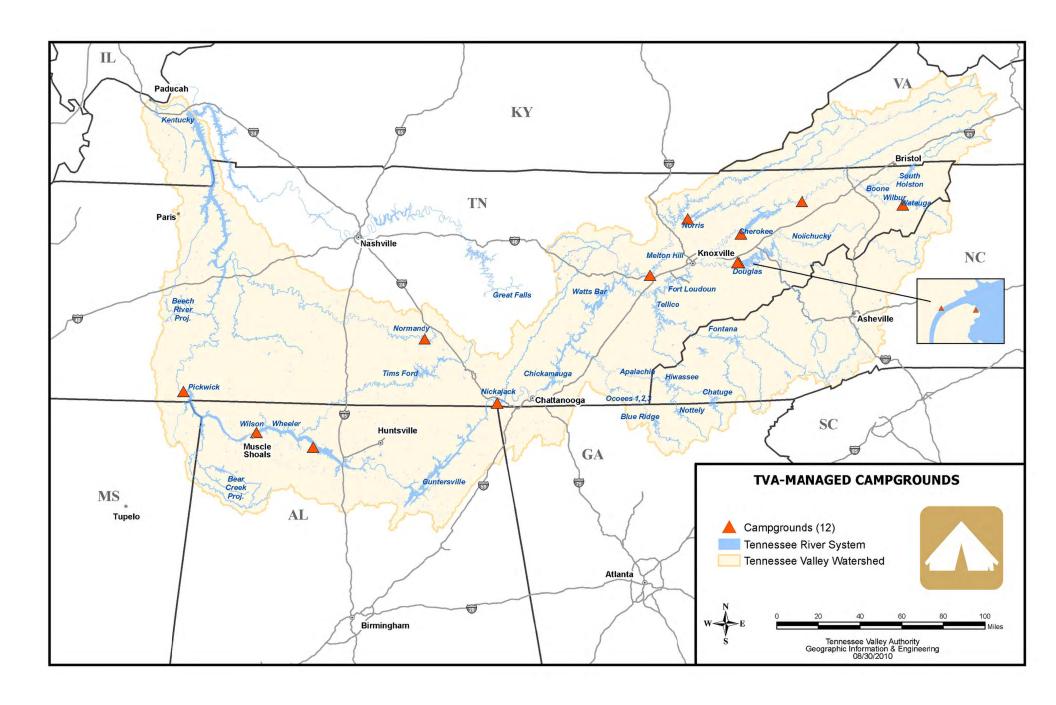
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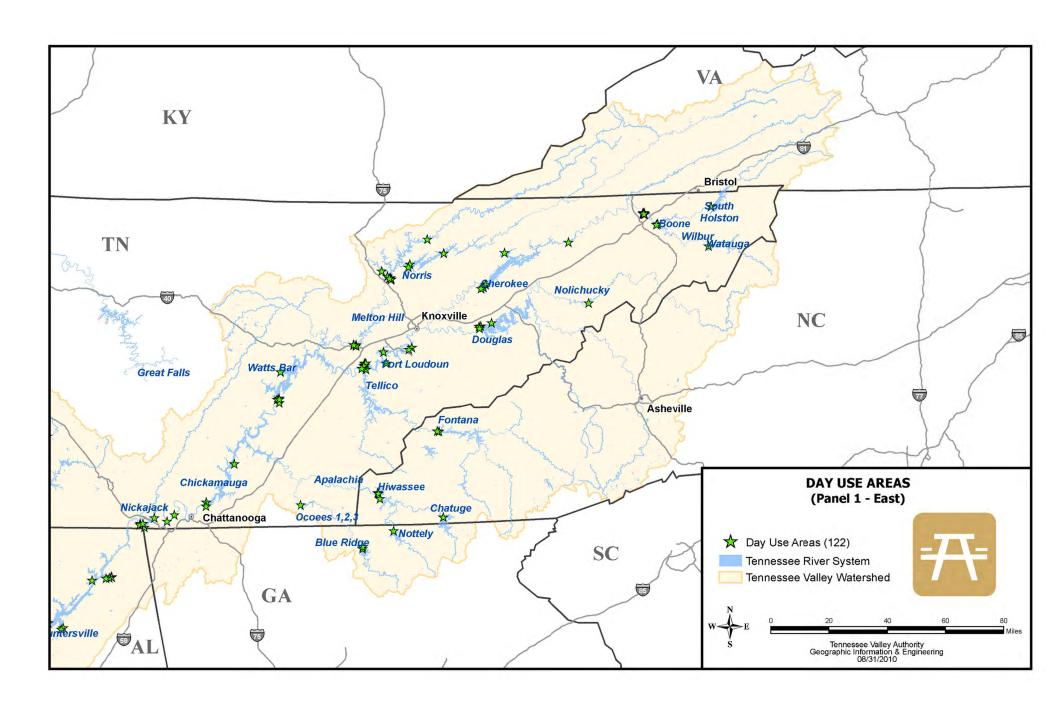
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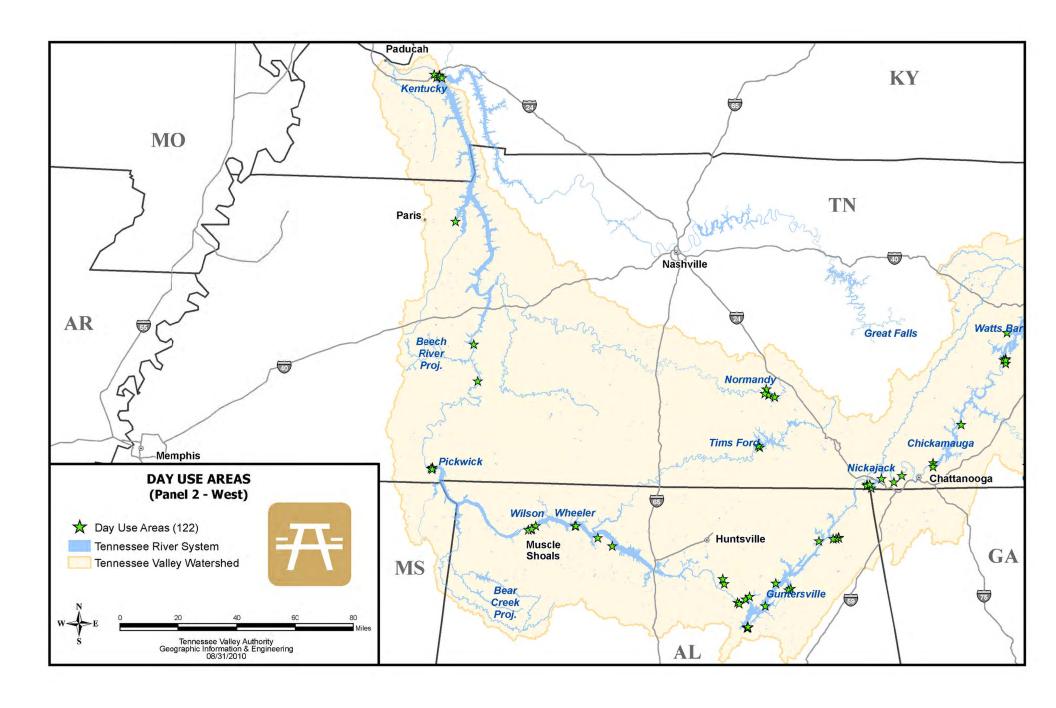


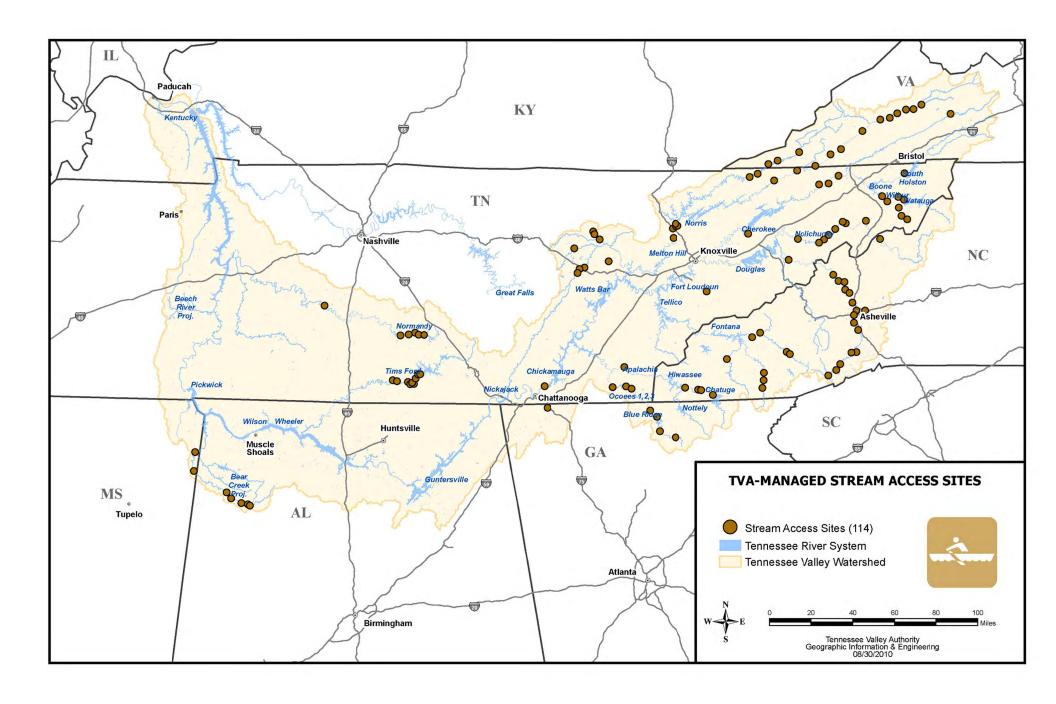


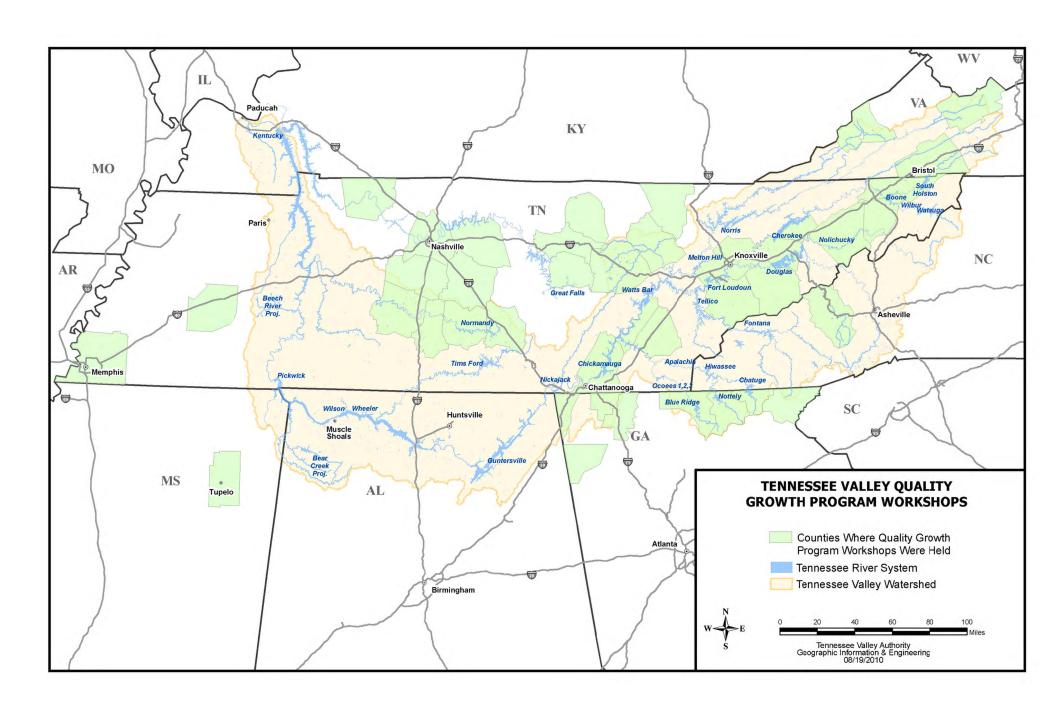


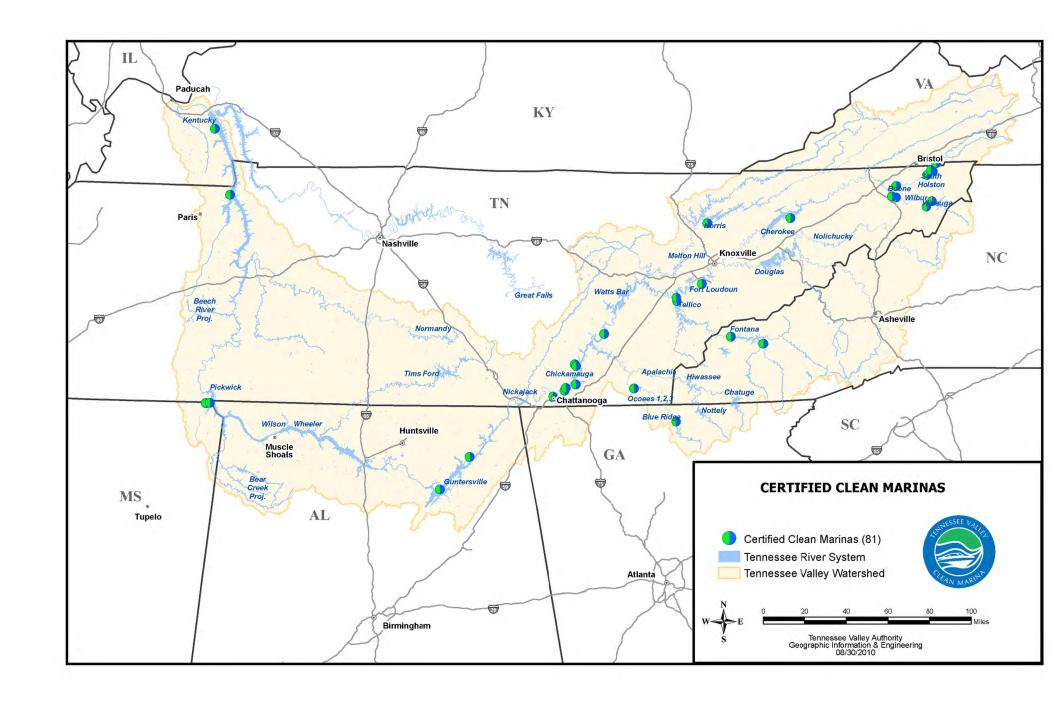


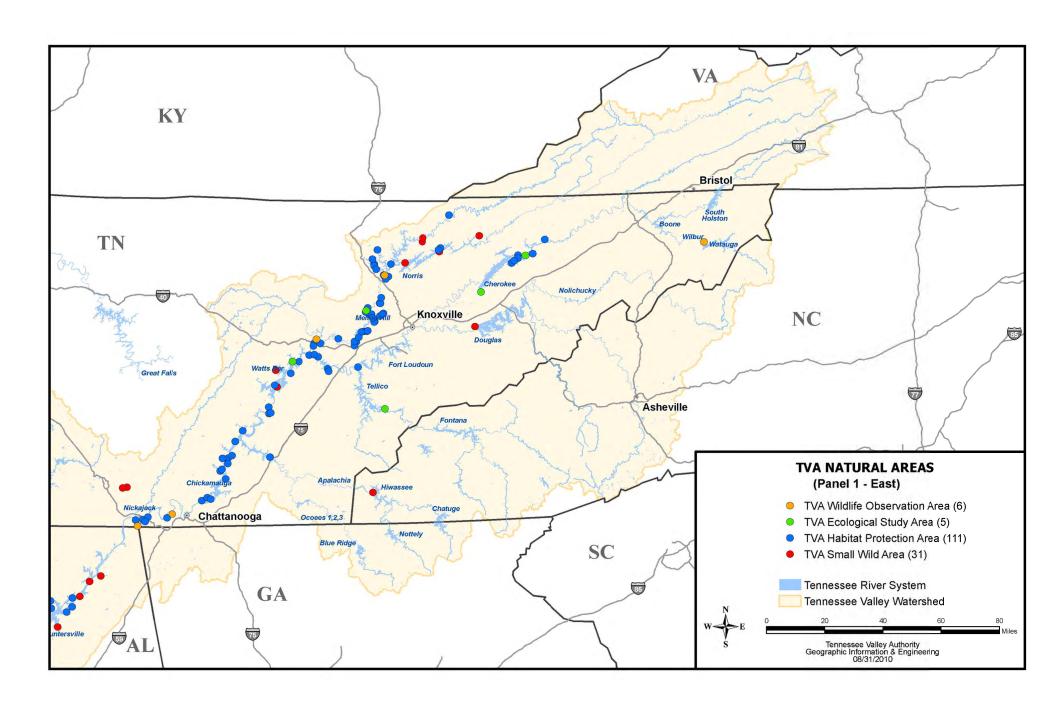


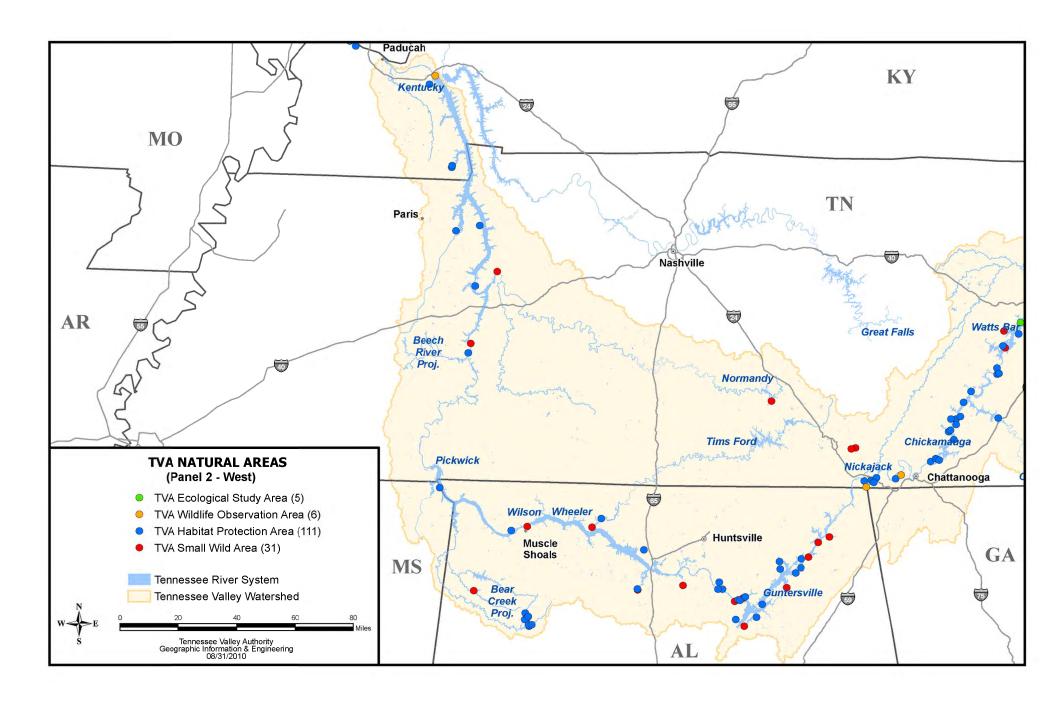


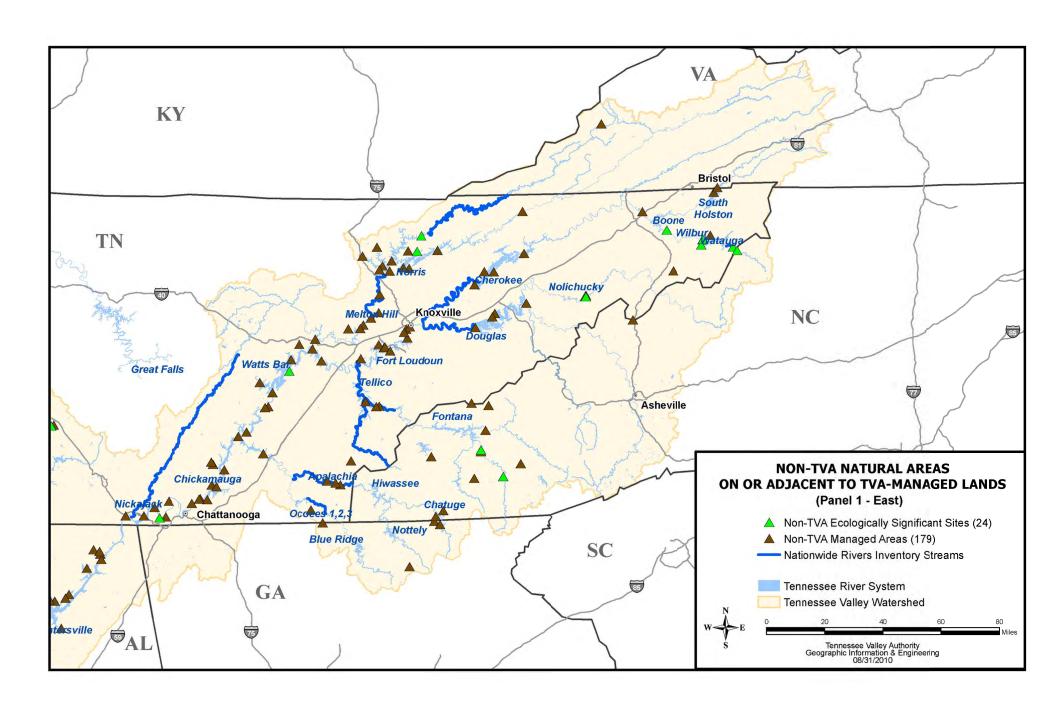


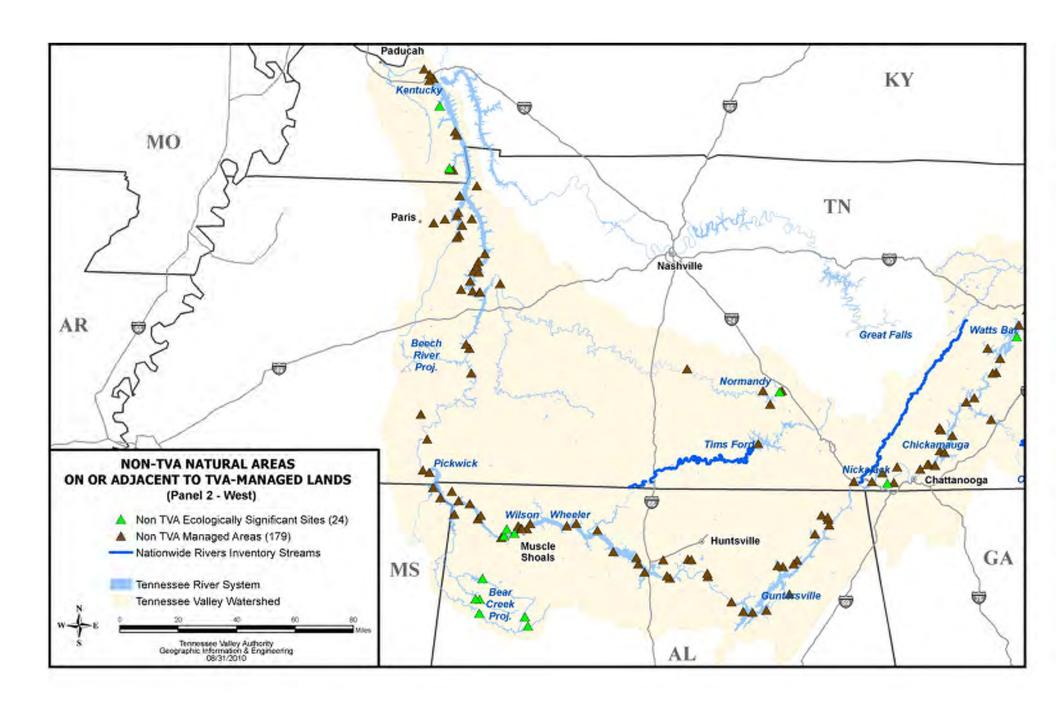


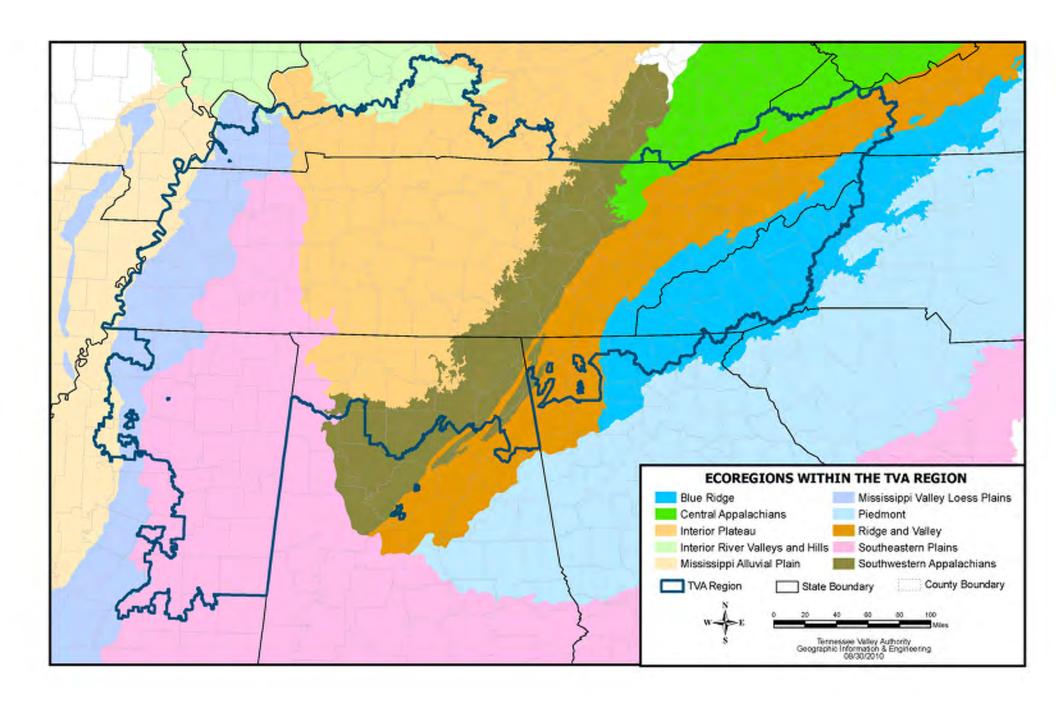


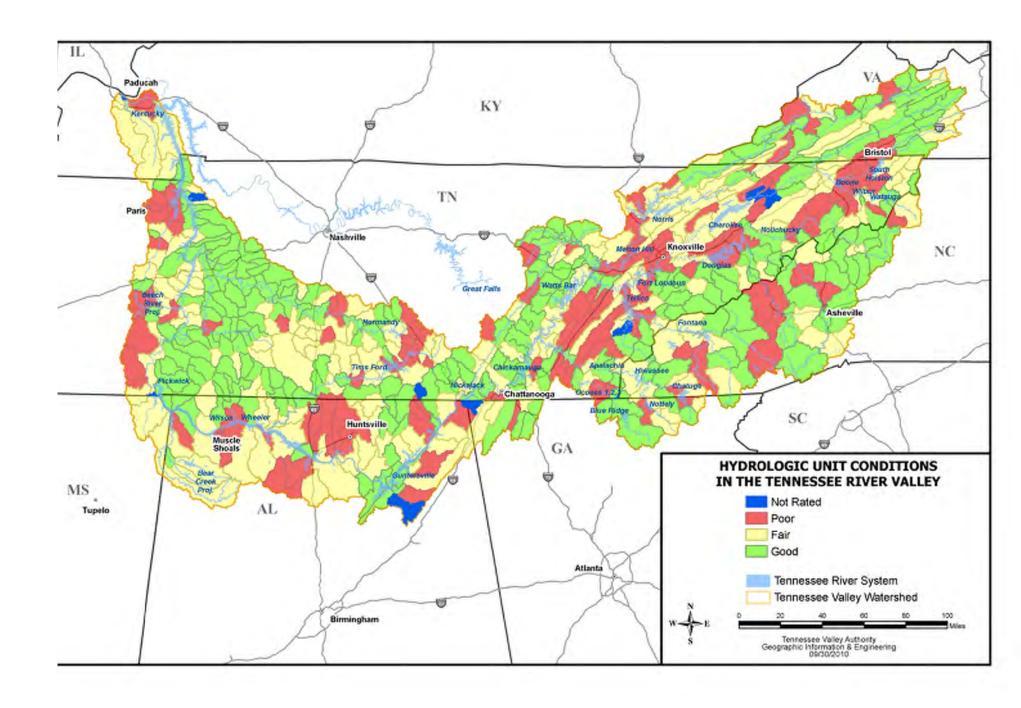


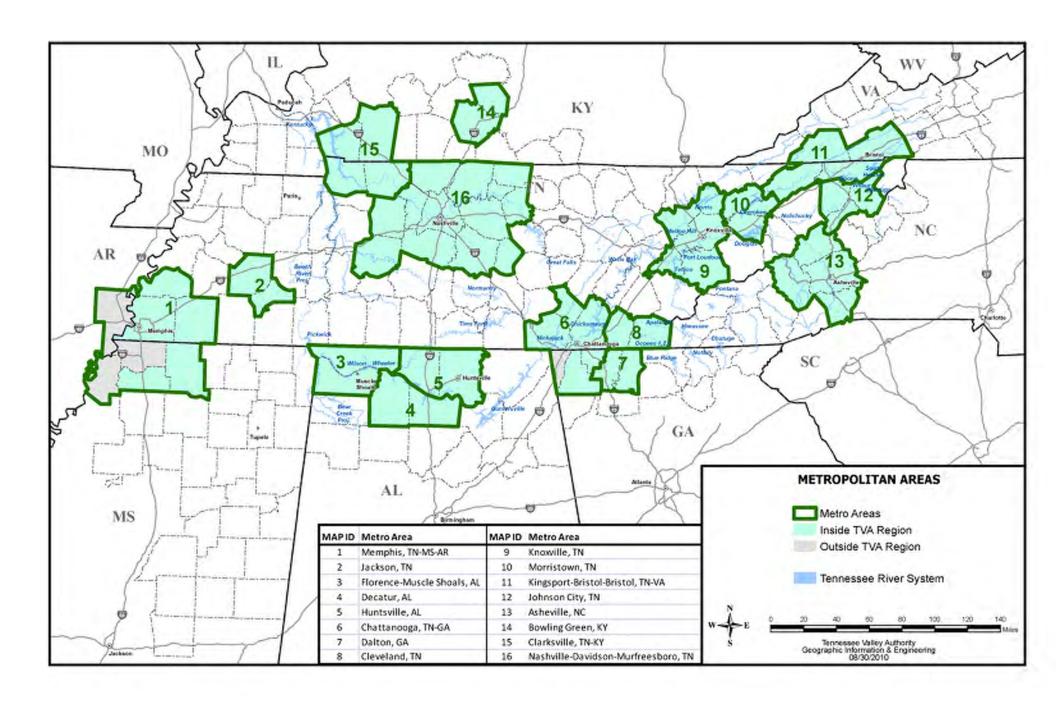


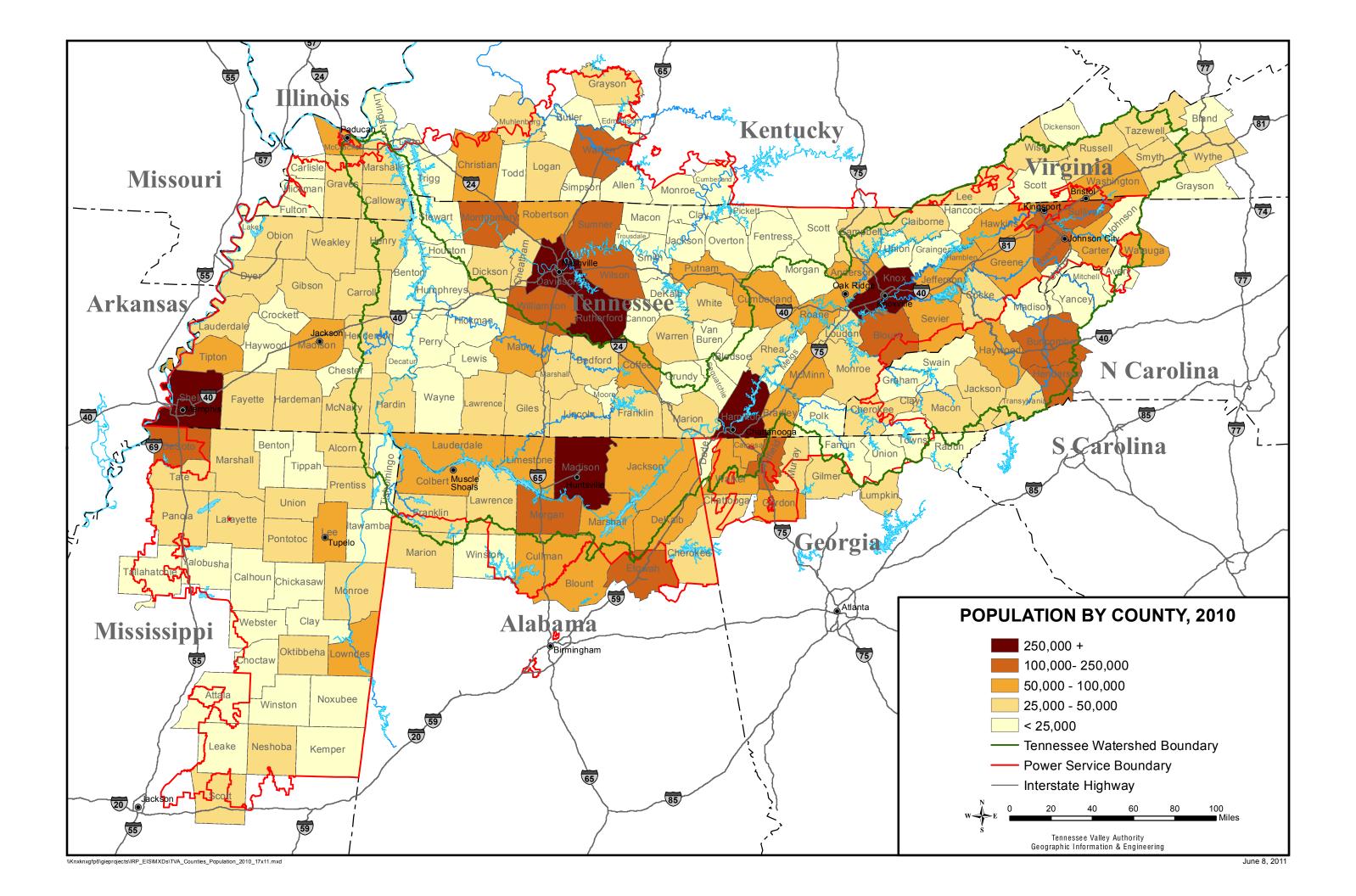


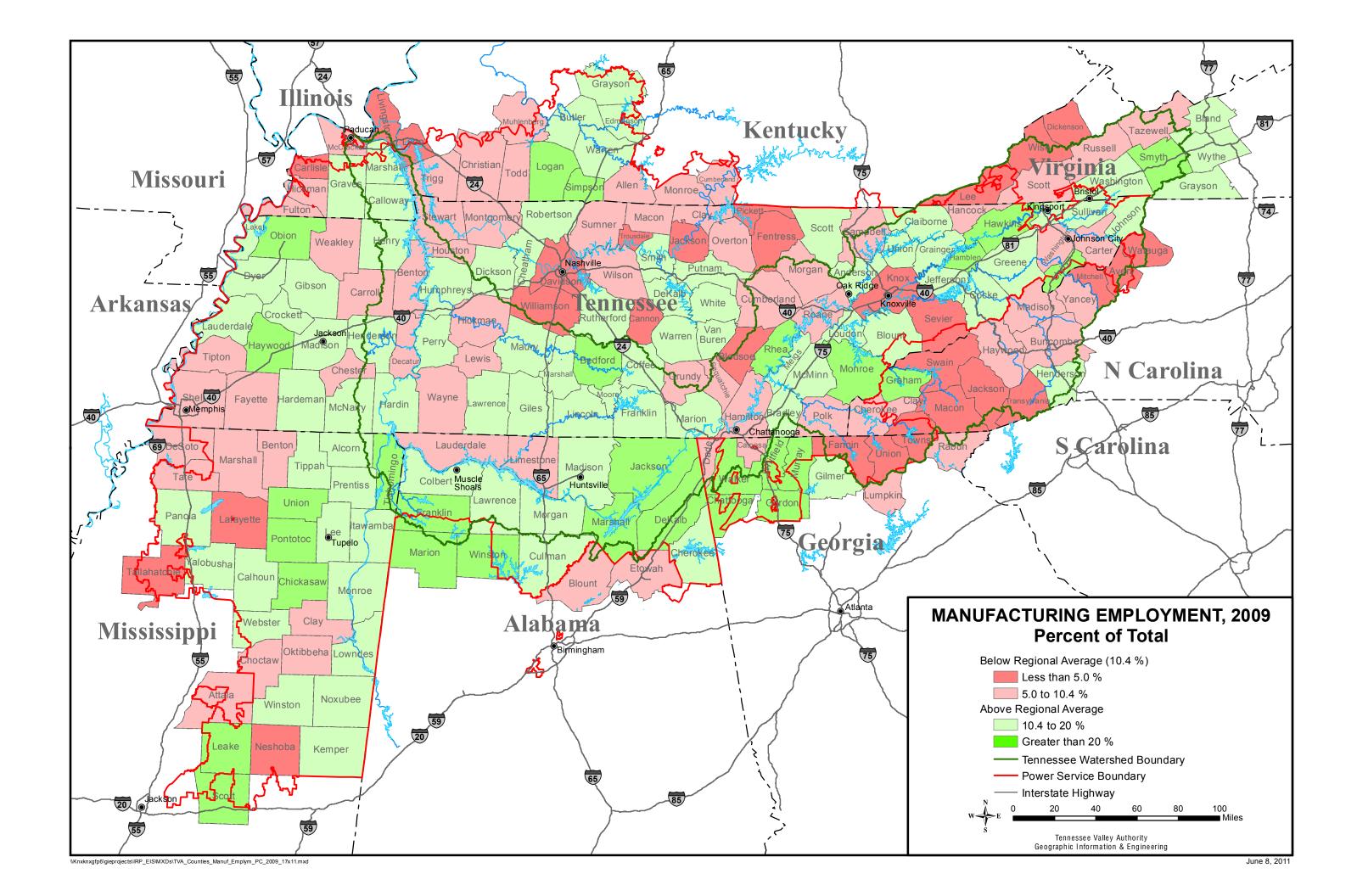


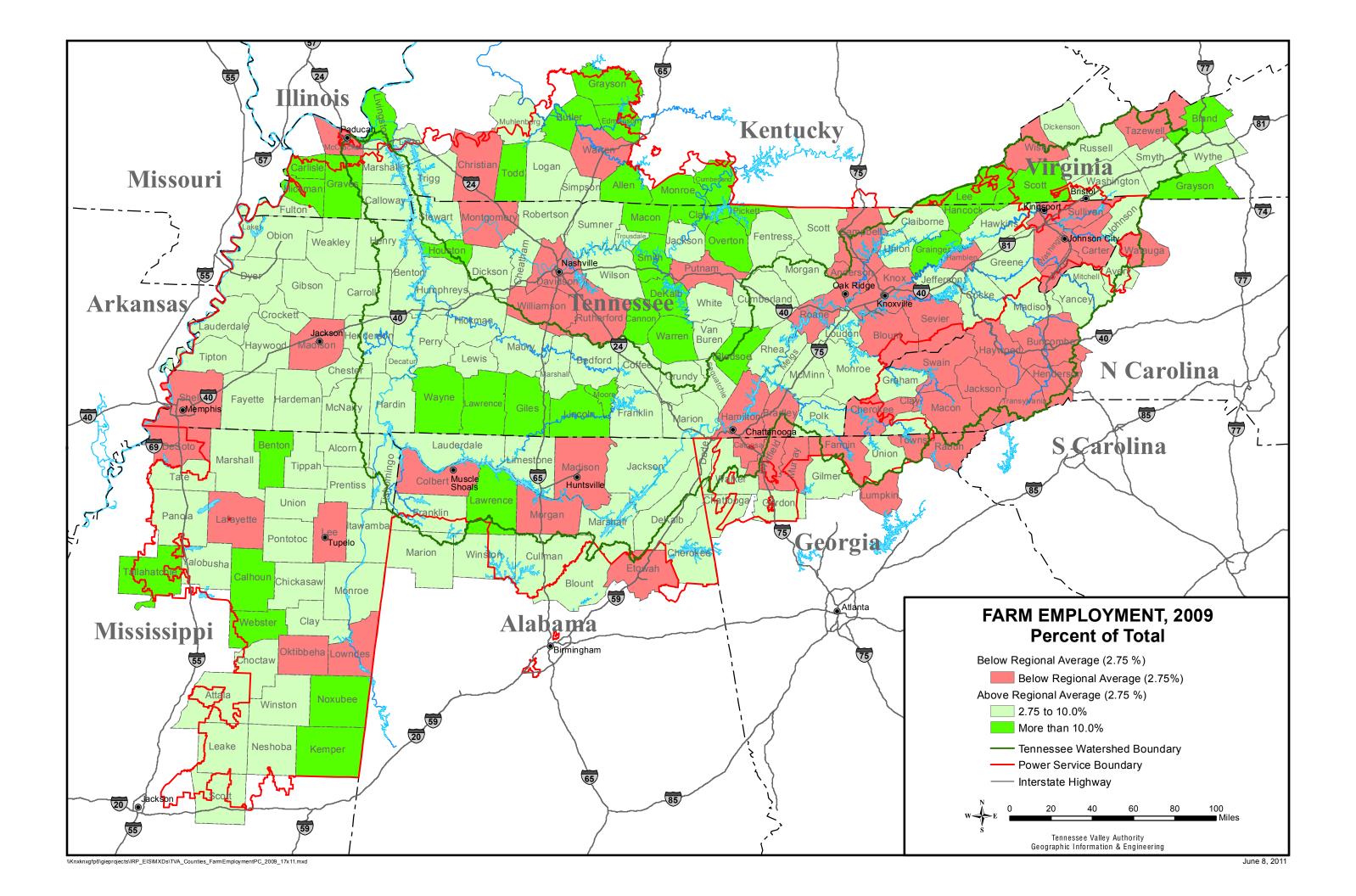


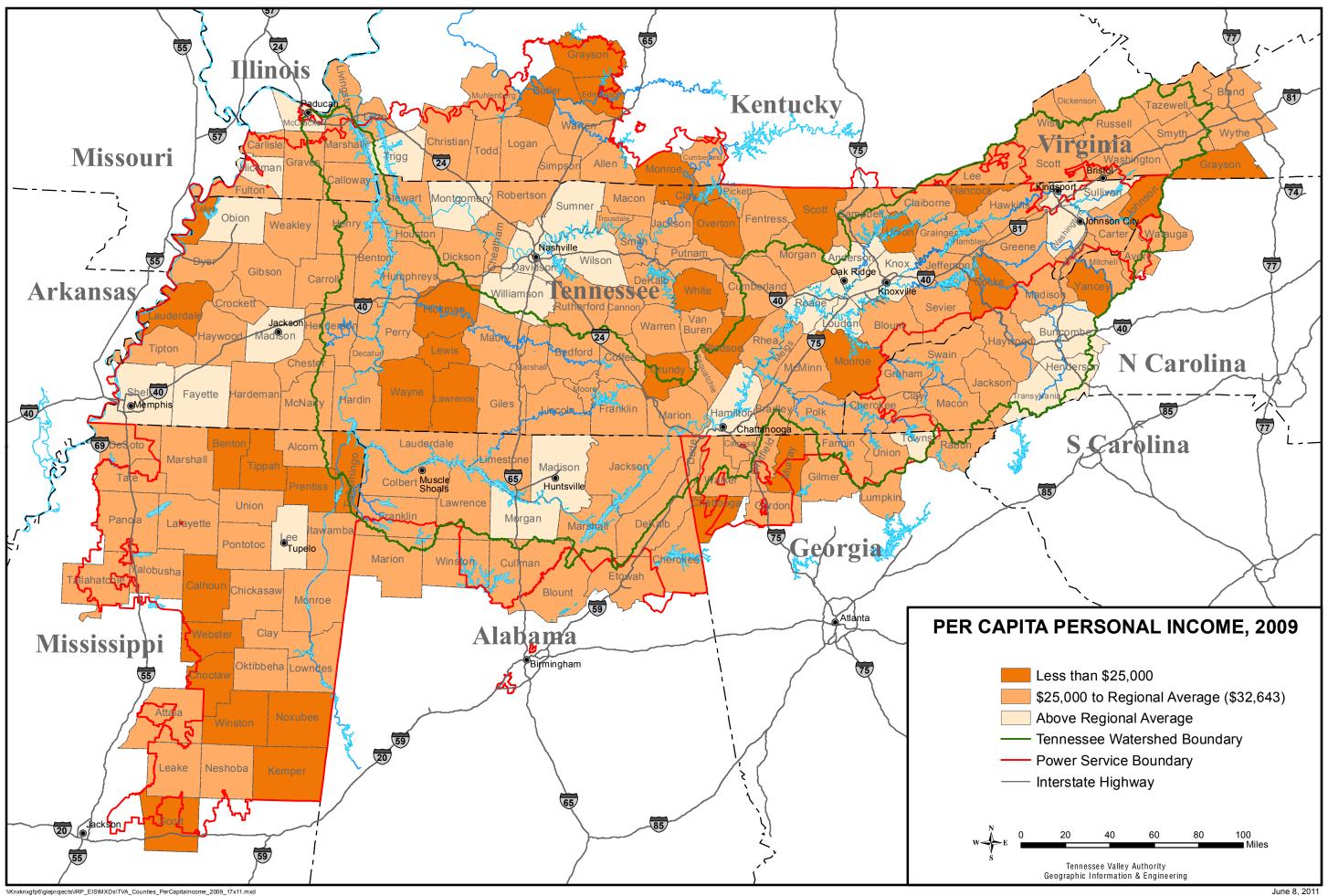


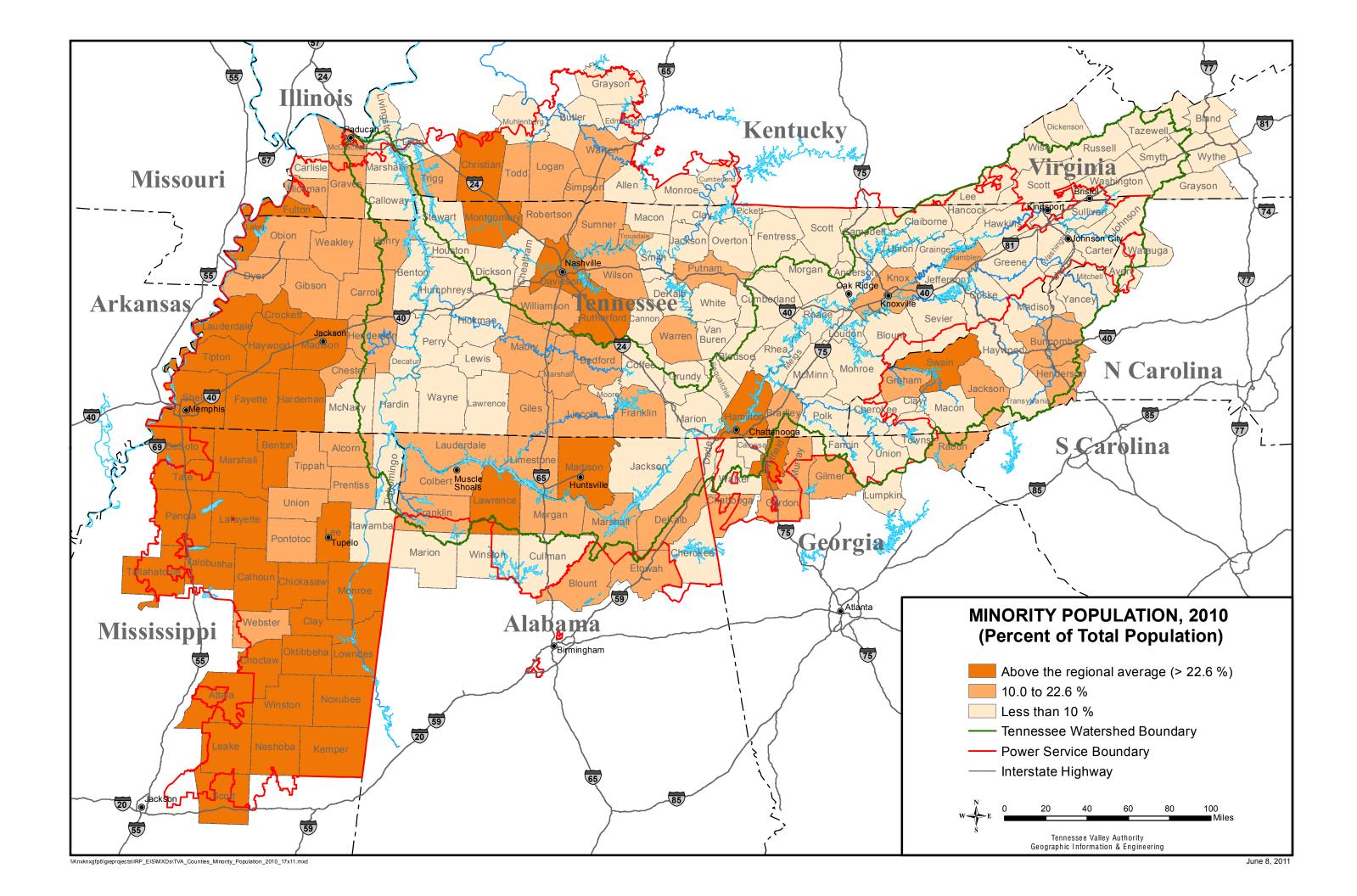


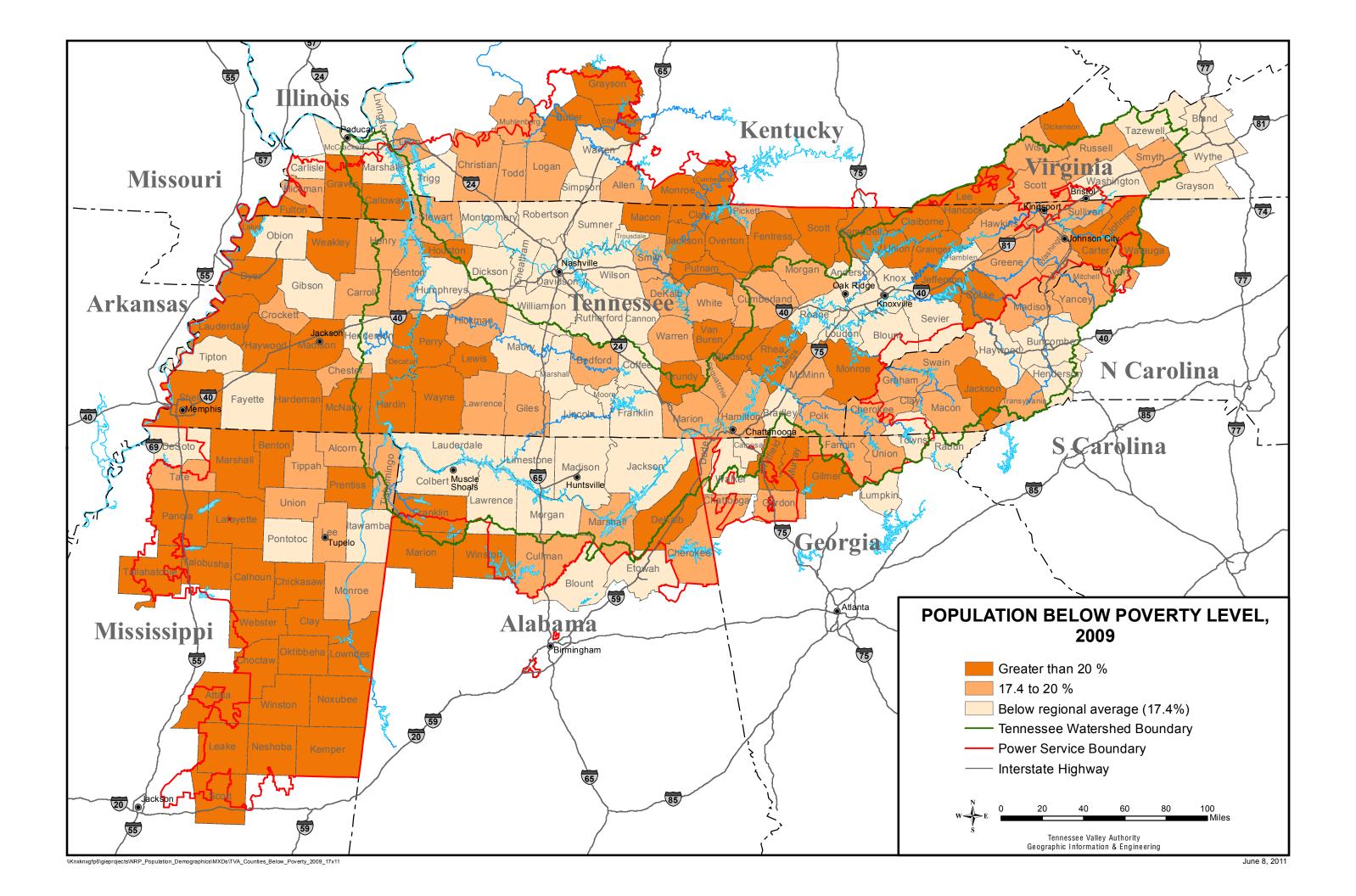


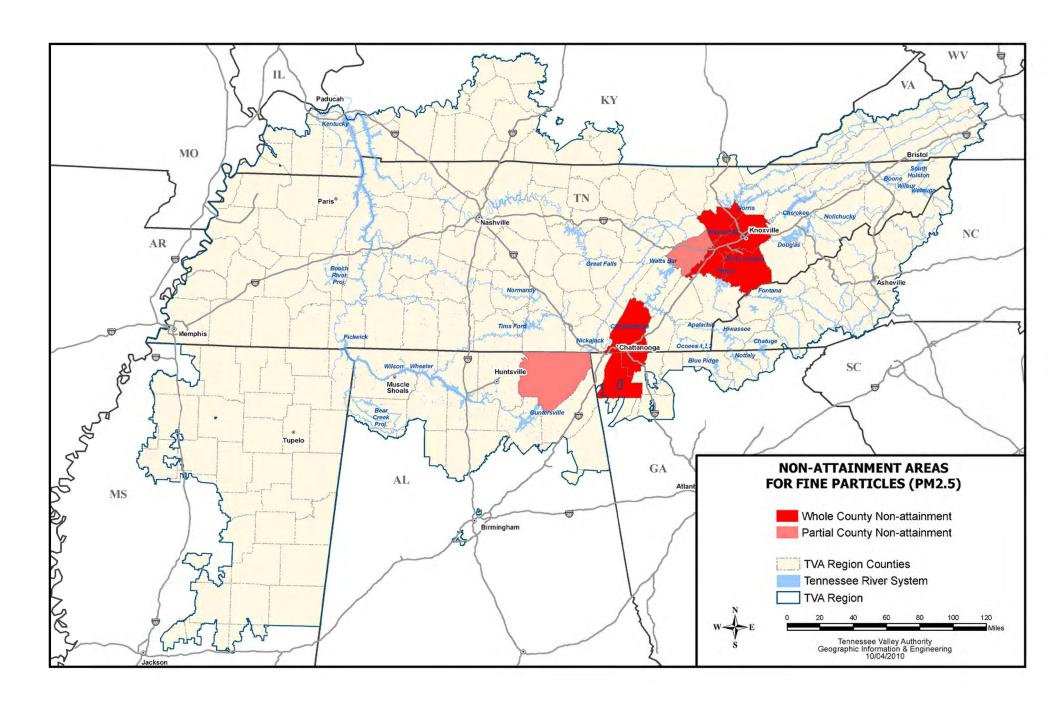


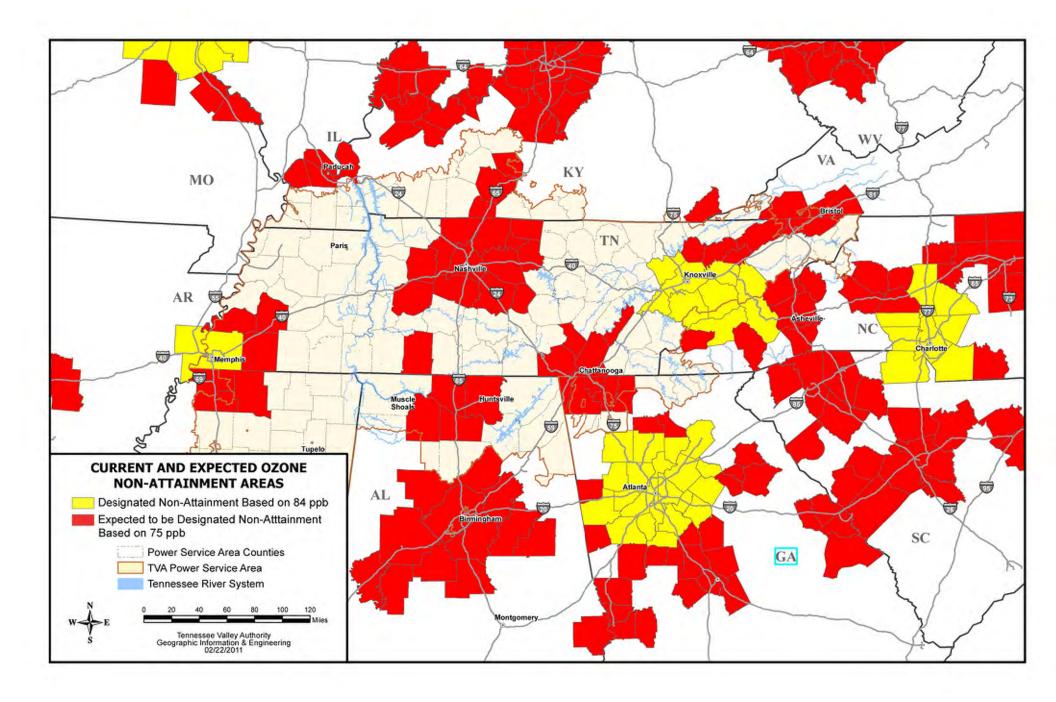


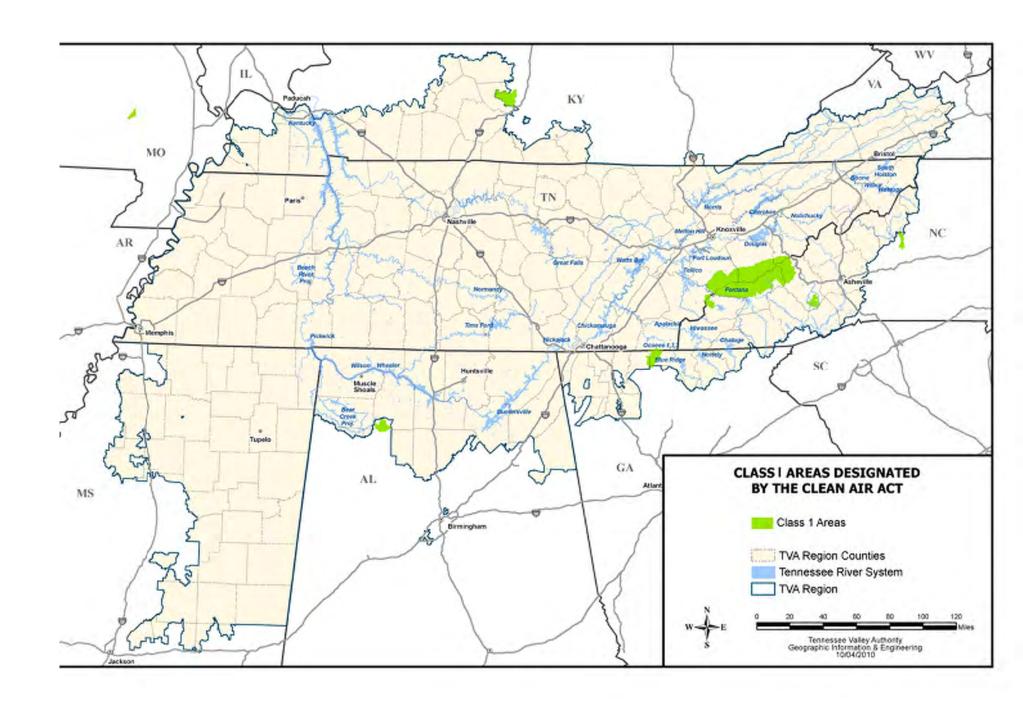












Appendix B – TVA's Recreation Chronology



# TVA's RECREATION CHRONOLOGY

### 1934-37

Demonstration parks and a boat dock built in cooperation with National Park Service and Civilian Conservation Corps.

#### 1937

First lease of reservoir land to a public agency for recreation development: State of Tennessee, Cove Lake State Park.

### 1938

Publication of *The Scenic Resources of the Tennessee Valley*, a descriptive and pictorial inventory. Focused attention on the wealth of scenic resources in the Tennessee Valley and the need to conserve and develop them.

### 1940

Pickwick Village licensed to the Pickwick Company, first of six former TVA construction villages to be converted to public or commercial recreation use.

Recreation Development of the Tennessee River System Report transmitted by President Roosevelt to Congress (H. Doc. 565, 76th Congress).

### 1942-43

Memorandums of agreement with conservation departments of Alabama, Kentucky, North Carolina, and Tennessee recording common objectives in field of recreation and cooperation in achieving them in the public interest.

### 1945

First transfer of reservoir land to a state for public recreation development: State of Tennessee, Paris Landing State Park.

### 1961

Began publication of recreation maps for individual TVA reservoirs.

### 1966

Recreation was recognized for the first time as a significant benefit (56 percent) in the economic justification of a TVA reservoir project: Tims Ford.

# 1967

Recreation Resources Program established by TVA.

# 1972

Apalachia powerhouse operated on special experimental schedule during summer to provide streamflows to benefit trout fishing and canoeing or floating on Hiwassee River.

# 1973

TVA Board of Directors approved policy for the identification and protection of areas of natural, scenic, and cultural significance.

TVA entered into an agreement with the State of Tennessee and three counties to develop the recreation resources of a 1,000-square-mile area in the Cumberland Plateau of southeast Tennessee on land owned by federal, state, and local agencies.

Program of trail development on TVA-owned land initiated. New trails will be tied in with existing state and national ones where feasible.

Began publication of navigation-recreation maps for TVA tributary reservoirs.

#### 1973

First community recreation appraisal completed, offering assistance to municipal/county recreation departments and public agencies in developing comprehensive recreation programs.

### 1974

Eighteen sites on TVA land identified as Small Wild Areas to be preserved in natural state.

# 1975

A scenic riverway program developed as part of the Tennessee Valley Outdoor Recreation Plan.

### 1977

Conducted first community recreation demonstration.

### 1978

Community recreation was approved as a major component of TVA's socioeconomic mitigation program in areas affected by major TVA construction projects.

### 1979

TVA began providing organized summer recreation programs at selected reservoir recreation areas to serve special population day-camping groups, day users, and weekend users.

### 1981

TVA and the Tennessee Special Olympics Inc. cosponsored a Special Olympics outdoor recreation camp at Nickajack Dam Reservation. This was the first nonmilitary federal sponsorship of a sanctioned Special Olympics event.

Cooperative maintenance arrangements with local and private agencies sought to help maintain TVA recreation areas.

# 1982

A license agreement was developed for commercial river outfitters to operate on TVAowned river access areas.

The Nature Conservancy, with financial assistance from TVA, established the Powell River Preserve in Claiborne County, Tennessee, to protect the only known population of the showy lady slipper orchid in the State of Tennessee or Tennessee Valley.

## 1983

TVA produced two Valleywide brochures showing available opportunities on TVA trails and scenic/recreational river resources.

Four TVA trails were designated as National Recreation Trails by the U.S. Department of the Interior bringing the total to nine trails with such designations.

TVA's emphasis on cooperative efforts to protect dispersed recreational and natural areas was exemplified through contracts with local, state, and federal agencies and private organizations. The agency entered into 11 agreements for stream access maintenance encompassing 35 sites; nine agreements for data exchange, management, protection, and/or identification of natural areas; and three maintenance agreements encompassing 17 trails.

#### 1984

Fifteen local parks were developed on TVA lands with financial assistance through the Jobs Bill Program.

TVA published *The Tennessee Valley Outdoor Recreation Plan, Volume VII: Natural Areas,* which describes natural area identification and evaluation process, management, and site descriptions.

#### 1985

TVA initiated public-private partnerships to provide commercial concession agreements to operate TVA developed campgrounds and day use areas, bringing the total number of areas operated under cooperative agreements to 12.

#### 1989-90

Recession led to realignment of TVA's Recreation Program and resulted in reduced staff for inventory and data collection. Reimbursement was initiated for certain technical assistance activities.

#### 1994-96

TVA land on the Ocoee River was used for Olympic Whitewater Center with initial events in 1996.

## 1996-98

Thirty-three TVA-developed campgrounds and day use areas were licensed and leased for concession operations, maintenance, and expansion (12 with public agencies and 21 with the private sector).

#### 2002

TVA initiated the *Reservoir Operations Study* with a recreational component to determine increases or decreases in recreation values derived under certain operating conditions retaining various reservoir water levels.

TVA initiated inventory of reservoir recreation facilities.

# 2005

TVA developed a new *Recreation Strategy, Implementation Process and Guidelines* as a guide to TVA's future efforts in recreation. The plan was revised to incorporate advice from the Regional Resource Stewardship Council.

Initiated assessment of TVA's developed and dispersed recreation areas. Developed recreation site plans were updated to accommodate revisions of national standards for accessibility. "Limits of acceptable change" methodology was used to manage "high use" dispersed recreation areas.

## 2006

Ten-year workplan completed for recreation demand analysis, participation rates, needs review, areas assessments, compliance inspections, inventory updates, and information sharing.

## 2007

Reservoir Recreation Inventory Matrix first published on external website for public use.

**Appendix C – Summary of NRP Scoping Results** 



# SUMMARY OF NRP SCOPING RESULTS

# Part I - Integrated Resource Plan Questionnaire: Questions 2, 4, and 11

During the IRP scoping period, TVA solicited input from the public in the form of a questionnaire, in which three questions pertained to stewardship activities. All comments received during the IRP public comment period pertaining to stewardship have been included in the NRP project scoping. The responses have been organized by issue categories and quantified in the figures and tables below.

Question 2 asked the public to rank the public benefits (environmental protection, providing recreation, electricity production, economic development, research and technology development, protection of archaeological and historic sites, and management of natural resources) provided by TVA in terms of their importance to the responder on a scale of 1 (least important) to 5 (most important). Electricity production, environmental protection, and natural resource management were chosen as the most important by the commenters (Figure C-1). The public could also write in responses, and 13 write-in comments were received for Question 2 (Figure C-2).

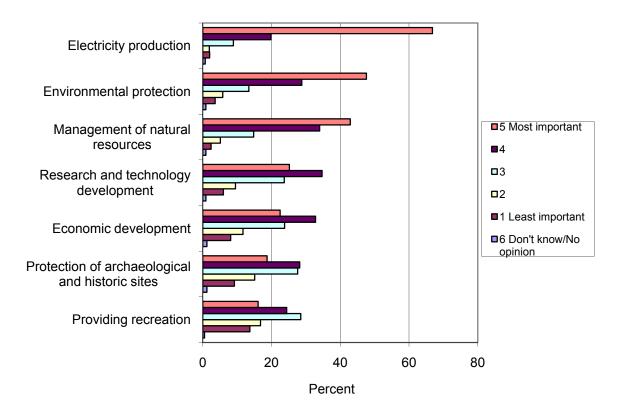


Figure C-1. Integrated Resource Plan Question 2 — Ranking of Public Benefits Provided by TVA

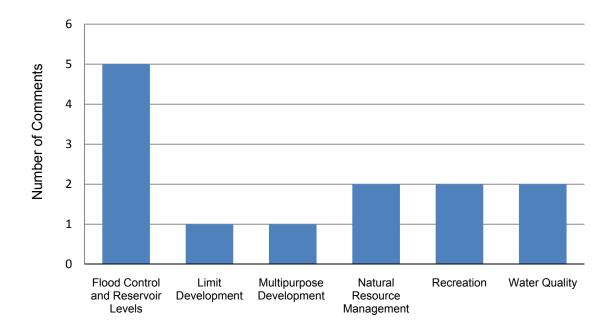


Figure C-2. Overview of Write-In Answers for Integrated Resource Plan Question 2 Organized by Issue Categories

Question 4 asked the public to rank the importance of the following activities: informal recreation, developed recreation, habitat management, and cultural resource management. Habitat management was chosen as the most important by the commenters (Figure B-3). The public could also write in responses, and 39 write-in comments were received for Question 4 (Figure C-4).

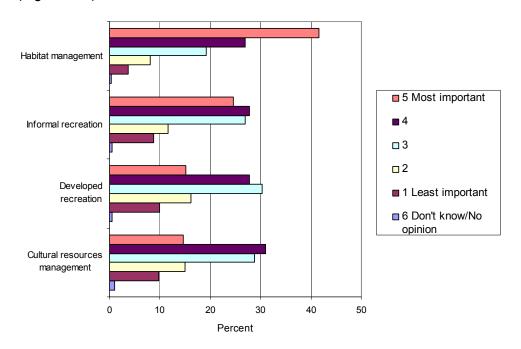


Figure C-3. Integrated Resource Plan Question 4 — Ranking of Natural Resource Management Activities

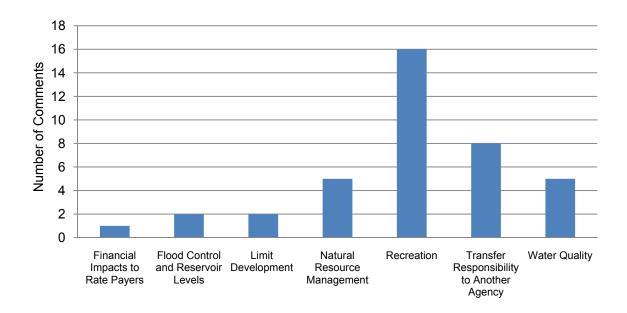


Figure C-4. Overview of Write-In Answers for Integrated Resource Plan Question 4
Organized by Issue Categories

Question 11 was a write-in question that asked the public "What do you value most about TVA-managed lands and reservoirs?" Of the 542 responses, the four most frequently mentioned concerns were recreation, multipurpose development, natural resource management, and limiting development (Table C-1).

Table C-1. Overview of Write-In Answers for Integrated Resource Plan Question 11 Organized by Issue Categories

Issue Category	Number of Comments
Accessibility of Public Lands	16
Fiscal Impacts	23
Flood Control and Reservoir Levels	20
Land Policy	1
Limiting Development	41
Multipurpose Development	95
Natural Resource and Wildlife Management	75
No Opinion of the use of TVA-managed lands	31
Recreation	199
Quality of Life	5
Visual Resources	22
Water Quality	14
Total comments received for Question 11	542

# Part II – Integrated Resource Plan: Additional Comments from Agencies and Stakeholder Groups

Table C-2. Integrated Resource Plan – Additional Comments Submitted by Agencies and Stakeholder Groups and Organized by Issue Categories

	Comment
Issue Category	Comment
Natural Resource Management	
Forestry	We respect the roles and responsibilities of the Tennessee Valley Authority to safely and efficiently provide the needed energy, recreation, water, and jobs to the citizens and businesses of our state. The added responsibility of TVA being a landowner places your agency squarely in public view to demonstrate sound land management practices. Although TVA has divested itself of a large majority of the forested properties it once held, TVA continues to own and control a sizeable acreage of land. We believe these forests can and should supply a similar suite of benefits and services that the privately owned lands in Tennessee now provide. These include timber, recreation, wildlife, hunting, clean water, and aesthetics.
Management	Forested areas should be managed to maximize the potential for carbon sequestration. TVA should consider the role that forests can play in carbon sequestration and carbon markets. Renewable energy production should be pursued if it is economical and environmentally sound to do so. Wood and fiber sources can certainly play a role in the production of renewable energy.
	Educate the general public and stakeholders, regarding sustainable logging practices, and implement sustainable logging practices on TVA lands to prevent tree over-harvest and associated greenhouse gas emissions and to reduce threats to listed species.
Habitat Management	Enhance and increase habitat to boost production of rapidly diminishing native pollinators by establishing a diversity of native flowering plants across the spring, summer, and fall seasons within TVA rights-of-way areas and resource lands. Pollinator habitat increases will also provide additional habitat for wildlife and birds and assist in offsetting carbon dioxide emissions.
Management of Listed Species	Management plans for ecological resources, particularly aquatic and terrestrial wildlife should be designed to monitor the status of populations and to determine the impacts of TVA operations including the effects of waste generation and water quality and quantity on these populations. Priority should be given to species that are federally listed as threatened and endangered.
Native Plants	Manage new and existing TVA resource lands and rights-of-way for recovery and protection of native vegetation with special emphasis placed upon threatened and endangered plant species.
Recreation	
Nonmotorized Recreation	TVA should consider the public value of natural resources for more than energy production, in a manner that offers high levels of protection and restoration of natural ecosystems and the public recreation that such ecosystems support. Encouraging citizens and children in particular to engage in nonmotorized outdoor recreation is a major priority for all public land management agencies.
Recreation- Water Based	Recreational resources are important for the citizens of the Valley; TVA fortunately has many of these assets. They should continue to be an important part of the mission going forward. Continued cooperation with the boating community should be a priority in the future.

Issue Category	Comment	
Reservoir Lands	Planning	
Land Policy	TVA's land use policy has been a bright spot and those measures that have been effective need to be continued. TVA should not allow mountaintop removal of mined coal to be used in its boilers. TVA needs to develop a biofuels extraction policy that is sustainable.	
Water Resources		
Water Quality	Water quality needs to be included in all scenarios at the highest priority. We can no longer accept the degradation of our waters as an acceptable byproduct of human activities. A healthy aquatic biota in all of our tributaries, streams, rivers, and lakes is a crucial part of our Tennessee way of life and should be a baseline assumption of the IRP. Best management forestry and land practices are essential for the maintenance of those biologic systems. These allow for the fullest use of our water resources.	
Water Conservation	Research and implement water-saving measures at existing and new facilities, through public education, such as when reviewing and commenting on 26a permit applications and promoting financial incentives to homeowners who purchase and install water-saving appliances. As the region's water demands have increased, permit applications to withdraw water from streams and rivers are continuing to increase at an unprecedented rate. These uses, combined with anticipated aquifer and surface water losses attributed to climate change, will negatively impact future water resources available to the human population, fish and aquatic organisms, and terrestrial plants and animals.	
Organization of D	Organization of Document	
Separation from IRP	We do not agree that any "integrated' plan should be developed separate from natural resource stewardship. We encourage you to develop this IRP to include natural resource stewardship on TVA land, water, and areas affected by the energy portfolio as integral to the way TVA meets the energy needs of the Tennessee Valley.	
Issues Outside the Scope of The NRP		
Aquatic Plant Management	TVA should continue to provide aquatic vegetation management along residential shorelines and public access facilities and provide boat lanes to access channel areas.	

# Part III – Natural Resource Plan: Comments from Agencies, Stakeholder Groups, and Individuals

Table C-3. Overview of Comments Submitted for the Natural Resource Plan and Organized by Issue Categories

and Organized by Issue Categories		
Issue Category	Number of Comments	
Air Quality and Noise	2	
Appreciation of NRP	5	
Cultural and Visual Resources	2	
Economy and Transportation	6	
Fiscal Impacts	6	
Forest and Land Management	6	
Land Planning and Land Policy	3	
Maintain Natural Areas and Sensitive Species Management	8	
Mineral Rights	2	
Navigation and Recreational Boating Traffic	9	
NEPA and Alternatives	25	
Oppose Development	3	
Other	4	
Outside Scope of the Natural Resource Plan	11	
Public Involvement	21	
Public Lands and Stewardship	5	
Recreation	27	
Vegetation	4	
Water Quality and Shoreline Conditions	5	
Wetlands, Wildlife, and Conservation	3	

Table C-4. Natural Resource Plan – Summary of Comments Submitted by Agencies and Stakeholder Groups and Organized by Issue Categories

and	Stakeholder Groups and Organized by Issue Categories
Issue Category	Summary of Comments
Air Quality and N	oise
Air Quality	Environmental stewardship applies not only to TVA's management of its lands and waters, but also to what TVA emits into the atmosphere, which has a huge potential of affecting the environment of this region and, indeed, of the world. As the largest public power producer in a nation that has until now contributed disproportionably to the atmospheric gases that are causing the Earth to warm dangerously (and with potentially catastrophic effects), TVA must now take a leadership position in reversing this trend. TVA must be a leader in promoting energy efficiency and the clean production of energy.
Noise	The growing number of nonmuffled boats operating on our lake is causing several problems. The noise pollution is very disturbing for lake residents, especially when experienced late at night or early in the morning. This noise is also disturbing to nearby wildlife. The growing number of water sport enthusiasts is creating a serious conflict on our lake. Nonmotorized boating enthusiasts (paddle boating, kayaking, canoeing, and sailing) and persons wanting to swim in the lake are being placed in a dangerous situation due to the many jet skis, power boats and speed boats operating on the lake.
Appreciation of D	Developing a Natural Resource Plan
Appreciation	Thank you for the opportunity to provide scoping comments for the NRP. We look forward to the next opportunity for public involvement in the plan's development.
<b>Cultural Resourc</b>	es
Cultural Resources	We look forward to receiving Section 106 compliance documentation from you when it becomes available.
Economy	
Economy	The economic health of the region is not sustainable without proactive protection of our natural resources. Outdoor recreational opportunities and natural beauty support sustainable economic growth and increase the attractiveness of our region to employers and residents.
Forest and Land	Management
Forest Management	TVA should get back into active timber management and allowing things such as timber salvage after storms. TVA should also look for more cooperative agreements with other land management agencies such as state conservation agencies. Sharing resources and looking at management of public lands in a more cooperative manner will create a win-win situation for TVA and the residents of the Tennessee Valley.
Land Management	At TVA's beginning and throughout much of its history TVA lands and developments were examples to the locals, to the nation, and to the world of the best possible design. This was a deliberate programmatic effort managed by skillful architects and landscape architects with the same kind of seriousness that is applied within our national parks. It didn't happen by chance or just by the collective efforts of well-meaning engineers or nondesign professionals. As TVA manages and develops its public land going forward it should be with unapologetic high standards for excellence in the design arts. That will provide the public

Issue Category	Summary of Comments
	a rich return on its land investments through TVA.
Land Planning ar	nd Land Policy
Land Planning	Land planning should look at land as contiguous tracts of land for natural resource protection instead of thinking of the land as divided by use. This will help with prevention of habitat fragmentation. Any past contracts or agreements should be reviewed to bring them into compliance, and efforts should be made to create shorter-term agreements so that management of the land is flexible.
Land Policy	TVA's current land policy has a tremendously positive impact on the quality of life in the Tennessee Valley.
Maintain Natural	Areas
Maintenance	Maintain necessary controls to assure natural resources are maintained and improved.
Protection	It is especially critical that TVA continue to provide ample protection of natural lands, such as small wild areas, through correct classification and management.
Navigation and R	ecreational Boating Traffic
Recreational Boating Traffic	TVA must conduct boat capacity and boat traffic studies whenever a new or additional commercial marina or public boat ramp is being considered. Boat traffic should be studied around the specific location of the new or additional marina/boat ramp, not in a large area of the reservoir. Studies should be conducted during the peak traffic times (summer weekends), not during the week and in the off-season. TVA knows the boat count during the week and off-season is low and should not design studies during those times to "prove" there is boat capacity in a particular area. The busiest times should be studied so as to see the true impact on safety and the boating public.
NEPA and Altern	
NEPA and Alterna	TVA should solicit feedback from every agency and individual who responds during a public comment period and/or attends a public meeting whenever any modification is being made to an environmental assessment (EA) or environmental impact statement (EIS). Modifications should not be made in secret with only TVA employees reviewing and approving changes to mitigation measures, which the public and outside agencies have previously been assured will be in enforced.  Commercial development should not be allowed when the majority of the existing property owners object. Just because TVA can declare a FONSI does not mean that a commercial development should be allowed. Alternatives to a
	development including moving a development to a less congested site and reducing the size of the project should be considered and suggested by TVA.  The language TVA uses in its EAs and EISs must be clear, absolute, enforceable, and easily understood by the public.  The NRP should indicate whether the plan will be strictly adhered to or whether the plan can be adjusted.
Oppose Developi	ment
Leave Areas Natural	My request for the NRP is to leave as many of the lands that TVA controls unspoiled, and available for use by the public. I recognize the need for environmental stewardship and planning via logging, agriculture, etc., but TVA provides opportunities to many hikers, hunters, fishermen, and outdoorsmen in general that would not otherwise be possible. Public access to recreation land is slowly dwindling, but the use of public land for hunting is rapidly diminishing.

Issue Category	Summary of Comments
Other - Fiscal Im	pacts
Fiscal Impacts to Ratepayers	Please conduct a full economic analysis for impacts associated with TVA decisions and/or restrictions for use of publicly held lands. The current Land Policy adopted by TVA did not account for economic impacts. Additionally the NRP should clearly specify the actions being proposed by TVA and their associated costs/benefits to power customers resulting from the NRP and its implementation.
Project-Specific Financial Reviews	TVA must ensure that all developers have the financial means to complete a proposed project before it is approved and will not leave a project site in a disturbed and/or unfinished state. More thorough and in-depth financial reviews of developers must be conducted by TVA.
TVA Funding	All programs that protect and restore our waterways should be enhanced and funded.
Public Involveme	
Education Efforts	I would like to see more education efforts for protection of natural resources, more signs posted, more effort for closing abused areas, more TVA Police patrol (hiring of 'resource officers').
Public Involvement	Our experience, unfortunately, has been that TVA uses it power unilaterally and discounts the input and voice of the public, affected property owners, and wildlife agencies/organizations.
Public Involvement	Solicit feedback from property owners within a 5-mile radius, and local, state, and federal wildlife agencies whenever a commercial or industrial development is being proposed and whenever a change in land use is being considered. Publication in a local paper of limited circulation (many times rural) is an inadequate form of communication. TVA should prominently publish notices in regional newspapers, post notices on the affected site(s), and actively encourage public comment rather than treat public input as an obstacle to overcome.
Public Lands and	Stewardship
Long-Term Management	TVA's policies and actions related to its land and waters have tremendous impact on the quality of life in our region. While balancing the needs of many sectors, TVA must manage these natural resources in a way that protects their value in perpetuity. Long-term values must not be sacrificed for short-term solutions.
Proactive Management	Finally, we urge adoption of a more prudent policy toward environmental costs. Policies and actions should incorporate a "fix it now" attitude that marks TVA and the valley as a leader in taking proactive steps to protect our natural resources.
Stewardship	TVA must keep public lands in public ownership and provide careful stewardship of both lands and waters to meet the needs of current and future generations.
Recreation	
Campgrounds	TVA campgrounds should be upgraded to handle both small and large recreational vehicles. The campgrounds need upgrades, i.e., sewer, 50-ampere boxes, and clearances to accommodate large rigs and slides. A good example is De Soto Falls State Park Campground in Alabama. They have done a great job in bringing the facility up to date.
Commercial Recreation	Marinas should not be built on shorelines that are popular fishing areas and/or locations already popular with the boating public. Replacing fishing and boating areas with a marina is not offering new recreational opportunities.

Issue Category	Summary of Comments
Commercial Recreation	TVA should not allow popular fishing areas and boating areas to be eliminated by marinas and other shoreline development if opposed by the public. Replacing existing recreation with a marina should not be justified by saying it is providing new recreational opportunities. TVA should not approve commercial marinas in areas already served by large marinas regardless of the demand. If additional commercial marinas are needed, then TVA should identify appropriate locations spread out from one another.
Partnerships	TVA should actively work with the public and wildlife agencies to identify locations for environmentally friendly and low-impact recreational opportunities such as hiking, bank fishing, picnicking, and bird watching.
Recreation	TVA lands and waters are vitally important to support and protect water quantity and quality, and to support outdoor recreation, including water sports, hunting, fishing, hiking, and birding, camping, and picnicking.
Sensitive Species	s Management
Sensitive Species Management	TVA should enhance sensitive species monitoring, habitat enhancement, and begin research in listed species genetics.
Transportation	
Transportation	Address how the outcome of this evaluation will interact with and facilitate the delivery of federal, local, and state transportation plans and projects.
Vegetation	
Exotic Invasive Plant Species	Effective natural resource management in today's environment must also include removal and control of exotic, invasive species and protection of native species.
Native Vegetation	Natural shoreline conditions should be preserved and trees and vegetation should be left on the shoreline to the maximum extent possible.
Visual Resources	
Project-Specific Impacts	Marinas are normally well lit at night and significantly change an area visually at night. The effect of light should be studied when marinas are proposed to ensure it will not negatively impact wildlife and the quality of life of nearby property owners and the value of their property.
Water Quality and	Shoreline Conditions
	In managing its land and waters, TVA must protect water quality and quantity. Both are important for recreation, drinking water, agriculture, ecosystems, wildlife, and our economy.
Water Quality	TVA's Water Resources Program appears to have made great strides in improving water quality by working within watershed communities to educate and motivate residents and provide the needed programs and tools for assessments and effective actions. Expansion of this program to more watersheds would be beneficial.
Wetlands	
Wetlands	Wetlands delineations are similarly important for areas that may be developed.
Wildlife and Cons	
Wildlife Habitat Management	The amount of TVA land available for wildlife habitat improvement is limited, but timber harvest, prescribed burning, and other habitat manipulations should be considered where there are suitable tracts. Wildlife habitat management could be conducted in tandem with other recreational-like park trail systems and public fishing amenities. In addition, opportunities to enhance or create wetland habitats for waterfowl and other wildlife should be evaluated in some small, isolated areas.

Issue Category	Summary of Comments
Issues Outside th	e Scope of the NRP
Aquatic Plant Management	Please reconsider the present policy of weed control in TVA lakes.
Contract Management	TVA should tighten its contract-writing specification enough so that both TVA and the contractor can be held responsible for actions under the contracts.
Fossil Power Operations	Several comments were submitted concerning the Kingston coal ash spill, future management of coal ash, and transitions to alternative fuel sources.
Mineral Rights Policy	TVA needs to demonstrate stewardship for the life-cycle costs of the resources it uses within its power supply program. TVA only uses a small percentage of mountain top removal coal. TVA should make a policy that it will not purchase mountain top removal coal. Such a TVA policy would have a large influence in the efforts to preserve our natural resources.
Muscle Shoals Reservation Redevelopment	Please don't allow Muscle Shoals Reservation to be released for commercial or residential development.
Procurement	TVA should demonstrate extended product responsibility through its purchases.
Section 26a Permitting	26a permit hearings should be held when requested by a member of the public. Currently TVA can approve 26a permits at its discretion without a 26a permit hearing no matter how many people request a hearing. When TVA approves a 26a permit without a hearing, the public is denied an opportunity to become a party of record and cannot file an appeal. This practice leads to an abuse of power whenever TVA does not want additional scrutiny of a project the public opposes.

# AGENCIES SENT A COPY OF THE SCOPING NOTICE

Table C-5. Federal Agencies Sent a Copy of the Public Scoping Notice	
Federal Agencies	
Appalachian National Scenic Trail	
Blue Ridge Parkway	
Center for Disease Control	
Chattahoochee-Oconee National Forests	
Federal Highway Administration	
George Washington and Jefferson National Forests	
Great Smoky Mountains National Park	
Mammoth Cave National Park	
National Center for Environmental Health	
Natural Resources Conservation Service:	
Chief, Eastern Region	
State Conservationists in:	
Alabama	
Georgia	
Kentucky	
Mississippi	
North Carolina	
Tennessee	
Virginia	
U.S. Army Corps of Engineers:	
Asheville, North Carolina, District	
Nashville, Tennessee, District	
Norfolk, Virginia, District	
Raleigh, North Carolina, District	
Savannah, Georgia, District	
U.S. Environmental Protection Agency – Region 4 U.S. Fish and Wildlife Service:	
Asheville, North Carolina	
Asheville, North Carolina Athens, Georgia	
Cookeville, Tennessee	
Daphne and Decatur, Alabama	
Frankfort, Kentucky	
Gloucester, Virginia	
Southwest Virginia Field Office	
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Table C-6 Agencies in Georgia Sent a Copy of the Public Scoping Notice

Table C-6. Agencies in Georgia Sent a Copy of the Public Scoping Notice
Georgia State Agencies
Department of Economic Development – Tourism and Marketing
Department of Natural Resources
Fisheries
State Historic Preservation Officer
State Parks and Historic Sites Division
Wildlife Resources
Georgia State Clearinghouse

Table C-7. Agencies in Alabama Sent a Copy of the Public Scoping Notice

Table C-7. Agencies in Alabama Sent a Copy of the Fublic Scoping Notice
Alabama State and Regional Agencies
Alabama Elk River Development Agency
Bear Creek Development Authority
Boating Law Administrator
Department of Agriculture and Industries
Department of Conservation and Natural Resources Division of State Parks
Department of Economic and Community Affairs
Department of Environmental Management
Department of Transportation
Forestry Commission
Historical Commission
North-Central Alabama Regional Council of Governments
Northwest Alabama Council of Local Governments
Top of Alabama Regional Council of Governments

**Tourism Department** 

Table C-8. Agencies in Kentucky Sent a Copy of the Public Scoping Notice		
Kentucky State Agencies		
Arts and Heritage Cabinet		
Tourism		
Department of Parks		
Energy and Environment Cabinet		
Department for Environmental Protection		
Division of Water Quality		
Division of Air Quality		
Heritage Council		
State Historic Preservation Officer		

Table C-9. Agencies in Mississippi Sent a Copy of the Public Scoping Notice

Mississippi State and Regional Agencies
Department of Archives and History
Department of Environmental Quality
Department of Finance and Administration
Department of Wildlife, Fisheries, and Parks
Division of Tourism Development
Northeast Mississippi Planning and Development District
Tombigbee River Valley Water Management District

Table C-10. Agencies in North Carolina Sent a Copy of the Public Scoping Notice

North Carolina State Agencies
Department of Commerce
Tourism, Marketing, and Global Branding
Division of Archives and History
Division of Parks and Recreation
National Forests in North Carolina
North Carolina State Clearinghouse

Table C-11. Agencies in Tennessee Sent a Copy of the Public Scoping Notice

Tennessee State and Regional Agencies			
Beech River Development Authority			
Department of Agriculture			
Department of Economic and Community Development			
Department of Environment and Conservation			
Division of Air Pollution Control			
Division of Archaeology			
Division of Natural Heritage			
Division of Recreation Educational Services			
Division of Water Pollution Control			
Historical Commission			
Parks and Conservation Operations			
Department of Tourism Development			
Department of Transportation			
Environmental Planning and Permits Division			
East Tennessee Development District			
First Tennessee Development District			
Greater Nashville Regional Council			
Memphis Area Association of Governments			
Northwest Tennessee Development District			
South Central Tennessee Development District			
Southeast Tennessee Development District			
Southwest Tennessee Development District			
Tellico Reservoir Development Agency			
Tennessee Duck River Development Agency			
Tennessee Wildlife Resources Agency			
Upper Cumberland Development District			

Table C-12. Agencies in Virginia Sent a Copy of the Public Scoping Notice

Virginia State and Regional Agencies
Department of Conservation and Recreation
Department of Environmental Quality
Division of Environmental Enhancement
Department of Game and Inland Fisheries
Department of Historic Resources
Department of Transportation
Policy, Planning, and Environment
Mount Rogers Planning District Commission
Virginia Tourism Corporation

Table C-13. Agencies That Commented on the Public Scoping Notice

# Federal Agencies

Natural Resources Conservation Service

Georgia (State Conservationist)

North Carolina

U.S. Fish and Wildlife Service

Asheville, North Carolina

Cookeville, Tennessee

Daphne, Alabama

Frankfort, Kentucky

# **State and Regional Agencies**

Alabama Department of Conservation and Natural Resources

Georgia Clearinghouse

Georgia Department of Natural Resources

Historic Preservation Division

Greater Nashville Regional Council

Kentucky Energy and Environment Cabinet

Division of Water

Mississippi Clearinghouse

North Carolina Clearinghouse

North Carolina Wildlife Resources Commission

Division of Inland Fisheries

Tennessee Department of Agriculture

Tennessee Department of Transportation

Tennessee Department of Water Supply

**Upper Cumberland Development District** 

Virginia Department of Environmental Quality

Office of Environmental Impact Review

Virginia Department of Game and Inland Fisheries

Virginia Department of Health

Office of Drinking Water

Virginia Department of Transportation

Natural Resources Program

# **Organizations or Community Groups**

American Whitewater

**Environmental Integrity Project** 

Scottsboro Forest Products

Solar Valley Coalition

Tennessee Citizens for Wilderness Planning

Tennessee Environmental Coalition

The Friends of Norris Lake

World Wildlife Fund



Appendix D – Reservoir Lands Planning: Forecast System Designations



# FORECAST SYSTEM DESIGNATIONS

Forecast	Definition
Designation	
Dam Reservation	Land managed to protect the integrity of the dam and associated switchyards and power lines. Most TVA dam reservations provide a visitor reception building that overlooks the facilities. Day use recreational activities such as picnicking, fishing, hiking, and bird watching are encouraged. Campgrounds and boat-launching facilities are often available. Generally speaking, maintenance levels and care of the facilities are higher on dam reservation land than on other areas of the reservoir. Hunting and unregulated camping are generally prohibited on the reservations.
Public Recreation	Land set aside for use by the public for recreational activities. This includes informal, dispersed activities such as hunting, hiking, fishing, and primitive camping, as well as more formal activities in developed areas such as parks, boat-launching areas, and campgrounds.
Reservoir Operations (Islands)	Islands in the mainstream or tributaries used for informal, dispersed recreation and natural resource management projects.
Reservoir Operations (Mainland)	Generally narrow bands of shoreland retained by TVA for flood control and other reservoir operations purposes. Although there are no outstanding rights to construct water use facilities, TVA allowed back-lying residential property owners to construct facilities on these lands until 1992. Since 1992, facilities have only been allowed on reservoir operations land in those areas where existing facilities have been permitted.
Power Transmission and Power Needs	Land reserved for future power development or to maintain the integrity of existing power lines. Interim wildlife enhancement projects are often implemented on these lands.
Commercial Recreation	Land that TVA has reserved primarily for commercial use. This use includes, but is not limited to, marinas, commercial boat docks, and campgrounds. Informal, dispersed recreational activities often occur on this land as an interim use.
Minor Commercial Landings	Tracts allocated for minor commercial landings available for public or private development of small-scale barge facilities. These are sites that can be used for transferring pulpwood, sand, gravel, and other natural resource commodities between barges and trucks. Since this use is intermittent and usually not a major activity, there would generally be no significant impact on adjacent land uses.
Industrial	Land that TVA identified as having potential for future industrial development. Informal, dispersed recreational activities often occur on this land as an interim use.
Navigation Safety Harbors Landings	Sites used for tying off commercial barge tows and recreational boats during adverse weather conditions. Safety landings are straight stretches of shoreline fronting the commercial channel, and safety harbors are shoreline areas recessed into coves or creeks off the commercial channel.

Forecast Designation	Definition
Forestry Research	Tracts used as ongoing sites for monitoring tree growth and stress. In addition, trees are used in these areas to produce reliable seed sources.
Steam Plant Study	Tracts set aside to potentially serve as a future steam plant location. The actual construction of a steam plant would depend on energy demands and cost-benefit considerations.
Wildlife Management	Land managed for the enhancement of natural resources for human use and appreciation. Management of resources is the primary focus of this designation. Management strategies include planting food plots, selective timber harvesting, and other forms of manipulating habitat to attract certain wildlife species. Appropriate activities in this zone include hunting, wildlife observation, and camping on undeveloped sites.
Small Wild Areas	These TVA natural areas are areas managed by TVA or in cooperation with other public agencies or private conservation organizations to protect exceptional natural or aesthetic qualities that can also support dispersed, low-impact types of outdoor recreation. Where appropriate, development could include foot trails, signs, parking areas, and primitive camping, and efforts can be undertaken to encourage the public and interpretation for visitors.

Appendix E – Reservoir Lands Planning: Multiple Use Tract Allocation Methodology



# METHODOLOGY APPLIED DURING MULTIPLE USE TRACT ALLOCATION

#### Overview

The multiple use tract allocations reservoir lands planning process was based on active participation by various TVA staffs, other government agencies, nongovernment organizations, and the public. Comments from these groups were used to identify regional and local land management needs and to develop reservoir-specific objectives for realizing TVA's reservoir land management goals, which include:

- Protecting the visual and environmental quality of reservoirs and adjoining lands.
- Providing a diversity of quality recreation opportunities on TVA reservoirs and adjoining land.
- Planning for and promoting responsible economic development and growth.
- Protecting and enhancing the forestry, fisheries, and wildlife resources, as well as
  preserving the cultural and agricultural resources around the reservoir area for
  future generations.

Specific objectives or steps for reaching these goals were developed from the advice and technical expertise of TVA staff and from public input about local values and priorities related to land use. Because the public's interests and the available resource base are different on each reservoir, the management objectives were tailored to fit the specific reservoir.

The reservoir land management plans (RLMPs) guided TVA resource management and property administration decisions on the reservoir lands that are under TVA stewardship and control. It identified the most suitable uses for all the tracts of TVA-managed land, providing sites for recreation, industry, navigation, wildlife and forest management, cultural and environmental preservation, and agriculture.

The planned acreage was TVA-retained (fee-owned) land. The remaining portions of shoreline not addressed in the RLMPs fell into the following two categories:

- Shoreline fronting land formerly owned by TVA that has been sold or transferred for commercial, industrial, or public recreation purposes, or that has been transferred to other government agencies for uses other than public recreation, or that has been committed by TVA for dam reservations or power plants.
- Shoreline fronting former TVA reservoir land commonly referred to as "marginal strip" that was sold for private development purposes with deeded rights to request approval for construction of private shoreline improvements (boat docks, ramps, seawalls, etc.); this category also includes TVA-retained rights on sold land and the acquired rights to flood private land that was never owned by TVA.

In relation to TVA property administration, the RLMPs provided information that allowed a faster response to requests for the use of TVA-managed land. All requests for changes to the RLMP or requests for use of TVA-managed land were subject to TVA review through the reservoir land use review process. When requests are received, TVA staff would compare the request with the use allocated in the RLMP. If the request is not congruent

with the RLMP, the RLMP would be used to identify alternative tracts that are more suitable for the proposal, or the applicant may be given the opportunity to provide information that warrants a modification to the RLMP in the public's interest.

The RLMP established general guidelines for use of each tract, but "on-the-ground" management activities would be more clearly defined by TVA's resource management staffs. TVA land resource staffs comply with state-approved best management practices (BMPs) when implementing land management activities. The agency performs appropriate levels of environmental review on all proposed actions, including requests from the public for use of TVA-managed lands (e.g., recreational and industrial easements or permits under Section 26a of the TVA Act). Most actions are classified as categorical exclusions (i.e., actions which by their very nature have no significant environmental impacts) and are subjected to environmental review in the form of a categorical exclusion checklist. However, actions or proposals that do not qualify as categorical exclusions may require an environmental assessment or environmental impact statement as stipulated under TVA's procedures for compliance with NEPA.

Most RLMPs encompassed a 10-year planning horizon. During this time, TVA would monitor growth pressures, economic trends, and environmental conditions around the reservoir. The supporting database would be updated on a regular basis. Revisions to an RLMP would be considered as changing circumstances warrant. After 10 years, TVA would review the data, solicit public input, and update the RLMP, as appropriate.

# **Planning Team Mission**

A planning team, representing various staffs within TVA, undertook a detailed planning process that resulted in the land use allocations presented in RLMPs. Site visits, public input, and information from TVA's resource specialists were carefully analyzed in making land use allocations.

## Reservoir Resource Data

TVA's resource specialists provided information that was used to develop an extensive computerized database about physical resource characteristics of the land; existing uses of TVA-managed land and adjoining property; economic conditions in the area; and such environmental constraints as wetlands, floodplains, threatened and endangered species, and water and air quality. Other resource data, often more detailed, were collected on site-specific archaeological concentrations, historic structures, forest resources, prime farmland, and wildlife habitats. Some data were gathered from a designated study area that extended about 0.5 mile from TVA's property line.

# **Public Information Process**

In addition to documented resource data, local residents and lake users were important in determining suitable uses for TVA-managed lands adjacent to the reservoir. TVA made a concerted effort to inform and encourage the public to participate in the development of the RLMP.

Key contacts were made by the planning staff with local community cooperators, such as county commissions. The goal was to encourage local officials and community leaders to attend the informational meetings held in local areas. The purpose was to inform and encourage government officials; service and civic organizations; congressional field staffs; chambers of commerce; industrial, tourism, and commercial development groups;

environmental groups; and other citizens to participate in the planning process for the reservoir.

Informational meetings were held in numerous locations throughout the local areas. At each meeting, TVA staff briefly described the upcoming planning effort as it related to future use of TVA-managed lands around the reservoir(s). TVA staff attempted to explain the planning process and the importance of public involvement in development of a quality RLMP to the participants. By taking this approach, TVA believed the public would be better informed at an early stage and would want to participate in future public workshops.

Media contacts and news releases were made available to local TV stations, radio stations, and area newspapers. In addition, TVA's planning staff initiated an extensive mailing campaign to invite by personal letter, individuals, government officials, area special interest groups, and organizations to attend the scheduled public workshops. The focus was to provide information packages about the planning process and about what each participant could expect at the workshops. By using these processes plus a mix of written invitations, public service announcements, media feature stories, letters about the project taken home by schoolchildren, and local constituent networks, TVA hoped for the maximum attendance and productivity at each workshop.

# **Public Workshops**

Public workshops were held to ask participants specific questions about the reservoir(s). The planning team attended each public workshop and used the compiled agency and public comments, along with technical advice from TVA staffs, to develop the reservoir goals and management objectives of the RLMPs. These objectives provided guidelines for the planning team's analysis of available information and their subsequent identification of appropriate land uses for the TVA-managed land.

## **Capability Analysis**

In the first phase of a two-phase analysis, the planning team analyzed the ability of the reservoir lands to support various uses. TVA staffs provided the planning team with capability ratings of excellent, good, fair, or poor for every possible use on each tract of TVA-managed land. The ratings were based on an analysis of specific criteria that indicated whether a tract was physically capable of supporting a given use.

## **Suitability Analysis and Tract Allocation**

The second phase, a land use suitability analysis, is based on the capability ratings as well as other factors such as previous investments, interest by other agencies, TVA's objectives, and local or regional needs. TVA staff provided the planning team with maps exhibiting proposed uses for the TVA-managed land. Along with the map, each staff provided a written narrative and land needs justification for every tract of TVA-managed land requested by that staff. The planning team then compared a map of all the proposed uses with other maps and written justifications that identified existing resource data, such as wetlands, floodplain locations, threatened or endangered species, prime farmland, and historic or archaeological resource sites. In some cases, the data showed obvious constraints or conflicts with proposed uses, and such obvious unsuitable uses were eliminated. The planning team then analyzed the suitability of remaining potential uses by reviewing other information, such as the economic conditions of the reservoir area, the reservoir management objectives, public comment, and TVA land management goals and policies. Through debate and discussion, the planning team arrived at a consensus agreement and identified the most suitable use or uses for each tract of TVA-managed land.

#### Natural Resource Plan

## **Review Process**

After allocating each tract of land for one or more compatible uses, the planning team looked at the entire RLMP in terms of how it met the reservoir management goals and planning objectives. In areas where the planning team felt the objectives were not met, adjustments were made to the RLMP. On tracts where uncertainty existed or there was specific conflict about appropriate use, the planning team made additional field inspections to ensure proper allocations. The RLMP was then reviewed within TVA and revised. The revised RLMP was mailed to individuals, agencies, and organizations for their review. A compilation of all the comments received, along with the TVA staff responses, was prepared. The responses included recommendations for changes to the RLMP based on the public input, review of the database, and consideration of the reservoir management goals and objectives.

Appendix F – Reservoir Lands Planning: Land Use Zone Definitions



**ALTERNATIVE A (CURRENT) LAND USE ZONE DEFINITIONS** 

	Zone Definition	
1	Non-TVA Shoreland	Shoreland that TVA does not own in fee. This land may be privately owned or owned by a governmental entity other than TVA. Uses of this non-TVA land may include residential, industrial, commercial, and/or agricultural. In many instances, TVA may have purchased the right to flood and/or limit structures on this non-TVA land (i.e., flowage easement). TVA's permitting authority under Section 26a of the TVA Act applies to construction of structures on non-TVA shoreland.
		Non-TVA Shoreland allocations are based on deeded rights and, therefore, will not change as a result of the land planning process. This category is provided to assist in comprehensive evaluation of potential environmental impacts of TVA's allocation decision.
		Land currently used, or planned for future use, for TVA operations and public works projects, including:
		Land adjacent to established navigation operations—Locks, lock operations and maintenance facilities, and the navigation work boat dock and bases.
		Land used for TVA power projects operations—Generation facilities, switchyards, and transmission facilities and rights-of-way.
2	Project Operations	Dam reservation land—Areas acquired and managed for the primary purpose of supporting the operation and maintenance of TVA dams and associated infrastructure; secondary uses may also include developed and dispersed recreation, maintenance facilities, watershed team offices, research areas, and visitor centers.
		Navigation safety harbors/landings—Areas used for tying off commercial barge tows and recreational boats during adverse weather conditions or equipment malfunctions.
		Navigation dayboards and beacons—Areas with structures placed on the shoreline to facilitate navigation.
		Public works projects—Includes public utility infrastructure, such as substations and rights-of-way for sewer lines, water lines, transmission lines, and major highway projects.
		Land managed for protection and enhancement of sensitive resources.  Sensitive resources, as defined by TVA, include resources protected by state or federal law or executive order and other land features/natural resources TVA considers important to the area viewscape or natural environment.
		Recreational natural resource activities, such as hunting, wildlife observation, and camping on undeveloped sites, may occur in this zone, but the overriding focus is protecting and enhancing the sensitive resource the site supports. Areas included are:
3	Sensitive Resource	TVA-designated sites with potentially significant archaeological resources.
	Management	TVA public land with sites/structures listed in or eligible for listing in the National Register of Historic Places.
		Wetlands—Aquatic bed, emergent, forested, and scrub-shrub wetlands as defined by TVA.
		TVA public land under easement, lease, or license to other agencies/individuals for resource protection purposes.
		TVA public land fronting land owned by other agencies/individuals for resource protection purposes.

Zone		Definition
		Habitat protection areas—These TVA natural areas are managed to protect populations of species identified as threatened or endangered by the U.S. Fish and Wildlife Service, state-listed species, and any unusual or exemplary biological communities/geological features.
		Ecological study areas—These TVA natural areas are designated as suitable for ecological research and environmental education by a recognized authority or agency. They typically contain plant or animal populations of scientific interest or are of interest to an educational institution that would utilize the area.
		Small wild areas—These TVA natural areas are managed by TVA or in cooperation with other public agencies or private conservation organizations to protect exceptional natural, scenic, or aesthetic qualities that can also support dispersed, low-impact types of outdoor recreation.
		River corridor with sensitive resources present—A river corridor is a segment of a river and the adjacent land along the banks. River corridors often consist of a linear green space of TVA land serving as a buffer to tributary rivers entering a reservoir. These areas will be included in Zone 3 when identified sensitive resources are present.
		Significant scenic areas  —Areas designated for visual protection because of their unique vistas or particularly scenic qualities.
		Champion tree site—Areas designated by TVA as sites that contain the largest known individual tree of its species in that state. The state forestry agency "Champion Tree Program" designates the tree, while TVA designates the area of the sites for those located on TVA public land.
		Other sensitive ecological areas—Examples of these areas include heron rookeries, uncommon plant and animal communities, and unique cave or karst formations.
		Land managed for the enhancement of natural resources for human use and appreciation. Management of resources is the primary focus of this zone. Appropriate activities in this zone include hunting, timber management to promote forest health, wildlife observation, and camping on undeveloped sites. Areas included are:
		TVA public land managed for wildlife or forest management projects.
		TVA public land under easement, lease, or license to other agencies for wildlife or forest management purposes.
		TVA public land fronting land owned by other agencies for wildlife or forest management purposes.
4	Natural Resource Conservation	Dispersed recreation areas maintained for passive, dispersed recreation activities, such as hunting, hiking, bird watching, photography, primitive camping, bank fishing, and picnicking.
	Conservation	Shoreline conservation areas—Narrow riparian strips of vegetation between the water's edge and TVA's back-lying property that are managed for wildlife, water quality, or visual qualities.
		Wildlife observation areas—TVA natural areas with unique concentrations of easily observed wildlife that are managed as public wildlife observation areas.
		• River corridor without sensitive resources present—A river corridor is a linear green space along both stream banks of selected tributaries entering a reservoir managed for light boat access at specific sites, riverside trails, and interpretive activities. River corridors will be included in Zone 4 unless sensitive resources are present (see Zone 3).
		Islands of 10 acres or less.

	Zone	Definition
		Land currently used, or planned for future use, for economic development, including businesses in distribution/processing/assembly and light manufacturing. Preference will be given for businesses requiring water access. There are two primary types of uses for TVA land allocated for Industrial: (1) access for water supply or structures associated with navigation such as barge terminals, mooring cells, etc., or (2) land-based development potential.
		Areas included are:
		<ul> <li>TVA public land under easement, lease, or license to other agencies/ individuals/entities for industrial purposes.</li> </ul>
		TVA public land fronting land owned by other agencies/individuals/entities for industrial purposes.
		In some cases, TVA land allocated to industrial use would be declared surplus and sold at public auction.
		Types of development that can occur on this land are:
5	Industrial	Light industrial—TVA waterfront land that would support light manufacturing activities. Light industry does not include retail or service-based businesses.
		<ul> <li>Industrial access—Access to the waterfront by back-lying property owners across TVA property for water intakes, wastewater discharge, or conveyance of commodities (i.e., pipelines, rail, or road). Barge terminals are associated with industrial access corridors.</li> </ul>
		Barge terminal sites—Public or private facilities used for the transfer, loading, and unloading of commodities between barges and trucks, trains, storage areas, or industrial plants.
		<ul> <li>Fleeting areas—Sites used by the towing industry to switch barges between tows or barge terminals that have both offshore and onshore facilities.</li> </ul>
		Minor commercial landing—A temporary or intermittent activity that takes place without permanent improvements to the property. These sites can be used for transferring pulpwood, sand, gravel, and other natural resource commodities between barges and trucks.
		Land currently used, or planned for future use, for concentrated, active recreational activities that require capital improvement and maintenance of developed infrastructure, including:
		TVA public land developed for recreational purposes, such as campgrounds, day use areas, etc.
		TVA public land under easement, lease, or license to other agencies/individuals/entities for developed recreational purposes.
6	Developed	<ul> <li>TVA public land fronting land owned by other agencies/individuals/ entities for developed recreational purposes.</li> </ul>
	Recreation	Residential use, long-term accommodations, and/or individually owned units are not permitted on land allocated for Developed Recreation. Types of development that can occur on this land are:
		Water access—Recreation, generally on small shoreline areas, involving primarily limited levels of development that may include a launching ramp, courtesy piers, canoe access, picnic areas, trails, associated parking areas, etc. These areas are typically operated by federal, state, or local governmental entities for public access.
		Public recreation  Recreation with facilities or uses developed and owned by a public agency that are open to the public. Facilities at public.  Output  Description  Des

Zone		Definition
		recreation areas could include playgrounds/play structures, picnic facilities, tennis courts, horseshoe areas, play courts, recreation centers, athletic fields, trails, greenways, natural areas, amphitheaters, food concessions (vending, snack bar), access to water for fishing and boating, swimming areas and swimming pools, marina facilities owned by the public entity, parking, and campgrounds. Cabins or other overnight accommodations (other than campgrounds) are only permitted if the public recreation area is operated by a state or state agency as a component of a state park system.
		Public recreation areas and facilities are typically owned and operated by the federal, state, county, or local government. However, private entities may operate recreation facilities on public recreation land as concessionaires under agreement with the public entity controlling the property. The use of the facilities may be offered free or for a fee. Timeforward, public-private partnerships where facilities are owned by private investors will not be approved on public recreation land. All structures and facilities should be owned by the public entity.
		Commercial recreation—Recreation amenities that are provided for a fee to the public intending to produce a profit for the private owner/operator. These primarily water-based facilities typically include marinas and affiliated support facilities such as stores, restaurants, campgrounds, and cabins and lodges. Where applicable, TVA will require appropriate compensation for the commercial use of the property.
		TVA-owned land where Section 26a applications and other land use approvals for residential shoreline alterations are considered. Requests for residential shoreline alterations are considered on parcels identified in this zone where such use was previously considered and where the proposed use would not conflict with the interests of the public. Types of development/management that may be permitted on this land are:
7	Shoreline Access	Residential water use facilities, e.g., docks, piers, launching ramps/driveways, marine railways, boathouses, enclosed storage space, and nonpotable water intakes.
		Shoreline access corridors, e.g., pathways, wooden steps, walkways, or mulched paths that can include portable picnic tables and utility lines.
		Shoreline stabilization, e.g., bioengineering, riprap, gabions, and retaining walls.
		Shoreline vegetation management.

# ALTERNATIVES B, C, AND D PROPOSED LAND USE ZONE DEFINITIONS

ALIE	·	C, AND D PROPOSED LAND USE ZONE DEFINITIONS						
Zone		Definition						
1	Non-TVA Shoreland	Shoreland that TVA does not own in fee. This land may be privately owned or owned by a governmental entity other than TVA. Uses of this non-TVA land may include residential, industrial, commercial, and/or agricultural. In many instances, TVA may have purchased the right to flood and/or limit structures on this non-TVA land (i.e., flowage easement). TVA's permitting authority under Section 26a of the TVA Act applies to construction of structures on non-TVA shoreland.  Non-TVA Shoreland allocations are based on deeded rights and, therefore, will						
		not change as a result of the land planning process. This category is provided to assist in comprehensive evaluation of potential environmental impacts of TVA's allocation decision.						
		Land currently used, or planned for future use, for TVA operations and public works projects, including:						
		Land adjacent to established navigation operations—Locks, lock operations and maintenance facilities, and the navigation work boat dock and bases.						
		Land used for TVA power projects operations—Generation facilities, switchyards, and transmission facilities and rights-of-way.						
2	Project Operations	Dam reservation land—Areas acquired and managed for the primary purpose of supporting the operation and maintenance of TVA dams and associated infrastructure; secondary uses may also include developed and dispersed recreation, maintenance facilities, miscellaneous TVA field offices, research areas, and visitor centers.						
		Navigation safety harbors/landings—Areas used for tying off commercial barge tows and recreational boats during adverse weather conditions or equipment malfunctions.						
		Navigation dayboards and beacons—Areas with structures placed on the shoreline to facilitate navigation.						
		Public works projects—Includes rights-of-way for public utility infrastructure, such as sewer lines, water lines, transmission lines, and major highway projects.						
		Land managed for protection and enhancement of sensitive resources.  Sensitive resources, as defined by TVA, include resources protected by state or federal law or executive order and other land features/natural resources TVA considers important to the area viewscape or natural environment.						
		Recreational natural resource activities, such as hunting, wildlife observation, and camping on undeveloped sites, may occur in this zone, but the overriding focus is protecting and enhancing the sensitive resource the site supports. Areas included are:						
3	Sensitive Resource	TVA-designated sites with potentially significant archaeological resources.						
	Management	TVA public land with sites/structures listed in or eligible for listing in the National Register of Historic Places.						
		Wetlands—Aquatic bed, emergent, forested, and scrub-shrub wetlands as defined by TVA.						
		TVA public land under easement, lease, or license to other agencies/individuals for resource protection purposes.						

	Zone	Definition
		TVA public land fronting land owned by other agencies/individuals for resource protection purposes.
		Habitat protection areas—These TVA natural areas are managed to protect populations of species identified as threatened or endangered by the U.S. Fish and Wildlife Service, state-listed species, and any unusual or exemplary biological communities/geological features.
		Ecological study areas—These TVA natural areas are designated as suitable for ecological research and environmental education by a recognized authority or agency. They typically contain plant or animal populations of scientific interest or are of interest to an educational institution that would utilize the area.
		Small wild areas—These TVA natural areas are managed by TVA or in cooperation with other public agencies or private conservation organizations to protect exceptional natural, scenic, or aesthetic qualities that can also support dispersed, low-impact types of outdoor recreation.
		River corridor with sensitive resources present—A river corridor is a segment of a river and the adjacent land along the banks. River corridors often consist of a linear green space of TVA land serving as a buffer to tributary rivers entering a reservoir. These areas will be included in Zone 3 when identified sensitive resources are present.
		Significant scenic areas—Areas designated for visual protection because of their unique vistas or particularly scenic qualities.
		Champion tree site—Areas designated by TVA as sites that contain the largest known individual tree of its species in that state. The state forestry agency "Champion Tree Program" designates the tree, while TVA designates the area of the sites for those located on TVA public land.
		Other sensitive ecological areas—Examples of these areas include heron rookeries, uncommon plant and animal communities, and unique cave or karst formations.
		Land managed for the enhancement of natural resources for human use and appreciation. Management of resources is the primary focus of this zone. Appropriate activities in this zone include hunting, timber management to promote forest health, wildlife observation, and camping on undeveloped sites. Areas included are:
		TVA public land managed for wildlife or forest management projects.
		TVA public land under easement, lease, or license to other agencies for wildlife or forest management purposes.
	Natural	TVA public land fronting land owned by other agencies for wildlife or forest management purposes.
4	Resource Conservation	Dispersed recreation areas maintained for passive, dispersed recreation activities, such as hunting, hiking, bird watching, photography, primitive camping, bank fishing, and picnicking.
		Shoreline conservation areas—Narrow riparian strips of vegetation between the water's edge and TVA's back-lying property that are managed for wildlife, water quality, or visual qualities.
		Wildlife observation areas—TVA natural areas with unique concentrations of easily observed wildlife that are managed as public wildlife observation areas.
		River corridor without sensitive resources present—A river corridor is a linear green space along both stream banks of selected tributaries entering a reservoir managed for light boat access at specific sites, riverside trails,

	Zone	Definition
		and interpretive activities. River corridors will be included in Zone 4 unless sensitive resources are present (see Zone 3).
		Islands without sensitive resources or existing development.
		Land currently used, or planned for future use, for economic development, including businesses in distribution/processing/assembly and manufacturing. Preference will be given for businesses requiring water access. There are two primary types of uses for TVA land allocated for Industrial: (1) access for water supply or structures associated with navigation such as barge terminals, mooring cells, etc., or (2) land-based development potential.
		Areas included are:
		TVA public land under easement, lease, or license to other agencies/ individuals/entities for industrial purposes.
		TVA public land fronting land owned by other agencies/individuals/ entities for industrial purposes.
		In some cases, TVA land allocated to industrial use would be declared surplus and sold at public auction.
		Types of development that can occur on this land are:
5	Industrial	Industry—Manufacturing, fabrication, and distribution/processing/assembly involving chemical, electronics, metalworking, plastics, telecommunications, transportation, and other industries. Industry does not include retail or service-based businesses.
		Industrial access—Access to the waterfront by back-lying property owners across TVA property for water intakes, wastewater discharge, or conveyance of commodities (i.e., pipelines, rail, or road). Barge terminals are associated with industrial access corridors.
		Barge terminal sites—Public or private facilities used for the transfer, loading, and unloading of commodities between barges and trucks, trains, storage areas, or industrial plants.
		Fleeting areas—Sites used by the towing industry to switch barges between tows or barge terminals that have both offshore and onshore facilities.
		Minor commercial landing—A temporary or intermittent activity that takes place without permanent improvements to the property. These sites can be used for transferring pulpwood, sand, gravel, and other natural resource commodities between barges and trucks.
		Land currently used, or planned for future use, for concentrated, active recreational activities that require capital improvement and maintenance of developed infrastructure, including:
		TVA public land developed for recreational purposes, such as campgrounds, day use areas, etc.
6	Developed Recreation	TVA public land under easement, lease, or license to other agencies/individuals/entities for developed recreational purposes.
	Recreation	TVA public land fronting land owned by other agencies/individuals/ entities for developed recreational purposes.
		Residential use, long-term accommodations, and/or individually owned units are not permitted on land allocated for Developed Recreation. Types of development that can occur on this land are:
		Public recreation—Recreation amenities developed and owned by a public agency that are open to the public. Public recreation areas may

	Zone	Definition
		have varying levels of development, ranging from a water access site (e.g., launching ramp) to a marina facility. Facilities at public recreation areas could include playgrounds/play structures, picnic facilities, tennis courts, horseshoe areas, play courts, recreation centers, trails, greenways, natural areas, amphitheaters, food concessions (vending, snack bar), access to water for fishing and boating, swimming areas and swimming pools, launching ramps, courtesy piers, canoe access, marina facilities owned by the public entity, parking, and campgrounds. Cabins or other overnight accommodations (other than campgrounds) are only permitted if the public recreation area is operated by a state or state agency as a component of a state park system.
		Public recreation areas and facilities are typically owned and operated by the federal, state, county, or local government. However, private entities may operate recreation facilities on public recreation land as concessionaires under agreement with the public entity controlling the property. The use of the facilities may be offered free or for a fee. Timeforward, public-private partnerships where facilities are owned by private investors will not be approved on public recreation land. All structures and facilities should be owned by the public entity.
		Commercial recreation—Recreation amenities that are provided for a fee to the public intending to produce a profit for the private owner/operator. These primarily water-based facilities typically include marinas and affiliated support facilities such as stores, restaurants, campgrounds, and cabins and lodges. Where applicable, TVA will require appropriate compensation for the commercial use of the property.
		TVA-owned land where Section 26a applications and other land use approvals for residential shoreline alterations are considered in accordance with TVA's Shoreline Management Policy. Types of development/management that may be permitted on this land are:
7	Shoreline Access	Residential water use facilities, e.g., docks, piers, launching ramps/driveways, marine railways, boathouses, enclosed storage space, and nonpotable water intakes.
		Shoreline access corridors, e.g., pathways, wooden steps, walkways, or mulched paths that can include portable picnic tables and utility lines.
		Shoreline stabilization, e.g., bioengineering, riprap, gabions, and retaining walls.
		Shoreline vegetation management.

Appendix G – Reservoir Lands Planning: Single Use Parcel Allocation and Rapid Land Assessment Methodologies



# METHODOLOGY APPLIED DURING SINGLE USE PARCEL ALLOCATION

### Overview

In order to systematically manage lands around its reservoirs, TVA develops reservoir land management plans (RLMPs). RLMPs seek to integrate land and water program goals, provide for the optimum public benefit, and balance competing and sometimes conflicting resource uses. By providing a clear statement of how TVA intends to manage land and by identifying each parcel for specific purposes, TVA hopes to facilitate decision-making for the use of the public land in its care. Land planning guides TVA in the management of resources and property administration decisions on land under its control. Plans are adopted as Agency policy, providing for long-term land stewardship and accomplishment of TVA responsibilities under the 1933 TVA Act.

TVA's integrated resource management approach focuses on balancing flood control, navigation, power generation, water quality, recreation, and land use needs to obtain the optimum benefit for the whole system. Land planning supports TVA's vision of generating prosperity in the Valley by addressing the goals of supporting a thriving river system and stimulating economic growth. To that end, RLMP provides a framework for deciding the optimum use of TVA-managed land and promotes the efficient operation of the TVA reservoir system.

# **Preplanning**

Planning is preceded by preplanning, a set of specific activities that must occur before planning can start. Specifically, TVA would determine the readiness to plan. An RLMP is a complex task requiring many specific skills, resources, and capabilities. A planning team would be organized. Planning is a large task that requires sustained attention from a mixed skills team for the duration of the project. Preplanning provides time to select team leadership and team members and to develop budgets and schedules. Reservoir-specific planning goals are developed by the planning team early in the planning process to guide the allocation of TVA-managed land. The goals should reflect TVA's management objectives for the reservoir, the results of public scoping and intergovernmental coordination, and TVA staff preferences.

An Interdisciplinary Team (IDT) would be assembled to help conduct the environmental review. A communication plan is developed to lay out a strategy for interfacing with TVA management and project stakeholders for the duration of the planning process. A reservoir base map is prepared. This map is used as a base to overlay all resource data coverages, parcel allocations, and other map information for all RLMP project maps.

### **Preallocation**

The planning team maps all existing data for endangered or threatened species, wetlands, natural areas, aquatic habitat, and cultural resources. Next, the committed and uncommitted lands would be identified and mapped. Planning focuses on the uncommitted land, although land use changes can be proposed for committed land. The existing land use is documented in a conversion matrix, and the parcels are numbered. Most TVA reservoirs have either an existing RLMP or a designation from the Forecast System.

During preallocation, the planning team, IDT, and other TVA staff members would weigh the land capability and suitability against public and programmatic needs and existing land conditions. Because the RLMP process assumes the protection of all sensitive resources, all parcels with known sensitive resources should be allocated to Zone 3. TVA staff would assess and document the suitability and capability attributes of sought-after parcels to be preallocated to Zones 2, 4, 5, and 6. The assessment is based on an established set of capability/suitability criteria for Economic Development, Navigation, Developed Recreation, Visual Resources, and Natural Resource Stewardship. A preallocation map would be used to solicit comments from the public.

At the conclusion of preallocation, the following objectives would be met:

- Resolution of any remaining conflicting zone designations on tracts/parcels with multiple allocated uses
- Alignment of zone allocations with planning goals
- Notation of parcels identified by the public or TVA for development for future data collection and IDT review

### **New Data Collection**

Public input is essential for identifying land for specific uses, gaining insight into stakeholders needs, and defining project issues and concerns. After a public input period has ended, the planning team would compile data from stakeholder consultations and modify any preallocation designations, if appropriate.

### Allocation and Draft RLMLP

During allocation, preallocated land uses are adjusted, as needed, to reflect public input and new data. The zone and parcel boundary decisions are recorded in a final allocation map for each alternative under consideration. Adjustments to the Shoreline Categorization Map (see TVA's *Shoreline Management Initiative*, 1998) may be needed to reflect corrections to landrights data and sensitive resource data from field collection.

#### Final RLMP

Potential changes to the draft RLMP are based on public and agency comments and TVA directives. Once all revisions have been completed, the planning team produces a final RLMP for approval by the TVA Board of Directors or the appropriate designee.

### **NEPA**

Throughout the processes mentioned above, the necessary steps to complete the appropriate environmental review would be finalized as dictated in TVA's NEPA procedures located at http://www.tva.gov/environment/reports/pdf/tvanepa\_procedures.pdf.

# METHODOLOGY APPLIED DURING RAPID LANDS ASSESSMENT

#### Overview

With the varying methodologies and allocations, it was often difficult to calculate the acreage of public lands that had been planned for sensitive resources, natural resource management, industrial development, and recreation. In 2006, the Rapid Lands Assessment (RLA) methodology was developed to quickly convert the Multiple Use Tract Allocations and Forecast System designations to Single Use Parcel Allocations or zones.

### **Planning**

A planning team was organized that included biologists, foresters, geographic information systems (GIS) specialists, lands planners, land use specialists, recreation planners, and water quality specialists. The goal of the planning team was to document existing land use conditions into a single allocation designation for Beech River, Chickamauga, Kentucky, Nickajack, Normandy, and Wheeler reservoirs. The current land use zones and definitions are consistent with those mentioned in the Single Use Parcel Allocation methodology.

#### Allocation

The planning team mapped all existing data for endangered or threatened species, wetlands, natural areas, aquatic habitat, and cultural resources. Since RLA methodology assumes the protection of all sensitive resources, all parcels with known sensitive resources were allocated to Zone 3. However, no additional field assessments were conducted during RLA. The planning team also gathered and evaluated information that had changed since the last reservoir land management plan (if applicable), regional trends, and existing land use agreements. Planning focused on the uncommitted land, and the planning team documented the types of land use agreements for committed lands. The existing land uses were documented using GIS. Next, the lands including marginal strips and other previously unplanned lands were aggregated or subdivided into logical parcels and assigned the single use allocation that best represented existing conditions or current needs. Allocation maps were created to communicate the single use allocations to the public.

At the conclusion of RLA, the following objectives were met:

- Resolution of any remaining conflicting zone designations on tracts/parcels with multiple allocated uses
- Alignment of zone allocations with the Land Policy
- Consistency in allocating land use across all TVA-managed lands

### National Environmental Policy Act (NEPA)

Since RLA was originally intended as a communication tool, NEPA was not conducted on the RLA methodology or outcomes.



Appendix H – Water Resource Pollutant Load Reduction Methodology



# POLLUTION REDUCTION CALCULATION METHODOLOGY

For most pollution reduction programs, pollution reduction levels are estimated with Equation 1:

$$PR_n = \frac{\{(B\$ + L\$)\}}{CR_n}$$

Where:  $PR_n$  is the amount of load reduction of pollutant n; B\$ is budgeted program expenditure; L\$ is amount of contributions from partners; and  $CR_n$  is the unit cost for load reductions for pollutant n. This calculation takes into account the large variety of practices that are likely to be used in any program, each of which has its own cost and pollution reduction characteristics.

For this document, it was assumed that these programs could generate a 100 percent match from partners. Based on modeling work from the Little River in Blount County, Tennessee (TVA unpublished), TVA estimated that average pollutant reduction costs were \$3,000 per ton of sediment and \$2,000 per pound of phosphorus.

The shoreline stabilization program focuses on a single group of practices. For this program, sediment reduction is calculated as shown in Equation 2:

$$PR_S = BL \times BR \times D \times H$$

Where:  $PR_S$  is the sediment load reduction; BL is the length of treated bank; BR is the recession rate of the bank; D is soil bulk density of the bank; and H is bank height. Average bank recession rate was assumed to be 0.5 foot per year; average bank soil bulk density was assumed to be 100 pounds/square-foot, and average bank height was assumed to be 10 feet. It was also assumed that total phosphorus reduction from bank stabilization was equal to 0.02 percent of the sediment reduction.\*

The phosphorus loading reduction for the Targeted Reservoir Initiative is a ballpark professional-judgment estimate based on the cost of upgrading existing wastewater treatment plants and collection systems.

\*Calculated incorrectly in the document and will require correction.

Appendix I – Overview of TVA's Endangered Species Act Consultation Procedure



# Overview of TVA's Endangered Species Act Consultation Process

The Endangered Species Act (ESA) is a Federal law that provides the means for the protection, conservation, and enhancement of endangered and threatened species of plants and animals and of the ecosystems (habitats) on which they depend. Two sections of the ESA are directly applicable to the NRP. Section 7(a)(1) states that "Federal agencies shall, in consultation with and with the assistance of the Secretary [of Interior or Commerce], utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of this Act." Section 7(a)(2) states that "Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction of adverse modification of habitat of such species which is determined... to be critical." This appendix describes TVA's process for complying with Section 7(a)(2).

The ESA applies to actions in which there is discretionary federal involvement or control. It applies to a federal agency's own operations (e.g., construction, operation of facilities); to an agency's issuance of licenses or permits; and to any other programs or activities of any kind which are authorized, funded, or carried out (whether wholly or in part) by a federal agency.

By the broad definitions given above, virtually any action that TVA takes, or causes to be taken through funding, approval (e.g., 26a permits), or cooperative agreement, is subject to the ESA. Purely administrative matters (e.g., paperwork, procurement, personnel activities) are exempt. Ongoing activities or operations, e.g., power-plant operation, operation of the reservoir system, and flood-control operations are usually not affected (but see below).

As a general rule, the following actions would be subject to ESA.

- Any major construction activity. This is language taken directly from the regulations and is synonymous with the "major federal action" used in NEPA.
- Any substantial change in the operation of the river-reservoir system (e.g., significant changes in discharge regimes).
- Any resource management activity (e.g., introduction of species, wildlife habitat management, timber harvesting, aquatic weed vector control). Most of the NRP programs and activities are in this category.
- Sale, lease, or transfer of TVA land.
- Application of chemicals (e.g., herbicides or pesticides) on land or water.

For the most part, any proposed action subject to review under the NEPA is also subject to the ESA Section 7(a)(2) requirements. See 50 CFR § 402.03 (Applicability). Under the ESA, TVA must determine what listed species or designated critical habitats are likely to occur in the area to be affected and what the effects of the proposed action on those species or critical habitats are likely to be. TVA's procedure for compliance with the ESA is followed for all projects initiated, permitted, or funded by TVA.

### **ESA Compliance Process**

TVA stores information on occurrences of candidate, threatened, and endangered species and designated critical habitats for these species in the TVA region in the TVA Regional Natural Heritage database. This information includes a GIS representation of these occurrences, and tabular data describing the condition and quality of the population (if known). TVA routinely exchanges data with the USFWS Ecological Services offices located within the TVA regionA and with state agencies in the seven Valley states. All TVA projects and permits are examined by TVA biologists and screened against these data to determine if the proposed action has a potential to affect any of listed species and/or their habitats, either due to the nature or location of the activity.

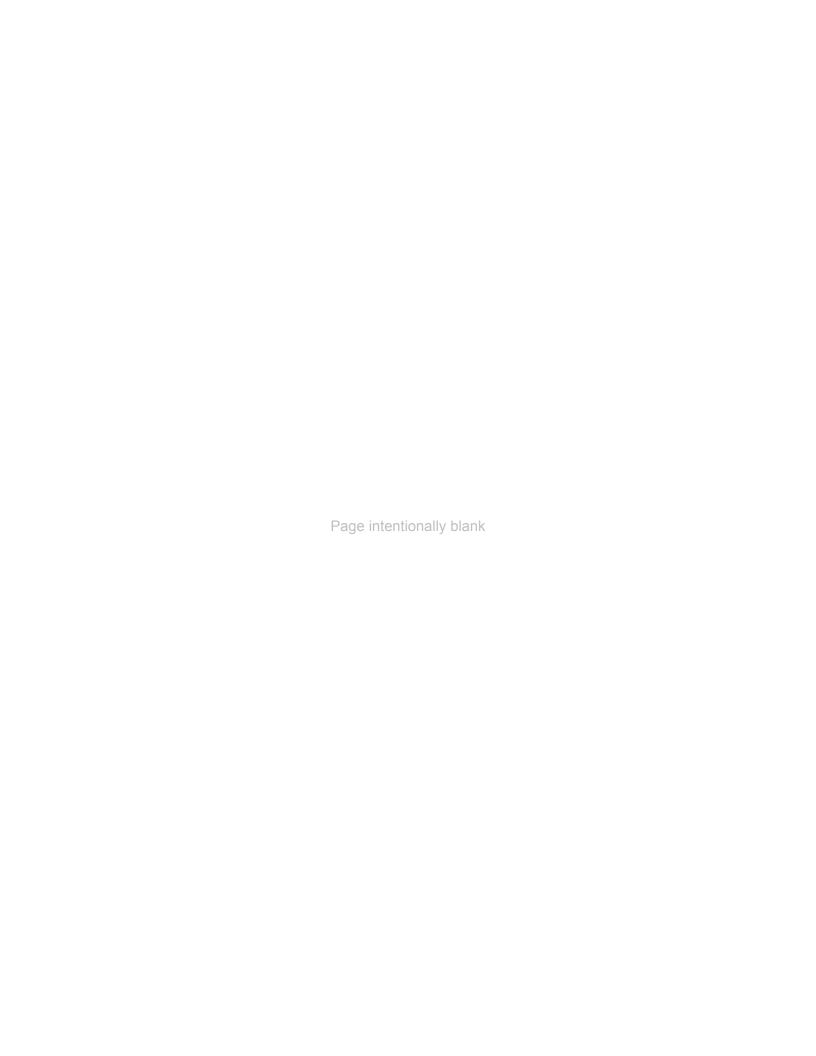
# **Steps in TVA's ESA Compliance Process**

- Biologists determine whether the project is subject to Endangered Species Act regulations. The only exempted actions are those that are purely administrative such as paperwork and personnel activities. Activities listed under Categorical Exclusions in TVA's NEPA compliance procedures (except purely administrative matters) still require endanger species review.
- 2. If the project is subject to ESA regulations, biologists determine whether listed species or critical habitats occur in the project area. This determination, and the following steps, is normally done as part of TVA's NEPA review of a project. FWS Ecological Services staff are often contacted at this stage to verify that TVA determinations are accurate.
- 3. If listed species occur in the project area, biologists will determine how those listed species (or designated critical habitats) could be affected by the action. If potential effects are identified, TVA staff consult with the FWS as required under Section 7(a)(2) of the ESA. If no effect on listed species or designated critical habitats is identified, this "no effect determination" is recorded as part of the ESA/NEPA Administrative Record for the project.
- 4. If it is determined that the project may effect, but is not likely to adversely affect listed species or critical habitat, Informal Consultation under the ESA is initiated. Projects are typically modified during this consultation process to avoid or minimize effects on endangered or threatened species or designated critical habitats. If FWS agrees with TVA's "not-likely-to-adversely-affect determination," the process is ended and TVA may proceed with the project.
- 5. If TVA or FWS concludes that the project may affect listed species or adversely modify critical habitat, the Formal Consultation process is used. As with Informal Consultation, projects are typically modified during this process to avoid or minimize the potential effects on endangered or threatened species or designated critical habitats. FWS reviews the information submitted by TVA in a Biological Assessment (BA) and determines whether the project will jeopardize the continued existence of any listed species or adversely modify critical habitat. If FWS determines that no jeopardy will occur, it issues TVA a Biological Opinion (BO) which may require TVA to undertake additional avoidance, minimization, and/or mitigation activities. An incidental take statement will be included in the BO. TVA may then proceed with the project. If FWS determines that jeopardy will occur, TVA

must cancel the project, adopt an alternative project, or apply for an exemption from the ESA. Unless an exemption is granted, the project cannot proceed as originally proposed.



Appendix J – Endangered and Threatened Species and Sensitive Ecosystems Within the TVA Region
The text of this appendix is found on the Final EIS / NRP Compact Disc and on the NRP website at <a href="http://www.tva.com/environment/reports/nrp/index.htm">http://www.tva.com/environment/reports/nrp/index.htm</a>



Appendix K – Population Trend Data



Table K-1. Population by County Within the TVA Region

Tab	le K-1. Popu	lation by o	December		Census	Trend Projections,				
State	County		Decennia	I Census	Estimate		-2009			
		1970	1980	1990	2000	2009	2020	2030		
	Tennessee River Watershed (125 Counties)									
AL	Blount	26,853	36,459	39,248	51,024	58,345	66,388	74,356		
AL	Colbert	49,632	54,519	51,666	54,984	54,639	54,902	55,278		
AL	Cullman	52,445	61,642	67,613	77,483	81,778	90,459	97,719		
AL	DeKalb	41,981	53,658	54,651	64,452	69,380	75,339	81,202		
AL	Etowah	94,144	103,057	99,840	103,459	103,645	103,883	104,430		
AL	Franklin	23,933	28,350	27,814	31,223	31,091	32,660	33,864		
AL	Jackson	39,202	51,407	47,796	53,926	52,838	54,215	55,293		
AL	Lauderdale	68,111	80,546	79,661	87,966	89,599	93,678	97,335		
AL	Lawrence	27,281	30,170	31,513	34,803	34,106	36,619	38,192		
AL	Limestone	41,699	46,005	54,135	65,676	78,572	89,457	100,689		
AL	Madison	186,540	196,966	238,912	276,700	327,744	371,805	416,053		
AL	Marion	23,788	30,041	29,830	31,214	29,116	29,727	29,599		
AL	Marshall	54,211	65,622	70,832	82,231	90,399	99,559	108,385		
AL	Morgan	77,306	90,231	100,043	111,064	117,293	128,709	138,234		
AL	Winston	16,654	21,953	22,053	24,843	23,997	25,562	26,493		
GA	Catoosa	28,271	36,991	42,464	53,282	64,035	73,057	82,508		
GA	Dade	9,910	12,318	13,147	15,154	16,127	17,685	19,071		
GA	Fannin	13,357	14,748	15,992	19,798	22,945	25,741	28,660		
GA	Gilmer	8,956	11,110	13,368	23,456	29,021	35,830	42,401		
GA	Lumpkin	8,728	10,762	14,573	21,016	27,528	33,201	39,035		
GA	Rabun	8,327	10,466	11,648	15,050	16,611	19,130	21,382		
GA	Towns	4,565	5,638	6,754	9,319	11,010	13,039	14,963		
GA	Union	6,811	9,390	11,993	17,289	21,252	25,609	29,818		

State	County		Decennia	I Census	Census Estimate		ojections, -2009	
		1970	1980	1990	2000	2009	2020	2030
GA	Walker	50,691	56,470	58,340	61,053	64,983	67,532	70,432
GA	Whitfield	55,108	65,775	72,462	83,525	93,698	103,502	113,260
KY	Calloway	27,692	30,031	30,735	34,177	36,348	38,639	40,943
KY	Graves	30,939	34,049	33,550	37,028	37,719	39,358	40,851
KY	Livingston	7,596	9,219	9,062	9,804	9,598	9,915	10,111
KY	Lyon	5,562	6,490	6,624	8,080	8,291	9,161	9,870
KY	McCracken	58,281	61,310	62,879	65,514	65,880	68,173	69,867
KY	Marshall	20,381	25,637	27,205	30,125	31,200	33,658	35,684
KY	Trigg	8,620	9,384	10,361	12,597	13,290	15,049	16,491
MS	Alcorn	27,179	33,036	31,722	34,558	35,822	36,677	37,823
MS	Itawamba	16,847	20,518	20,017	22,770	23,000	24,235	25,288
MS	Prentiss	20,133	24,025	23,278	25,556	25,709	26,551	27,306
MS	Tishomingo	14,940	18,434	17,683	19,163	19,034	19,434	19,772
NC	Avery	12,655	14,409	14,867	17,167	17,932	19,446	20,774
NC	Buncombe	145,056	160,934	174,821	206,330	231,452	256,529	281,537
NC	Cherokee	16,330	18,933	20,170	24,298	26,307	29,259	31,965
NC	Clay	5,180	6,619	7,155	8,775	10,333	11,530	12,840
NC	Graham	6,562	7,217	7,196	7,993	8,001	8,425	8,751
NC	Haywood	41,710	46,495	46,942	54,033	57,109	61,266	65,275
NC	Henderson	42,804	58,580	69,285	89,173	103,669	120,528	136,508
NC	Jackson	21,593	25,811	26,846	33,121	36,891	40,931	44,996
NC	Macon	15,788	20,178	23,499	29,811	33,233	38,525	43,216
NC	Madison	16,003	16,827	16,953	19,635	20,442	21,986	23,381
NC	Mitchell	13,447	14,428	14,433	15,687	15,634	16,321	16,826
NC	Swain	8,835	10,283	11,268	12,968	13,404	14,871	16,016

State	County		Decennia	ıl Census	Census Estimate		ojections, -2009	
		1970	1980	1990	2000	2009	2020	2030
NC	Transylvania	19,713	23,417	25,520	29,334	30,203	33,436	35,938
NC	Watauga	23,404	31,666	36,952	42,695	45,479	51,515	56,393
NC	Yancey	12,629	14,934	15,419	17,774	18,548	20,107	21,469
TN	Anderson	60,300	67,346	68,250	71,330	74,849	77,070	79,694
TN	Bedford	25,039	27,916	30,411	37,586	45,947	51,334	57,619
TN	Benton	12,126	14,901	14,524	16,537	16,025	16,913	17,473
TN	Bledsoe	7,643	9,478	9,669	12,367	12,967	14,552	15,911
TN	Blount	63,744	77,770	85,969	105,823	122,784	138,303	154,231
TN	Bradley	50,686	67,547	73,712	87,965	97,710	108,967	119,753
TN	Campbell	26,045	34,923	35,079	39,854	40,970	43,677	46,042
TN	Carroll	25,741	28,285	27,514	29,475	28,517	29,157	29,437
TN	Carter	43,259	50,205	51,505	56,742	59,043	62,639	65,912
TN	Chester	9,927	12,727	12,819	15,540	16,312	17,858	19,248
TN	Claiborne	19,420	24,595	26,137	29,862	31,243	34,131	36,575
TN	Cocke	25,283	28,792	29,141	33,565	36,047	38,687	41,380
TN	Coffee	32,572	38,311	40,339	48,014	52,521	57,873	63,052
TN	Cumberland	20,733	28,676	34,736	46,802	54,109	64,080	73,189
TN	Decatur	9,457	10,857	10,472	11,731	11,525	12,001	12,340
TN	Dickson	21,977	30,037	35,061	43,156	48,230	55,441	61,904
TN	Fentress	12,593	14,826	14,669	16,625	17,677	18,675	19,754
TN	Franklin	27,289	31,983	34,725	39,270	41,310	45,304	48,664
TN	Giles	22,138	24,625	25,741	29,447	29,082	31,704	33,478
TN	Grainger	13,948	16,751	17,095	20,659	22,857	25,020	27,270
TN	Greene	47,630	54,422	55,853	62,909	66,282	70,957	75,349
TN	Grundy	10,631	13,787	13,362	14,332	14,130	14,427	14,634

State	County		Decennia	Il Census		Census Estimate		ojections, -2009
		1970	1980	1990	2000	2009	2020	2030
TN	Hamblen	38,696	49,300	50,480	58,128	63,033	67,917	72,940
TN	Hamilton	255,077	287,643	285,536	307,896	337,175	348,662	366,127
TN	Hancock	6,719	6,887	6,739	6,786	6,588	6,531	6,444
TN	Hardin	18,212	22,280	22,633	25,578	26,258	28,067	29,603
TN	Hawkins	33,757	43,751	44,565	53,563	57,784	63,197	68,457
TN	Henderson	17,360	21,390	21,844	25,522	27,037	29,312	31,437
TN	Henry	23,749	28,656	27,888	31,115	31,876	33,233	34,559
TN	Hickman	12,096	15,151	16,754	22,295	23,805	27,719	30,974
TN	Houston	5,853	6,871	7,018	8,088	8,154	8,819	9,328
TN	Humphreys	13,560	15,957	15,795	17,929	18,274	19,356	20,294
TN	Jefferson	24,940	31,284	33,016	44,294	51,722	58,923	66,386
TN	Johnson	11,569	13,745	13,766	17,499	18,006	20,063	21,769
TN	Knox	276,293	319,694	335,749	382,032	435,725	470,451	510,907
TN	Lawrence	29,097	34,110	35,303	39,926	41,314	44,503	47,212
TN	Lewis	6,761	9,700	9,247	11,367	11,521	12,435	13,218
TN	Lincoln	24,318	26,483	28,157	31,340	33,374	36,047	38,506
TN	Loudon	24,266	28,553	31,255	39,086	46,725	52,572	58,975
TN	McMinn	35,462	41,878	42,383	49,015	52,739	56,686	60,719
TN	McNairy	18,369	22,525	22,422	24,653	25,796	26,975	28,213
TN	Marion	20,577	24,416	24,860	27,776	28,068	29,904	31,340
TN	Marshall	17,319	19,698	21,539	26,767	30,279	34,180	37,985
TN	Maury	44,028	51,095	54,812	69,498	84,302	94,543	106,273
TN	Meigs	5,219	7,431	8,033	11,086	12,108	14,115	15,878
TN	Monroe	23,475	28,700	30,541	38,961	45,830	51,522	57,666
TN	Moore	3,568	4,510	4,721	5,740	6,096	6,772	7,368

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State	County		Decennia	I Census	Census Trend Projection Estimate 1980-2009			
		1970	1980	1990	2000	2009	2020	2030
TN	Morgan	13,619	16,604	17,300	19,757	18,738	20,441	21,369
TN	Perry	5,238	6,111	6,612	7,631	7,826	8,656	9,294
TN	Polk	11,669	13,602	13,643	16,050	15,648	16,978	17,867
TN	Rhea	17,202	24,235	24,344	28,400	31,516	33,834	36,492
TN	Roane	38,881	48,425	47,227	51,910	53,508	55,439	57,487
TN	Rutherford	59,428	84,058	118,570	182,023	257,048	311,442	371,250
TN	Sequatchie	6,331	8,605	8,863	11,370	13,915	15,460	17,349
TN	Sevier	28,241	41,418	51,043	71,170	86,243	102,656	118,572
TN	Stewart	7,319	8,665	9,479	12,370	13,340	15,373	17,119
TN	Sullivan	127,329	143,968	143,596	153,048	154,552	159,532	163,786
TN	Unicoi	15,254	16,362	16,549	17,667	17,740	18,453	18,996
TN	Union	9,072	11,707	13,694	17,808	19,164	22,505	25,242
TN	Van Buren	3,758	4,728	4,846	5,508	5,480	5,905	6,208
TN	Washington	73,924	88,755	92,315	107,198	120,598	130,842	142,179
TN	Wayne	12,365	13,946	13,935	16,842	16,506	18,082	19,181
TN	Williamson	34,423	58,108	81,021	126,638	176,838	214,861	256,133
VA	Bland	5,423	6,349	6,514	6,871	6,791	7,074	7,249
VA	Dickenson	16,077	19,806	17,620	16,395	16,087	14,231	12,945
VA	Grayson	15,439	16,579	16,278	17,917	15,793	16,494	16,436
VA	Lee	20,321	25,956	24,496	23,589	25,166	23,903	23,548
VA	Russell	24,533	31,761	28,667	30,308	29,250	28,456	27,846
VA	Scott	24,376	25,068	23,204	23,403	22,585	21,673	20,924
VA	Smyth	31,349	33,345	32,370	33,081	31,738	31,579	31,162
VA	Tazewell	39,816	50,511	45,960	44,598	44,907	41,705	39,808
VA	Washington	40,835	46,487	45,887	51,103	53,018	55,568	58,121

State	County	Decennial Census				Census Estimate	Trend Projections, 1980-2009	
		1970	1980	1990	2000	2009	2020	2030
VA	Bristol city	14,857	19,042	18,426	17,367	17,690	16,783	16,249
VA	Wise	35,947	43,863	39,573	40,123	41,773	39,775	39,158
VA	Norton city	4,172	4,757	4,247	3,904	3,713	3,247	2,887
VA	Wythe	22,139	25,522	25,466	27,599	28,868	30,020	31,271
Total Watershed (125 Counties and 2 Independent Cities)		4,023,778	4,768,207	5,025,692	5,837,174	6,425,319	7,016,111	7,610,967
AL	Cherokee	15,606	18,760	19,543	23,988	24,448	27,305	29,531
GA	Chattooga	20,541	21,856	22,242	25,470	26,619	28,607	30,413
GA	Gordon	23,570	30,070	35,072	44,104	53,292	61,062	69,151
GA	Murray	12,986	19,685	26,147	36,506	40,621	49,832	57,394
KY	Allen	12,598	14,128	14,628	17,800	18,982	21,001	22,830
KY	Butler	9,723	11,064	11,245	13,010	13,329	14,395	15,280
KY	Carlisle	5,354	5,487	5,238	5,351	5,209	5,134	5,060
KY	Christian	56,224	66,878	68,941	72,265	80,938	83,993	88,642
KY	Cumberland	6,850	7,289	6,784	7,147	6,706	6,625	6,483
KY	Edmonson	8,751	9,962	10,357	11,644	11,926	12,846	13,589
KY	Fulton	10,183	8,971	8,271	7,752	6,814	6,138	5,420
KY	Grayson	16,445	20,854	21,050	24,053	25,581	27,348	29,116
KY	Hickman	6,264	6,065	5,566	5,262	4,851	4,409	4,002
KY	Logan	21,793	24,138	24,416	26,573	27,174	28,511	29,673
KY	Monroe	11,642	12,353	11,401	11,756	11,569	11,245	11,037
KY	Muhlenberg	27,537	32,238	31,318	31,839	31,274	31,052	30,809
KY	Simpson	13,054	14,673	15,145	16,405	17,019	17,971	18,827

State	County	Decennial Census				Census Estimate	Trend Projections, 1980-2009	
		1970	1980	1990	2000	2009	2020	2030
KY	Todd	10,823	11,874	10,940	11,971	12,253	12,314	12,534
KY	Warren	57,884	71,828	76,673	92,522	108,669	120,175	133,146
MS	Attala	19,570	19,865	18,481	19,661	19,755	19,652	19,735
MS	Benton	7,505	8,153	8,046	8,026	7,981	7,912	7,856
MS	Calhoun	14,623	15,664	14,908	15,069	14,422	14,092	13,725
MS	Chickasaw	16,805	17,851	18,085	19,440	18,683	19,539	19,944
MS	Choctaw	8,440	8,996	9,071	9,758	9,023	9,428	9,514
MS	Clay	18,840	21,082	21,120	21,979	20,722	21,194	21,181
MS	DeSoto	35,885	53,930	67,910	107,199	158,719	188,472	224,723
MS	Kemper	10,233	10,148	10,356	10,453	9,833	9,990	9,907
MS	Lafayette	24,181	31,030	31,826	38,744	43,975	48,258	52,956
MS	Leake	17,085	18,790	18,436	20,940	23,132	24,339	25,929
MS	Lee	46,148	57,061	65,581	75,755	81,913	92,166	100,914
MS	Lowndes	49,700	57,304	59,308	61,586	59,658	61,958	62,946
MS	Marshall	24,027	29,296	30,361	34,993	36,900	40,032	42,862
MS	Monroe	34,043	36,404	36,582	38,014	36,905	37,767	38,080
MS	Neshoba	20,802	23,789	24,800	28,684	30,302	32,993	35,408
MS	Noxubee	14,288	13,212	12,604	12,548	11,631	11,258	10,767
MS	Oktibbeha	28,752	36,018	38,375	42,902	44,544	48,315	51,425
MS	Panola	26,829	28,164	29,996	34,274	35,245	38,586	41,226
MS	Pontotoc	17,363	20,918	22,237	26,726	29,248	32,449	35,485
MS	Scott	21,369	24,556	24,137	28,423	29,341	31,467	33,389
MS	Tallahatchie	19,338	17,157	15,210	14,903	12,638	11,384	9,961
MS	Tate	18,544	20,119	21,432	25,370	27,337	30,226	32,864
MS	Tippah	15,852	18,739	19,523	20,826	21,661	22,809	23,847

State	County	Decennial Census				Census Estimate	Trend Projections, 1980-2009	
		1970	1980	1990	2000	2009	2020	2030
MS	Union	19,096	21,741	22,085	25,362	27,263	29,265	31,306
MS	Webster	10,047	10,300	10,222	10,294	9,852	9,843	9,714
MS	Winston	18,406	19,474	19,433	20,160	19,309	19,672	19,702
MS	Yalobusha	11,915	13,183	12,033	13,051	13,773	13,717	13,997
TN	Cannon	8,467	10,234	10,467	12,826	13,860	15,289	16,652
TN	Cheatham	13,199	21,616	27,140	35,912	39,876	47,711	54,276
TN	Clay	6,624	7,676	7,238	7,976	7,895	8,060	8,204
TN	Crockett	14,402	14,941	13,378	14,532	14,492	14,276	14,252
TN	Davidson	447,877	477,811	510,784	569,891	635,710	686,766	741,506
TN	DeKalb	11,151	13,589	14,360	17,423	18,954	21,065	23,039
TN	Dyer	30,427	34,663	34,854	37,279	37,811	39,246	40,471
TN	Fayette	22,692	25,305	25,559	28,806	38,785	40,838	45,284
TN	Gibson	47,871	49,467	46,315	48,152	49,468	48,784	48,956
TN	Hardeman	22,435	23,873	23,377	28,105	27,613	29,919	31,573
TN	Haywood	19,596	20,318	19,437	19,797	18,881	18,588	18,183
TN	Jackson	8,141	9,398	9,297	10,984	10,875	11,740	12,374
TN	Lake	8,074	7,455	7,129	7,954	7,303	7,568	7,610
TN	Lauderdale	20,271	24,555	23,491	27,101	26,471	27,857	28,828
TN	Macon	12,315	15,700	15,906	20,386	22,057	24,638	27,064
TN	Madison	65,774	74,546	77,982	91,837	97,317	106,819	115,294
TN	Montgomery	62,721	83,342	100,498	134,768	160,978	189,347	216,852
TN	Obion	30,247	32,781	31,717	32,450	31,431	31,241	30,903
TN	Overton	14,866	17,575	17,636	20,118	21,060	22,462	23,794
TN	Pickett	3,774	4,358	4,548	4,945	4,783	5,100	5,275
TN	Putnam	35,487	47,690	51,373	62,315	72,431	80,543	89,292

State	County	Decennial Census				Census Estimate	Trend Projections, 1980-2009	
		1970	1980	1990	2000	2009	2020	2030
TN	Robertson	29,102	37,021	41,494	54,433	66,581	76,240	86,678
TN	Scott	14,762	19,259	18,358	21,127	21,866	22,901	23,989
TN	Shelby	722,111	777,113	826,330	897,472	920,232	986,032	1,037,812
TN	Smith	12,509	14,935	14,143	17,712	19,201	20,742	22,423
TN	Sumner	56,266	85,790	103,281	130,449	158,759	183,462	208,766
TN	Tipton	28,001	32,930	37,568	51,271	59,495	69,604	79,223
TN	Trousdale	5,155	6,137	5,920	7,259	7,922	8,545	9,232
TN	Warren	26,972	32,653	32,992	38,276	40,481	43,581	46,543
TN	Weakley	28,827	32,896	31,972	34,895	33,459	34,534	35,021
TN	White	16,329	19,567	20,090	23,102	25,444	27,405	29,525
TN	Wilson	36,999	56,064	67,675	88,809	112,377	130,536	150,063
Total Area (203 Counties and 2 Independent Cities)		6,797,199	7,928,344	8,373,818	9,674,255	10,598,952	11,563,240	12,521,417



Appendix L – Additional Climate Change Information



# Additional Climate Change Information: Potential Impacts to TVA-Managed Lands Due to the Changing Climate

A great deal of uncertainty remains regarding the response of climate to a broad range of natural and anthropogenic influences, making climate forecasts quite difficult. It is possible that under current management plans, climate change itself could impact natural resources that TVA manages. The current program option may provide some indication of change over time and serve as a basis for options that mitigate detrimental impacts of climate change and positively manage the beneficial impacts. Current natural resources management that enacts conservation and enhancement serves to restore lands and water quality thus enhancing carbon storage.

# **Biological and Cultural Resources Management**

It is possible that under current management, climate change itself could impact natural resources that TVA manages, including changes to ecosystem type and consequently sensitive biological resources due to increased temperature and changes in precipitation, and changes in forest and agricultural production (both positive and negative) due to potential changes in temperature, precipitation, and the availability of ambient carbon dioxide.

Under climate change extremes, sensitive species may face ecosystem loss and fragmentation, intensified impacts of invasive species and pests, and changes in the timing of ecological events triggered by seasonal temperature changes. Sensitive biological resources that are already rare could become more restricted or eliminated from an area.

Agricultural crops could be impacted by higher temperature and changes in evapotranspiration, the timing and magnitude of precipitation, and the need for irrigation or could alternatively be impacted by soil erosion. Crops could become more susceptible to disease and invasive species (Electric Power Research Institute [EPRI] and TVA 2009).

Forest management could potentially face two different climate impact scenarios. Certain forest types may benefit from increased growth and expanded growth range, while other types may experience detrimental effects including reduced forest growth, decreased forest area, shifts in tree species composition, and dieback caused by disturbance such as bug infestations and fire.

The current natural and cultural resources management plans utilize land stewardship assessment tools and sensitive biological resources management programs that serve to monitor ecosystems and species. Current management may provide some indication of change over time and serve as a basis for management options that mitigate detrimental impacts of climate change and positively manage the beneficial impacts. Current terrestrial habitat management through conservation and enhancement serve to restore lands and water quality thus enhancing carbon storage, while management of nonnative invasive plant and animal species would positively impact species at risk.

Terrestrial carbon sequestration is the capture and secure storage of carbon dioxide  $(CO_2)$  that would otherwise be emitted to or remain in the atmosphere. Terrestrial carbon sequestration is the process where atmospheric  $CO_2$  is absorbed by trees, by plants through photosynthesis, and is stored as carbon in the biomass (trunks, branches, roots) and soil. This transformation of free-floating atmospheric carbon to a fixed-state carbon can be achieved through methods, such as tree planting, grass planting, and using forestry best management practices.

# **Recreation Management**

It is possible that under current management, climate change itself could impact future management, including the demand for specific types of recreation by affecting the attractiveness of a recreational opportunity due to increased temperature or precipitation; participants may begin to change their recreational activities and destinations, including ceasing recreational activities altogether. Changes in streamflow also have a significant impact on the suitability of a resource for recreation. Fishing also stands to be heavily affected by climate change given that water flows and temperature both play important roles in the health of the fish population. Cold water fish populations, such as trout, may be diminished while warm water populations may increase (EPRI and TVA 2009). In regard to water-based recreation, rising lake and river temperatures could cause warm water fishing to be substituted for cold water fishing. Changes to water resources, which diminish habitats or lead to species loss, could also affect the availability or quality of wildlife viewing, hunting, fishing, and other activities involving wildlife.

Research has not clearly established how recreation would be affected within the TVA region, as this depends both on the effects of climate change on recreation resources and participants' adaptation and substitution decisions, neither of which appears to have been the subject of academic or other research.

# **Reservoir Lands Planning**

No impacts are anticipated as a result of reservoir lands planning.

#### **Water Resource Management**

It is possible that under current management, climate change itself could impact management options including impacts to water quality and availability and impacts to wildlife habitat and biodiversity due to instream flow levels changes. Increased temperature in conjunction with no major increases in streamflow could reduce dissolved oxygen in water bodies, resulting in a reduction in water quality, in particular water's suitability to support oxygen-dependent aquatic organisms.

Reductions in hydrologic resources may leave less dilution flows in streams, leading to degraded water quality. Droughts and increasing temperatures may cause changes in biological composition of water bodies, and changes in flow may provide entry pathways for invasive species. Water demands for agricultural use, such as livestock and irrigation, could compete with industrial and municipal uses (EPRI and TVA 2009).

The current water resource management programs utilize public outreach workshops that educate stakeholders and promote water efficiency. Such programs could serve to promote efficient water use and consumption to support regional water use in the event that the demand for water increases in response to potential climate change. TVA's Stream and Tailwater Monitoring Program under the current management option use biological monitoring to evaluate watershed conditions. While specific long-term changes in biodiversity to climate change are not predictable at this time, monitoring stream habitat and health could provide useful information pertaining to ecosystem changes over time and provide data for future management options to mitigate adverse impacts in the event they should occur.

#### Literature Cited

Electric Power Research Institute (EPRI) and Tennessee Valley Authority. 2009. Potential Impact of Climate Change on Natural Resources in the Tennessee Valley Authority

Region. Report No. 1020420, EPRI, Palo Alto, California and TVA, Knoxville, Tennessee

Appendix M – Comments on Draft EIS / Plan and Responses
Appendix IVI - Comments on Draft Els / Flan and Responses

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# **PART 1 - INTRODUCTION**

The Draft Natural Resource Plan (NRP) and Environmental Impact Statement (EIS) were released to the public on March 25, 2011, and the notice of their availability was published in the *Federal Register* on April 1, 2011. This initiated a 46-day public comment period that ended on May 16, 2011.

The Draft NRP and EIS were posted on the project website. Printed copies and/or CDs containing electronic files of the documents were mailed to state and federal agencies and to others upon request. Others on the project contact list were mailed or e-mailed notifications of the availability of the documents and instructions on how to submit comments. At their request, many people receiving these notices were mailed either printed copies or CDs of the draft documents.

TVA accepted comments submitted through an electronic comment form on the project website, and by mail and email. During the comment period, TVA held three public meetings (see table below) to describe the project and to accept comments on the Draft NRP and EIS. TVA staff presented a brief overview of the plan and answered questions about it. About 45 people attended these public meetings.

Public Meetings Held in 2011 Following Release of Draft NRP and EIS.

Date	Location
April 11	Knoxville, TN
April 20	Benton, KY
April 25	Muscle Shoals, AL

TVA received 151 comment submissions, which included letters, emails, oral statements, and submissions through the project website. TVA carefully reviewed all comment submissions and identified the specific comments about the NRP and EIS contained in each of them. In many instances, comment submissions by different authors contained similar specific comments that addressed the same issues and concerns. These comments were synthesized into comment statements for a combined response. The result of this analysis and synthesis process is a list of 224 individual comments to which TVA has provided responses in Chapter 2 of this volume. The comments and responses are categorized into 21 different topics. Many of these topics are further categorized into different issues.

The two most frequent comment statements were specific to reservoir land planning for Pickwick Reservoir. One recommended that TVA rezone a particular tract of land from developed recreation to a conservation use. The other recommended that TVA increase the amount of land zoned for natural resource conservation and reduce the amount of land zoned for industrial and developed recreation. Of those commenters that endorsed a particular alternative, most favored Alternative C - Flagship Management. A few endorsed TVA's preferred Alternative D - Blended Management, provided it contained more programs and activities in Alternative C. Several commenters recommended that TVA increase its expenditures for natural resource management activities, as it presently makes up a very small proportion of TVA's overall budget,

# PART 2

# **RESPONSES TO COMMENTS**

#### 2.1. Alternatives

# 2.1.1. Alternative C - Flagship Management

1. At a minimum, TVA should implement the priority level Advanced Management. At this level, the proportion of TVA's annual operating budget expended for natural resources management (\$55 million) would amount to only 0.4 percent of the TVA total annual budget. To do less would not convey environmental leadership in a region rich in biological resources that have been adversely affected by TVA construction and operation of dams. In comparison, Bonneville Power Administration, which also receives no congressional appropriations, expended \$745.2 million on their Fish & Wildlife Program in 2009. The cost of Alternative C is also probably less than other resource management agencies spend on a per-acre basis. (Commenters: Mark Campen, Richard Preston – TOS, Axel C. Ringe - SC, Joyce Stanley - USDOI, Matthias Varhola)

Response: Comment noted. TVA's preferred alternative includes some components of those programs and activities identified as Advanced Priority Level in the draft NRP and EIS. TVA's preferred alternative contemplates an increase in funding for these programs.

2. Despite TVA's leadership and good track record in resource conservation, the quality and quantity of many natural resources in the Valley have continued to decline. The recent rapid population growth and major economic shifts that have caused much of this decline are projected to continue over the next two decades. Many recent and ongoing changes at the federal and state levels are reducing society's ability to respond to the increasing challenges on resource conservation. Examples include the elimination of federal support for regional Resource Conservation and Development Councils and state support for Tennessee Local Planning Assistance. TVA's leadership and assistance through many programs comprising the Flagship Management Alternative C would best help address these challenges. (Commenter: Wolf Naegeli - FGS)

Response: Comment noted. The NRP alternatives, including the preferred alternative, include several programs to increase TVA's monitoring activities and to better respond to emerging issues. They also include increased support for public outreach and education programs to better educate the public on conservation and resource management issues. TVA also proposes to more actively seek partnerships with other federal, state, and non-governmental organizations to more effectively leverage resources to better manage TVA lands and to more actively participate in local and regional conservation planning efforts.

3. Many of the most innovative and proactive proposed natural resource management programs are only included under Alternative C. The selection of Alternative D as TVA's preferred alternative neither does justice to the effort that went into the preparation of the plan nor to the history and tradition of TVA's leadership in natural resources management. (*Commenter: Wolf Naegeli - FGS*)

Response: Comment noted. The selection of Alternative D was based on trade-off between natural resource stewardship needs, potential TVA programs and activities to address these needs, and TVA's anticipated availability of funding and other resources to implement the

programs and activities. Relative to TVA's historic efforts, the preferred alternative represents increased efforts in some areas and decreased efforts in others.

4. The expanded information gathering, documentation, and analysis programs in the Flagship Management Alternative C are likely to result in this alternative having a higher return on investment than the reduced programs under the preferred Alternative D. The additional programs under Alternative C would enable TVA to recognize important trends earlier, adapt more efficiently to new developments and requirements, and be a more effective leader and partner. Under Alternative C, TVA would be better able to implement proactive solutions which are almost invariably less expensive and have a lower risk of failure than the reactive solutions that would be more likely under Alternative D. (*Commenter: Wolf Naegeli - FGS*)

Response: Comment noted. In selecting the assessment and monitoring programs associated with the preferred Alternative D, TVA has tried to balance these programs with on-the-ground resource management programs, outreach programs, and the resources available to implement all of these programs.

5. We support and urge TVA to implement Alternative C - Flagship Management. This alternative will provide the best long-range management and TVA should commit the resources necessary to implement it. (Commenters: Linda S. Casey - AFC; Paul E. Davis - TDEC, Sandra Goss - TCWP, Jeremy Lloyd, Mary Linda Schwarzbart, Crystal Sloan, Joyce Stanley - USDOI, Wayne Whitehead – FBPA)

Response: Comment noted.

6. We support Flagship Management and the inclusion of strategic watershed land-use planning and a vision for interconnecting TVA lands with neighboring riparian zones and other parks and reserves in the watershed. Such an interconnected system of managed lands will benefit the long-term viability of biodiversity and continued provision of ecosystem services. It should also include participation by other stakeholders, targeted education programs, sharing relevant information, sponsoring participatory citizen science, and promoting incentives for best practices in land management that are compatible with conservation goals. (*Commenters: Sandra Goss - TCWP, Deb O'Dell*)

Response: Many TVA lands are long, linear highly fragmented lands surrounded by modified or developed areas. Other TVA lands are substantial in size and have high conservation value. TVA works with numerous conservation agencies to manage some of these lands to benefit wildlife and wildlife-oriented recreation. Examples of these partnerships include many state and federal refuges and management areas which are former TVA properties. TVA recognizes the contribution that its remaining lands provide to biodiversity and ecosystem services. Cooperative efforts in land planning and management, stakeholder participation, education and best practices in land management would increase under both the Alternative C and the preferred Alternative D. The increase would be greatest under Alternative C.

7. We understand that economic factors must be considered in TVA's natural resource management planning, but urge TVA to implement as many of the forward-thinking initiatives from the Flagship Management alternative as necessary. (*Commenter: Amy Ewing - VDGIF*)

Response: Comment noted.

#### 2.1.2. Alternative D - Blended Management

8. We prefer Alternative C as it would provide the greatest overall benefit to the environment. We understand that Alternative C may not be the most practicable alternative due to resource constraints and therefore accept the preferred Alternative D. (*Commenter: Heinz J. Mueller - USEPA*)

Response: Comment noted.

9. We support Alternative D - Blended Management, the preferred alternative. (*Commenter: Dennis Riecke - MDW*)

Response: Comment noted.

#### 2.1.3. New or Modified Alternative

We agree with TVA's selection of the Blended Management Alternative D but note that it should be improved by including several additional programs proposed under the Flagship Management Alternative C. These programs, described in DEIS Appendix H, are:

- 1) Develop and access improvements at stream access sites, and assist partners with acquisition and development of additional stream access sites. Increasing angler access is an increasingly important goal in Georgia.
- 2) Provide technical support to other agencies and stakeholders and share recreation information. This would assist in identifying underdeveloped recreational opportunities and planning desired improvements.
- 3) Foster partnerships to assist in identifying unmet recreation needs around TVA managed reservoirs. Once unmet recreational opportunities are identified, TVA could bring its technical resources to bear in implementing partnered programs.
- 4) Develop....opportunities to improve public awareness of exotic and invasive species... Since these challenges are not confined by geo-political boundaries, a regional approach to education that incorporates existing state agency policies may be desirable.
- 5) Share stream (and tailwater) and reservoir data with other agencies and stakeholder groups. We appreciate TVA's willingness to share data "upon request," and encourage development of passive biological data availability through Web-based platforms. Further, expanding continuous data collection efforts for key aquatic resources would provide TVA and other resource agencies valuable data to guide future management actions. (*Commenter: Dan Forster GDNR*)

Response: Comment noted. Following are responses to the numbered items. 1) While TVA intends to continue managing the existing stream access sites, the preferred alternative does not include efforts by TVA to acquire and develop stream access sites or assist partners with site acquisition and development. These needs can be more appropriately addressed by state fish and wildlife agencies and budget pressures reduce TVA's ability to enhance its activities in all program areas, including this one. 2) Under the preferred alternative, TVA would share information from the reservoir recreation inventory and technical innovations associated with the sustainable recreation initiative. It would also provide limited planning support to agencies in the TVA region, but does not otherwise intend to provide technical information that is readily available from other sources. 3) Under the preferred alternative, TVA would continue to work with agencies and other organizations to identify unmet recreation needs and consider them in future reservoir land plans in order to provide suitable lands to meet these needs. 4) Invasive species is a likely topic of the proposed public outreach programs. 5) In addition to providing stream and tailwater data upon request, under the preferred alternative TVA would make this data available online.

- 11. We support an alternative/program option midway between the enhanced and flagship management options. While we would otherwise support the flagship option, the gap in implementation between enhanced and flagship is too great for successful results under realistic economic and management scenarios. So we recommend the preferred alternative include the following activities at the flagship level:
- a. Biological and Cultural Resources Management
  - 1. Preservation Program
  - 2. Trails Management
  - 3. Land Condition Assessment, and Land Stewardship Maintenance Checklist
  - 4. TVA Natural Heritage Database
  - 5. TVA Wetlands Database
  - 6. Public Outreach Programs
  - 7. Sensitive Biological Resources Management
  - 8. Terrestrial Habitat Management
- b. Recreation Management
  - 1. Day Use Areas Management
- c. Water Resources Management
  - 1. Aquatic Monitoring and Management
  - 2. Partnership Programs
  - 3. Water Resource Improvement Programs (Commenter: Axel C. Ringe SC)

Response: Comment noted. The levels of implementation for the various activities identified in the final NRP and the preferred alternative in the FEIS represent tradeoffs between the needs of the various natural resources and the availability of funding and other resources to address the needs. TVA has revised some Water Resources Management activities to more aggressively address water resource issues. A new Aquatic Ecology Management program focuses on protection of specific aquatic habitats that support exceptional aquatic diversity in addition to maintaining and enhancing other aquatic communities in streams, reservoirs, and tailwaters. The Strategic Partnership Planning activities are to be implemented at the flagship level. The Water Resource Improvement Programs have been revised and are proposed to be implemented at a level that is expected to result in as great or greater pollutant load reductions than flagship level programs listed in the draft NRP and EIS.

- 12. While we accept TVA's preferred Alternative D, we recommend it be revised as follows:
- Biological and Cultural Resource Management Maintain the demonstration projects on terrestrial GHG management practices at the current levels and continue participating in the two third-party consortiums on terrestrial GHG management.
- Recreation Management Maintain the assistance in greenway development at least at the existing level.
- Water Resource Management Maintain stream assessment at least at the existing levels. (Commenter: Heinz J. Mueller USEPA)

Response: Under the revised preferred Alternative D, as described in Chapter 3 of the FEIS, TVA would maintain its current terrestrial GHG management demonstration projects and participation in third-party consortiums focusing on this subject. TVA would also continue to maintain the existing trails on TVA lands and would consider proposals from other parties to develop greenways on TVA lands. TVA's stream assessment and monitoring efforts would be increased under the preferred Alternative D.

# 2.1.4. Support for Alternative C or D

13. We support the implementation of either Alternative C or Alternative D. (*Commenter: Ellie L. Irons - VDEQ*)

Response: Comment noted.

# 2.2. Aquatic Ecology

14. Neither the Biological Resources Management Program nor the Water Resources Management Program explicitly addresses the issue of the aquatic ecosystems of the TVA reservoirs. These reservoirs are now characterized by game fishes and invasive species. TVA should attempt to bring the reservoir ecologies in line with native lacustrine ecosystems. (Commenter: Axel C. Ringe - SC)

Response: The NRP alternatives include an Aquatic Ecology Management program in which TVA would partner and actively participate in enhancing aquatic biological communities in TVA streams, reservoirs, tailwaters downstream of TVA dams, as well as protecting specific habitats that support exceptional aquatic biological diversity. This would include activities such as habitat protection and enhancement, biological monitoring, and pollution reduction. In addition, TVA proposes to develop and implement a public outreach program to raise public awareness of land use practices that degrade aquatic communities and raise public awareness of invasive aquatic animal species consistent with EO 13112. This could include activities such as developing presentations to deliver to communities, working with marinas to support proper boat hull cleaning, and providing information to stakeholders on steps they could take to reduce the spread of certain exotic and invasive species. These programs would be implemented at the flagship level under the preferred Alternative D.

# 2.3. Biological Resources Management

# 2.3.1. Dewatering Projects

15. We discourage TVA from continuing the management of dewatering projects except where essential to maintain safe operations of TVA facilities and to restore and protect natural wetlands. (*Commenters: Donald S. Dott, Jr. - KNPC*)

Response: As described in the NRP EIS and Plan, dewatering units located on Kentucky and Wheeler Reservoirs, by their design and operation, provide unique opportunities for waterfowl and wetland wildlife management through existing agreements with the Tennessee and Alabama state wildlife agencies and the U.S. Fish and Wildlife Service (USFWS). Dewatering units operated by the USFWS provide diverse migratory and over-wintering refuge habitat for thousands of waterfowl and waterbird species, which provides substantial opportunities for birding and other wildlife observation opportunities for the public. Units managed by the states in conjunction with TVA provide these same wildlife observation opportunities in addition to prime waterfowl hunting opportunities. In addition to the habitat components provided by the management of these units, TVA has contractual requirements to protect certain public and private infrastructure associated with the dewatering operations such as highway road and railroad embankments. As part of the NRP implementation, TVA proposes to continue engineering-based assessments of the dewatering units to determine necessary repairs and maintenance required to maintain the safe operation of the facilities while best protecting the natural and managed wetlands within these units.

# 2.3.2. Forest Fragmentation

16. Forest fragmentation is a continuing problem in the TVA region that increases susceptibility to invasions of exotic species, reduces habitat for forest interior species, and reduces native plant diversity. TVA should manage its lands in a manner that protects and increases large blocks of contiguous mature forest. We discourage creating additional early successional habitat and "day lighting" forest roads. (*Commenters: Donald S. Dott, Jr. - KNPC*)

Response: Comment noted. TVA recognizes that forest fragmentation is a problem in much of the TVA region and considers the potential effects on forest fragmentation as it reviews proposed resource management actions, as well as other actions. The avoidance of fragmentation is, for example, an objective in planning new transmission lines. In some situations, the benefits of resource management activities that create early successional habitat can outweigh the potential adverse impacts of forest fragmentation.

#### 2.3.3. Forest Resource Management

17. For many years TVA made efforts to identify, manage, and protect old growth forests on its lands. Old growth forests do not appear to be mentioned in the draft NRP. Has TVA abandoned its concern for them? (*Commenter: Joe Feeman*)

Response: No. TVA remains committed to managing all of its natural resources in an appropriate and prioritized manner, including old growth forests.

18. I question the inclusion of the program to develop and maintain a qualified fire management crew. The state divisions of forestry already have the capability for assisting with controlled burns and controlling wildfires on TVA lands and have been doing so cost-effectively for years. TVA would be duplicating these efforts at a much higher cost. (*Commenter: Joe Feeman*)

Response: In some situations, state fire crews have either not had the time or the ability to conduct prescribed burns for TVA at the time and/or location desired. By having staff trained in fire management, TVA would have the latitude to conduct this work if the state is unable to conduct the work as TVA wishes it to be done. Additionally, from a safety standpoint, TVA staff must be trained in fire management in order to participate in prescribed burns that state agencies may conduct on TVA property. TVA would continue to work with State fire crews whenever possible to conduct prescribed burns on TVA lands.

19. The condition of our native forests is declining and generic stocks have been compromised by non-local seedlings planted by landowners. TVA should make land available to and fund tree improvement programs such as that of the University of Tennessee to establish seed orchards producing locally adapted tree seedlings. These seedlings would then be provided to private and public landowners for reestablishing healthy forests and for carbon sequestration. (Commenters: Joe Feeman, Dagny Vigander)

Response: As part of the Forest Resource Management component of the NRP, TVA is proposing to monitor broad forest condition trends and to conduct basic forest protection activities to address these trends and conditions on TVA lands. TVA is also proposing to provide support to state forestry assessment and management plans from a partnership perspective. TVA has provided land and support to tree improvement programs in the past in partnership with local universities. As part of the NRP, TVA is proposing to partner with universities in the future to address issues related to forest resource management, including the potential for tree improvement programs and terrestrial greenhouse gas sequestration management.

20. The forest resource management program should be expanded to include the activities of gap creation, prescribed burning, and selective harvest/thinning for habitat improvement. (*Commenter: Sandra Goss - TCWP*)

Response: The NRP activities include forest management activities such as managing danger trees, remediating tree cutting/vegetation damage and encroachments on TVA lands, continuing small-scale tree removal operations associated with storm or insect damages, forest wildlife habitat enhancements (potentially including gap creation), monitoring broad forest trends on TVA lands and conducting basic forest protection activities. See FEIS Section 2.1.2, Forest Resource Management.

21. The list of biological resources management programs on draft NRP page 56 includes "Monitor broad forestry trends on TVA-managed lands..." Forestry is the practice of forest management. I presume this program should be to "Monitor broad forest trends..." (*Commenter: Joe Feeman*)

Response: Comment noted. The word "forestry" has been changed to "forest" in this usage.

22. The proposed forest management activities are weak and mostly restricted to small-scale vegetation removal efforts. This will do little to address the decline in the forests on TVA lands over the last 15-20 years described in the draft NRP. It is apparent that TVA has little current information on the condition of the forests on its lands. Despite this, forest inventory efforts are classified as a flagship program and thus unlikely to be implemented. This likely continuing lack of forest condition information will hamper any forest management efforts regardless of whether for wildlife management or timber production purposes. (Commenter: Joe Feeman)

Response: Comment noted. TVA proposes to prioritize its natural resource management efforts to most effectively and efficiently utilize its limited resources. Forest management activities are and would continue to be essentially custodial with relatively little active management other than timber salvage operations and limited wildlife habitat enhancement projects.

23. We support the formation of a fire management crew and implementation of a burn program to promote forest health, facilitate collaboration with other land management agencies, and complement ongoing habitat improvement work. (*Commenter: Dave McHenry - NCWRC*)

Response: Comment noted.

#### 2.3.4. Habitat Management

24. ATVs should be restricted from Small Wild Areas and from zones classified Sensitive Resource Management and Natural Resource Conservation. Heavy ATV traffic can cause erosion, with subsequent sediment runoff that impacts fish and other aquatic life local and downstream. ATVs are also noisy, disturb wildlife, and shatter the peace that other users might be seeking. (*Commenter: Sandra Goss - TCWP*)

Response: Comment noted. The use of ATVs is generally prohibited on TVA property, according to established TVA Stewardship Guidelines. Additionally, the use of motorized vehicles, including ATVs, is strictly prohibited on TVA-developed trails; in sensitive environmental areas, small wild areas, designated wildlife management areas and refuges; within reservoir drawdown zones where it could result in environmental damage or public use conflicts; and at other locations where it may result in adverse impacts to natural and cultural resources. ATV abuse is one of the resource conditions recorded during land conditions

assessments; if it is found to be resulting in adverse impacts, TVA Police are requested to provide enforcement. TVA has an ongoing effort to install signs, gates, and other barriers in many areas to restrict ATVs from TVA lands.

25. The biological resources management programs should include an explicit native grass establishment program (including any necessary prescribed burning, grazing, and mowing). The native grasses should include big bluestem, little bluestem, Indian grass, and switchgrass. (*Commenter: Sandra Goss - TCWP*)

Response: TVA, with assistance from partners, has established about 1,000 acres of native warm season grasses and associated forbs at several locations across the Tennessee Valley to enhance wildlife habitat and biodiversity. Under the preferred alternative, TVA would continue to maintain these areas. TVA would also continue to partner with agencies and non-governmental organizations to enhance the management of agricultural lands, which could result in increasing the area of native grasslands.

26. The habitat management programs listed in draft NRP Section 6.4.2.1.1 and elsewhere should include aquatic habitat improvements such as fish attractors and artificial spawning beds that would enhance fish communities and recreational angling opportunities on TVA lakes. (Commenter: Dan Forster - GDNR)

Response: An Aquatic Ecology Management program where TVA would partner and actively participate in enhancing aquatic biological communities is a component of Alternatives B, C, and the preferred Alternative D. This would include activities such as habitat protection and enhancement, biological monitoring, and pollution reduction in both reservoirs and streams.

27. The NCWRC supports prescribed burning and other efforts to improve habitat, particularly early successional habitat, wherever appropriate on TVA lands. Early successional habitat is sparse on both public and private lands in western North Carolina and is important for many game and nongame species. NRP Alternative C and to a lesser extent Alternative D would provide the greatest wildlife habitat benefits. Of particular benefit is the Agricultural and Open Lands Management program that converts lands that are unsuitable or poorly suited for agriculture into quality early successional or forested wildlife habitat. Similarly, where timber harvest or salvage is undertaken, we recommend clearing log decks and widening skid trails to create early successional openings. (Commenter: Dave McHenry - NCWRC)

Response: Comment noted.

#### 2.3.5. Integration with Other Planning Efforts

28. Although the Draft EIS Section 2.1.5 mentions TVA's participation in planning efforts such as the development of state wildlife action plans, it is unclear how the recommendations in these action plans would be implemented in TVA's natural resource management activities. Linkage to these plans should be a part of all alternatives and would foster cooperative projects between TVA and state wildlife agencies. (*Commenter: Zoe Turner*)

Response: TVA partners with state, federal, and NGO groups as part of its current natural resource planning and management activities. These partnerships will continue, and will include consideration of the goals state wildlife action plans and other large-scale conservation plans developed by these partners. Where the goals of state wildlife action plans and other large-scale conservation plans support TVA's land management goals, these action would be

implemented on TVA lands. Under the Preferred Alternative, TVA would increase its direct involvement in these planning efforts.

29. An objective of the NRP should be to manage TVA lands in a manner that supports a nationwide network of biological corridors and interconnected conservation lands, particularly along riparian zones. This will require increased collaboration with other agencies and landowners in land-use planning and management activities. The NRP should therefore be tightly integrated with other regional planning efforts including those undertaken by the Alliance for the Cumberlands, state chapters of The Nature Conservancy, and the Tennessee Citizens for Wilderness Planning. (*Commenters: Virginia Dale-AFORR/TCWP, Keith L. Kline, Zoe Turner*)

Response: Comment noted. TVA has been and will continue to be participants in conservation planning efforts under all of the NRP alternatives. Biological corridors and habitat connectivity are taken into consideration in these planning efforts. TVA is already involved with some planning efforts undertaken by the listed organizations and will consider the others.

30. The NRP documents make no mention of the use of GAP Analysis (i.e., <a href="http://gapanalysis.usgs.gov/">http://gapanalysis.usgs.gov/</a>) as a tool in large-scale comprehensive reservoir land and habitat conservation planning. This tool would help TVA determine habitat quality and quantity for a variety of biological resources. (*Commenter: Zoe Turner*)

Response: TVA will continue to be involved in landscape scale conservation efforts with state, Federal, and NGO partners, and will examine the potential for GAP analysis to be used as a tool in TVA land planning efforts.

31. We recommend that the Virginia Scenic River Program be introduced as a laudable goal for the rivers within TVA's lands. This could be integrated under the Sensitive Biological Resources or other parts of the NRP. This program gives a framework for educated citizens to create an awareness of the benefits and uniqueness of their local natural resources. It also integrates land and water stewardship for the optimum public benefit in conjunction with providing awareness that helps protect and manage the river resources within the Tennessee River system. It is also used in many localities as an environmental tourism tool. (*Commenter: Roberta Rhur - VDCR*)

Response: Comment noted. TVA's natural resource management public outreach efforts incorporate many of the same goals as those of the Virginia Scenic River Program framework.

#### 2.3.6. Invasive Species Management

32. Relevant to the list of program activities in draft NRP Chapter 4 and Appendix A, please explain how the areas and invasive species to be controlled will be prioritized. (*Commenter: Sandra Goss - TCWP*)

Response: As proposed in the NRP Nonnative Invasive Plant Management program, TVA would prioritize invasive plant control efforts on areas with sensitive resources, existing habitat enhancements such as native warm season grasses and legumes, high public use, and with high partnership potential. More specifically, TVA would establish a prioritization process to identify imminent threats from invasive plants on: threatened and endangered species populations such as mountain skullcap; habitat protection areas with unique habitats such as cedar glades; areas where there are stated concerns and interests from adjoining state and/or Federal land owners such as Fontana Dam Reservation; and areas where partnerships are in place to maximize resources and control success. Under Alternative C, TVA would continue to

actively participate in the state and regional exotic pest plant councils on early detection initiatives to proactively address new invasive plants threats in the Tennessee Valley Region.

33. The area proposed for invasive plant management range from 600 to 40,000 acres/year under the various alternatives and priority levels. Please explain this enormous range. How does it relate to the area currently infested and forecast to be infested by invasive plants? (Commenter: Ron Fugatt - NU)

Response: Based on TVA's Lands Conditions Assessments conducted by natural resource managers over the last three years, invasive plants are infesting approximately 17.5 percent of the 231,000 acres of Zone 3 (Sensitive Resources Management) and Zone 4 (Natural Resource Conservation) reservoir properties. This amounts to approximately 40,000 acres of TVA reservoir lands. Without active management efforts, the area infested by invasive plants is likely to increase. At the proposed Flagship management option level in the Plan, TVA would address management of these 40,000 acres of invasive plants. The wide range of acreage is based on different levels of management efforts across the proposed alternatives. The Preferred Alternative would prioritize invasive plant management efforts on TVA's most sensitive and unique habitats where these plants are jeopardizing the existence of threatened and endangered species or biologically critical habitats.

#### 2.3.7. Land Condition Assessment

34. Please describe the status of TVA's shoreline inspection program that analyzes shoreline conditions, including violations and encroachments. What is the annual cost of this program? How will it be addressed within each of the NRP action alternatives? (*Commenter: Zoe Turner*)

Response: Due to organizational changes and limited resources, TVA staff did not conduct systematic shoreline inspections in the 2010 fiscal year. Because of the manner in which costs of shoreline inspections in previous years were recorded, a breakout of the past annual costs of this program is not available. In FY11, TVA plans to inspect target areas including select reservoirs and Zone 3 and Zone 4 lands from June through September. TVA staff is currently preparing a plan which will outline shoreline inspection targets and schedules for the next one-to-three years. This plan will include estimated costs and alignment with the selected NRP alternative.

#### 2.3.8. Migratory Bird Management

35. A proposed migratory bird management activity is to continue to lead the Tennessee River Valley Shorebird Working Group. This group was developed to assist TVA in filling its commitment in the Reservoir Operations Study to determine how the changes in reservoir water levels affected the large numbers of shorebirds migrating through the Tennessee Valley. TVA should make the results of these studies, in particular the effect of the changed water levels, available to the public. If these studies show that the water level changes resulted in a loss of shorebird habitat, TVA should address the mitigation of this loss in the final NRP. (*Commenters: Mark Campen, Richard Preston – TOS*)

Response: Three graduate theses examining Tennessee River Valley waterbird resources funded in partnership with the University of Tennessee and the U.S. Fish and Wildlife Service are available through U.T. TVA's valley-wide shorebird report has been drafted and is currently under review by TVA management. Following completion of the internal TVA review and review by the TRV Shorebird Working Group, the report will be made available via TVA's website. Results of TVA's valley-wide shorebird investigation indicate that the reservoir system provides over 30,000 acres of shorebird habitat.

The availability of this habitat varies among reservoirs and among years, depending upon seasonal rainfall, drought and sporadic storm events (i.e., remnants of hurricanes). The dynamic nature of the reservoir system and varying drawdown schedules allow the system to provide shorebird habitat during much of the migratory season. Reservoirs such as Kentucky and Douglas Reservoir provide habitats earlier in the shorebird migration. In contrast, Chickamauga Reservoir provides new shorebird habitat later in the shorebird migration. This relationship between early and late reservoirs provides thousands of acres of shorebird habitat within the system. A similar relationship occurs between reservoir and off-reservoir sites. During years with heavy rainfall amounts, off-reservoir sites are recharged, providing habitat while reservoir habitats are flooded. The opposite is true during years with lower levels of rainfall. TVA is reviewing the need for mitigation for habitat loss. However, given the abundance of habitat, the large numbers of shorebirds observed on reservoirs managed under the new reservoir guide curves, and the ability of the system to provide new habitat during several portions of shorebird migration, the need for mitigation may not be warranted.

36. The migratory bird management program should include proactive waterfowl and shorebird management. Examples are maintaining mudflats (including manipulating water levels to expose mudflats in the spring and fall) to accommodate shorebirds and increasing cover in backwaters to better accommodate waterfowl. (*Commenter: Sandra Goss - TCWP*)

Response: TVA recognizes the benefits its reservoirs and associated wetlands and mudflats provide to waterfowl, shorebirds, wading birds and other wildlife. The dewatering units, managed in partnership with other agencies, also provide excellent habitat for these birds and other wildlife. Although the timing and management of reservoir water levels is outside the scope of the NRP, TVA is considering ways to further benefit migratory birds.

37. There is currently no Memorandum of Understanding between TVA and the U.S. Fish and Wildlife Service that identifies how TVA will accomplish the requirements of E.O. 13186 on Migratory Birds. It is unclear whether the development of this MOU is proposed under any of the alternative actions. (*Commenter: Joyce Stanley - USDOI*)

Response: TVA and the U.S. Fish and Wildlife Service have discussed a MOU required under E.O. 13186. Until the MOU is developed, TVA will continue to incorporate provisions outlined within E.O. 13186 in its projects as appropriate. TVA intends to continue to work with the Service to address this issue and considers the development of the MOU as part of its activities to comply with E.O. 13186.

38. We are pleased to see attention being given to migratory bird management. The development and implementation of the memorandum of understanding on migratory bird management under Executive Order 13186 should be listed under the Custodial program options because it is required by the EO. (Commenters: Mark Campen, Richard Preston – TOS)

Response: Comment noted. The development and implementation of the memorandum are included as part of the E.O. 13186 compliance activities.

39. Wet coal ash storage areas and related water treatment ponds at some of TVA's coal plants have provided important habitat for herons, egrets, waterfowl, coots and shorebirds for decades. The collapse of the ash pond at Kingston Fossil Plant eliminated some of this habitat and TVA's decision to eliminate all wet ash storage areas will likely eliminate more important habitat. Because the coal plants are within the realm of the NRP, it should describe how TVA intends to compensate for this loss of habitat. The combination of the potential loss of habitat resulting

from ROS and the loss of ash pond habitat has the potential to have a major impact on shorebirds migrating through the Tennessee Valley, especially in the fall when other suitable habitat is less available than in the spring. (*Commenters: Mark Campen, Richard Preston – TOS*)

Response: TVA recognizes the extensive waterbird and related recreation uses at ash settling ponds at several generation facilities, however discussions related to ash management are outside the scope of the NRP. TVA will assess potential impacts of the wet/dry ash conversions to these resources during the planning of these actions.

#### 2.3.9. Scenic Resources Management

40. The current and proposed programs and activities contain little regarding the protection and preservation of the abundant scenic resources within the area covered by the plan. We recommend the inclusion of a discussion and management strategy for scenic resources. (Commenter: Roberta Rhur - VDCR)

Response: The NRP alternatives do not include specific programs or activities for the management of scenic resources. Scenic protection was a zoning category under the former multiple use tract allocation reservoir land planning methodology. Although the current multiple use parcel allocation methodology does not include a scenic protection zoning category, the protection of significant scenic areas is a criteria for allocating lands to Zone 3 - Sensitive Resource Management. As described in Final EIS Section 5.12, the NRP alternatives, and particularly Alternatives C and D, will result in localized improvements to the scenic quality of TVA lands. TVA also considers impacts to scenic resources as part of its National Environmental Policy Act (NEPA) review activities.

# 2.3.10. Sensitive Biological Resources Management

41. The biological resources management programs should include proactive sensitive species planning, monitoring, and habitat improvement. (*Commenter: Sandra Goss - TCWP*)

Response: Conservation planning, sensitive species monitoring, and habitat improvements to benefit both sensitive and common species are incorporated into the various NRP alternatives. Under the preferred Alternative D, the level of effort for some of these activities, such as invasive plant management and the development and implementation of comprehensive natural area management plans, would increase over the current level

42. The Tennessee River drainage in Virginia supports a large number of Virginia's imperiled aquatic species as well as some imperiled terrestrial species. It is also a global biological hot spot for imperiled aquatic species. The Virginia Department of Game and Inland Fisheries spends a lot of effort to manage, protect, and recover these species. We support TVA's initiatives to protect and manage these wildlife resources. (*Commenter: Amy Ewing - VDGIF*)

Response: Comment noted. Since publication of the draft NRP, TVA has added a new water resource management activity that would increase its efforts to improve the health of the biologically diverse Clinch, Powell, and Duck River watersheds.

43. The Virginia Department of Game and Inland Fisheries maintains the Aquatic Wildlife Conservation Center at the Marion, VA hatchery. This facility is used to propagate mollusks, fish, and amphibians native to the Tennessee and other drainages for purposes of research and recovery. We are interested in working cooperatively with TVA towards the goals supported by

the Center through funding opportunities available through TVA and its partners. (Commenter: Amy Ewing - VDGIF)

Response: TVA appreciates the interest of VDGIF in partnerships that benefit natural resources in the Tennessee River drainage and will continue to share information with VDGIF regarding these resources and seek out new opportunities for cooperative actions.

# 2.3.11. Terrestrial Greenhouse Gas Sequestration

44. DEIS Chapter 2 describes programs for terrestrial greenhouse gas sequestration. TVA should consider the offsetting effects of GHGs produced by fire suppression activities when discussing the benefits of terrestrial carbon sequestration of forested lands. (*Commenter: Heinz J. Mueller - USEPA*)

Response: Comment noted. TVA works closely with state Divisions of Forestry and multiple rural volunteer fire departments across the seven-state Tennessee Valley watershed to help control damaging wildfires and to conduct small scale (less than 1,000 acres annually) prescribed burns on TVA lands. These prescribed burns are to enhance forest stand health, maintain early successional plant communities, and help control invasive plants, as well as to meet other resource management objectives. While small quantities of GHGs are typically emitted during these prescribed burns, the enhanced vegetative growth rates of trees, shrubs, and deep-rooted native warm season grasses and other herbaceous plants likely offset much of these emissions.

45. TVA proposes to continue and/or expand terrestrial greenhouse gas sequestration basic research. This appears to be duplicating efforts of other institutions with more expertise, equipment, and experience. This type of research also requires a long-term commitment which is not guaranteed. TVA should instead make its land available to and help fund other researchers. (*Commenter: Joe Feeman*)

Response: Comment noted. TVA is committed to reducing the GHG emissions from its operations and will continue to explore effective means to accomplish this reduction. The preferred NRP alternative does not include expanded terrestrial GHG sequestration research efforts. TVA would consider requests from other researchers to conduct cooperative research efforts on TVA land.

#### 2.3.12. Wildlife Habitat Council - Third-Party Certifications

46. The proposed continuation and expansion of participation in the Wildlife Habitat Council certification program is unnecessary. TVA has its own wildlife biologists capable of creating wildlife habitat and was once a leader in wildlife habitat enhancement. It could use peer agency and university staff at no cost for third-party endorsements. The certification is an unnecessary expense and public relations effort. (*Commenter: Joe Feeman*)

Response: Comment noted. TVA considers the certification of a third party such as the WHC as one methodology to help regain TVA's leadership role in wildlife management.

# 2.4. Climate Change

47. The NRP and EIS should address how possible future changes in the environment due to climate change could change the way TVA manages its natural resources and how TVA will adapt to these changes. Anticipated changes include an increase in extreme weather events, changes in forest conditions such as biomass and species composition, and changes in

demand for various recreational activities. This discussion should include the recommendations in the October 14, 2010 interagency Climate Change Adaptation Task Force. (*Commenters: Virginia Dale - AFORR/TCWP, Heinz J. Mueller - USEPA*)

Response: Final EIS Section 5.17 - Climate has been revised to better describe potential effects of climate change on the natural resources managed by TVA. TVA has also increased the level of aquatic monitoring and assessment activities in the preferred alternative, including the addition of a new Climate Change Sentinel Monitoring program. These changes were made, in part, to respond to the recommendations of the Climate Change Adaptation Task Force.

#### 2.5. Cultural Resources

#### 2.5.1. Archaeological Outreach

48. How does the Thousand Eyes Program relate to the other public outreach and education programs? (*Commenter: Russell Townsend - EBCI*)

Response: TVA is required to have an archaeological outreach program under the Archeological Resources Protection Act (ARPA). This program is designed to help promote the need to protect archaeological resources from looting and other vandalism. TVA proposes to continue to implement the Thousand Eyes program and will look for opportunities to coordinate it with other outreach efforts through the Environmental Education program in order to provide an integrated approach to resource management.

#### 2.5.2. ARPA Compliance and Enforcement

49. The number of proposed ARPA inspection security checks ranges from an unquantified "by reported incident" to 5,000 per year. How many ARPA incidents does TVA currently investigate per year? (*Commenter: Ron Fugatt - NU*)

Response: TVA currently conducts approximately 1,000 security checks per year. TVA investigates 10-20 cases per year with 4-5 cases submitted to the U.S. Attorney's office for further investigation and/or prosecution. Under the preferred alternative, the number of ARPA security checks would continue to be about 1,000 per year. If additional funding is available during the life of the NRP, TVA would increase the number of officers devoted to ARPA and the number of security checks they conduct.

# 2.5.3. NHPA Compliance

50. The description of the NHPA Section 106 Compliance program on DEIS pages 27-28 include developing emergency procedures for Section 106 compliance. They do not mention the development of plans for late or inadvertent discoveries. Is there also a need for this? (Commenter: Tom McCulloch - ACHP)

Response: As part of Alternative C, TVA would develop a plan for emergency procedures for Section 106 Compliance in the event the agency must declare an emergency, such the Kingston Fossil Plant ash spill. This would allow TVA to respond quickly to such an emergency while having procedures in place for ensuring compliance with Section 106. TVA has developed procedures for inadvertent discoveries as defined under the Native American Graves Protection and Repatriation Act (NAGPRA) with several federally recognized Indian tribes pursuant to memoranda of understanding with these tribal governments. In the event that post-review discoveries occur following completion of a Section 106 undertaking, TVA follows the processes laid out in 36CFR800 for post-review discoveries.

51. The NHPA Section 106 Compliance program described on DEIS pages 27-28 includes the development of programmatic agreements with individual states regarding compliance for repetitive actions. This is a good idea and some PAs may be applicable to more than individual states. We have developed lists of repetitive actions that generally have no potential to affect historic properties and can share them with you. (*Commenter: Tom McCulloch - ACHP*)

Response: Comment noted. TVA Cultural Compliance staff would be happy to receive copies of these lists to assist in the development of any programmatic agreements for repetitive actions.

#### 2.5.4. Scope of Cultural Resources Management Activities

52. Do the cultural resources management programs address cultural resources on power plant sites? (*Commenter: Tom Littlepage*)

Response: Yes, TVA manages the cultural resources on power properties the same as it does on reservoir lands.

53. Please explain how the NHPA, ARPA, and NAGPRA define TVA's custodial role and the custodial level of effort. And how did TVA determine the quantities of activities such as surveying and nominating properties for the National Register associated with the custodial levels for programs addressing these laws? (*Commenters: Tyler B. Howe - EBCI, Russell Townsend - ECBI*)

Response: While numerous federal obligations are included in NHPA, ARPA, and NAGPRA, the acts and associated regulations do not set out goals or requirements that specify a certain level of effort. Each land managing agency is required to manage the historic properties and archaeological resources on their lands pursuant to these Acts. Because agencies differ in terms of agency mission, land and resource base, and budgets, there is no consistent policy that can be applied across agencies.

The numbers provided in the custodial option represent a minimal approach to meet the requirements of the law. Most legislation requires agencies to make a "good-faith effort" in meeting these obligations. TVA's managed lands are primarily located along the Tennessee River and its tributaries and as a result are the location of many archaeological and other settlement type sites. While the land area is small relative to many other Federal agencies, the cultural resources are dense and their vulnerability to various threats is great, with most being easily accessible by water and land. With only approximately 30 percent of its lands systematically surveyed, TVA must make prudent choices in its annual inventory efforts while making a good-faith effort to meet its responsibilities under Section 110 of the NHPA. Under the preferred alternative, TVA would conduct archaeological surveys on 3,000 acres per year; although an increase from the current 2,000 acres per year, TVA would not complete its Section 110 inventory for 65 years. By using additional funds to expand these efforts to 5,000 acres per year under Alternative C - Flagship Management, TVA could reduce this inventory completion to around 40 years.

In the recent past TVA has been limited in its nominations to the National Register of Historic Places (NRHP). Alternative B - Custodial Management would set minimal goals to evaluate and nominate two NRHP eligible sites each year. It is estimated that only 25 percent of the 11,500 archaeological sites have been evaluated for eligibility for the NRHP. It is anticipated that at least half of these sites are NRHP eligible. In addition, many of TVA's structures have also played a significant role in our Nation's history, making them eligible for the NRHP. Nominating two sites each year would be a minimal effort. Under Alternative C, TVA would evaluate and

nominate up to ten each year - improving the public exposure to these sites and helping to encourage the protection of the resources.

ARPA Investigations are quantified by considering the number of security checks by TVA Police each year. This would mean 1,000 of TVA's 11,500 recorded sites would be visited each year and monitored for illegal activity. This is only 11 percent of the sites located on TVA land. Alternative C would increase this to 5,000 sites visited each year, a significant increase in monitoring and site protection efforts. This would be accomplished through additional officers available for ARPA enforcement and additional archaeologists on staff to assist these officers in conducting assessments under the Act.

NAGPRA does not include specified numbers associated with the repatriation of materials in our collections. TVA has been working on a timeline for completion of these efforts independently of the NRP. Pursuant to the programmatic agreement that is currently being developed for Section 106 Compliance of the NRP, TVA plans to identify long-term goals for the implementation of these programs that will include prioritizing lands or sites and identifying what TVA can do to increase these efforts should money be available.

54. Please provide a breakdown of the general location of the 11,500 archaeological sites that TVA manages. How many are along the reservoirs, on power plant sites, and on transmission lines? (*Commenter: Ron Fugatt - NU*)

Response: A majority of the 11,500 archaeological sites are located on reservoir lands (both inundated and above pool, although a majority of these are above pool). A few archaeological sites are located on power plant sites. Most transmission lines are located on lands where TVA has purchased an easement, rather than owning the land. Consequently, TVA does not have the same management responsibilities for most archaeological sites on transmission lines as it does on lands it controls with fee-title. TVA does survey for archaeological sites along proposed transmission lines and takes appropriate measures to avoid and/or mitigate impacts to eligible or potentially eligible sites from TVA construction and maintenance activities.

55. The Eastern Band of Cherokee Indians Tribal Historic Preservation Office recognizes that the draft NRP was constructed "to enable TVA to better balance its stewardship objectives and obligations while working within resource and financial considerations." However, it is the Office's opinion that a monetary value cannot be placed on some resources, such as non-renewable cultural resources. Given the abundance of cultural resources on TVA's lands, the protection of these resources should be TVA's first priority. It would be an affront to our Tribal Elders if important Cherokee sites were damaged because the lead federal agency in charge of their stewardship did not find it economically beneficial to properly manage them. (*Commenter: Tyler B. Howe - EBCI*)

Response: TVA understands the sensitive nature of these non-renewable resources to the Eastern Band of Cherokee Indians and other federally recognized Indian tribes who may be culturally affiliated with these archaeological sites. While it is not appropriate to place a value on these resources in determining the economic feasibility of stewardship responsibilities, TVA has considered the benefits of some programs in terms of the scientific knowledge and data that can be saved through such activities such as the site stabilization program or through investigations pursuant to the Archeological Resources Protection Act (ARPA). This effort shows that the knowledge and information that can be saved from these efforts far outweighs the costs associated with the activity itself. These values are consistent with the values archaeologists must place on resources impacted through the prohibited acts defined under ARPA. TVA

understands that the scientific value of these sites is not the only value that can be placed on the resources. Further, TVA recognizes that a value cannot be placed on the cultural significance of these resources and that its obligations to be stewards of these resources cannot be justified through economic feasibility.

# 2.5.5. Support for the Proposed Action

56. We continue to support TVA's efforts for protecting and preserving archaeological sites and recommend that TVA monitor sites along reservoir shorelines and evaluate the National Register eligibility of previously recorded sites. (*Commenter: Claudia Brown - NCSHPO*)

Response: Comment noted.

#### 2.6. Editorial Comments

#### 2.6.1. Errors in Draft EIS

57. DEIS Section 5.8.8 lacks an assessment of potential impacts from each alternative to endangered and threatened plants. This section states that direct and indirect impacts would be anticipated from the introduction and spread of invasive plants, and this would affect Ruth's golden aster. It also states that cumulative impacts to listed plants may result from habitat destruction by increased commercial and residential development. We recommend that the FEIS include a consistent assessment of the potential impacts to all groups of endangered and threatened species. (*Commenter: Joyce Stanley - USDOI*)

Response: Comment noted. Final EIS Section 5.8 has been revised to provide more consistent analyses of the impacts to endangered and threatened species.

58. The description of the No Action Alternative in DEIS Section 3.2.1 states that "TVA would continue its current natural resource management efforts by implementing the existing stewardship programs..." (page 91) yet several programs such as the aquatic ecology management program and water efficiency program, which are listed in DEIS Table 2-27 as current programs, are not listed in DEIS Section 3.2.1.4. DEIS Appendix H also appears to exclude these programs from the No Action Alternative. Please clarify these tables and the status of these programs. (*Commenter: Heinz J. Mueller - USEPA*)

Response: Under the preferred alternative, TVA would conduct the Aquatic Ecology Management activities at the highest flagship level. These activities are not part of TVA's current resource management activities (the No Action Alternative). Water efficiency program activities will be implemented under TVA's Strategic Sustainability Performance Plan, a separate effort from the NRP. The sustainability plan includes the continued reduction of TVA's water usage and aims for TVA to become a leading example to the community on water use efficiency and management.

59. The Endangered Species Act listing status of the spectaclecase (*Cumberlandia monodonta*), sheepnose (*Plethobasus cyphyus*), and rayed bean (*Villosa fabalis*) is given in Table K-8 as candidate species. The status of these species has recently been revised to "proposed endangered." The snuffbox (*Epioblasma triquetra*), recently listed as "proposed endangered," should be included in Table K-8 as it occurs in the Tennessee River watershed. (*Commenter: Joyce Stanley - USDOI*)

Response: The status of these species has been corrected in Table K-8 of the FEIS.

60. We support TVA's monitoring of critical habitats for endangered and threatened species on TVA lands. The DEIS Executive Summary, page S-5, states no T&E species are "known to occur on the TVA-managed lands that are a part of this plan." This is contradictory to statements in DEIS Chapter 3, page 93, that 40 sites containing populations of federally listed animals and plants on TVA lands are monitored. (*Commenter: Dan Forster - GDNR*)

Response: The Final EIS Executive Summary has been revised to correct this.

#### 2.6.2. Errors in Draft NRP

61. NRP Section 2.4 states that "TVA will use three techniques to collect public input during the draft document stage." Only two techniques are listed. (*Commenter: Dan Forster - GDNR*)

Response: This error has been corrected in the final NRP.

#### 2.6.3. Suggestions for Improvement of EIS and/or NRP

62. DEIS Executive Summary page S-7 paragraph 2 states Alternative D would create the greatest potential benefit in only three categories (visual resources, listed plant species and vegetation). Table S-1 (page S-8) states Alternative D would also "provide the greatest beneficial impact" on aquatic ecology relative to all other alternatives. Aquatic ecology should be added to the list of "greatest potential benefit" categories under Alternative D. (*Commenter: Dan Forster - GDNR*)

Response: The summaries of environmental consequences in the DEIS Executive Summary and the Comparison of Alternatives in DEIS Section 3.5 erroneously stated that Alternative D would result in the greatest beneficial impacts to visual resources, listed plant species, vegetation, and aquatic ecology. As with most other resource areas, the greatest beneficial impacts to these resource areas would result from Alternative C. The corresponding sections in the Final EIS have been revised to state this.

63. DEIS Section 2.4.1, Aquatic Ecology Management, provides a description of the program using the future tense (would) yet this program is listed in Table 2-27 as a current program. This issue occurs in several other places in Chapter 2. (Commenter: Heinz J. Mueller - USEPA)

Response: The term "would" is used in this context to describe all of the program and activities that TVA is considering, regardless of whether they are existing programs. Chapter 3 further differentiates existing and proposed programs and activities.

64. DEIS Section 2.4.3 states "Water Resource Campaigns could include focused efforts to raise public awareness..." The word "could" leaves readers uncertain what this program will actually entail when implemented. Please describe this and other programs more definitively in the Final EIS. (Commenter: Heinz J. Mueller - USEPA)

*Response:* The description of the Water Resource Outreach Campaigns in FEIS Section 2.4.3 has been revised to better describe its components. The descriptions of other activities have also been similarly revised with more details added.

65. DEIS Section 3.1, Development of Alternatives, provides little information on how and why TVA selected the four alternatives analyzed in the DEIS. We recommend that TVA provide additional information on how alternative management strategies were selected. We also recommend that TVA provide more detail in the FEIS on how and why specific new programs are being proposed under the preferred alternative. (*Commenter: Heinz J. Mueller - USEPA*)

Response: The discussion of alternatives and their formulation has been revised in Section 3.1 of the Final EIS. Section 3.2 of the Final EIS has also been revised to better describe the bases for the different quantities and activity levels associated with the various alternatives. The preferred alternative was selected because of its integrated approach to benefit multiple resources while complying with regulations, executive orders, and TVA policies. Its selection is based on public and interagency input, as well as the need to balance TVA's resource management responsibilities with the availability of funding from TVA ratepayers while maintaining low cost and reliable power.

66. DEIS Table 3-1 uses the term "Enhanced Management" which appears to be the same management strategy listed in the other parts of the document as the "Blended Management" approach, which is TVA's preferred alternative. Please clarify this. (*Commenter: Heinz J. Mueller - USEPA*)

Response: "Enhanced Management" as used in DEIS Table 3-1 is generally an intermediate level of effort between custodial and flagship. For many activities, it represents an increase over TVA's present level of effort. The Blended Management Alternative (Alternative D) includes a range of levels of effort - custodial, enhanced, and flagship.

67. In both the DEIS and the NRP, it is difficult to determine which programs will be developed and which will be enhanced under the preferred alternative. The clearest explanation of this is in DEIS Appendix H. This explanation should be use more prominently in both the final NRP and EIS. (*Commenter: Heinz J. Mueller - USEPA*)

Response: Comment noted. DEIS Appendix H has been merged in final EIS Chapter 3 - Alternatives to more clearly define the programs and activities associated with each alternative. The final NRP has been restructured to provide a single chapter for each resource area. These chapters more clearly describe the programs that would be developed and and/or enhanced.

68. In Sections 5.8.1 and 5.8.2 of the DEIS, TVA determines that the alternatives may result in short-term direct and indirect adverse impacts on endangered or threatened aquatic and terrestrial species. These impacts would be assessed, avoided, and/or minimized through existing regulatory mechanisms. The DEIS then notes that only beneficial long-term changes to aquatic resources and benefits to terrestrial species and their habitats, including listed species, would occur and that none of the alternatives would result in adverse direct, indirect, or cumulative impacts to federally listed species and their habitats. We find these determinations, i.e., short-term direct and indirect adverse impacts, beneficial long-term changes, no direct, indirect, or cumulative impacts, to be confounding and inconsistent. (*Commenter: Joyce Stanley - USDOI*)

Response: Sections 5.8.1 and 5.8.2 of the Final EIS have been revised to clarify these determinations.

69. Many of the program options are described in terms of amounts of things such as acres or miles of shoreline. For some of these program options, it is unclear whether the specified amount is an annual amount, the amount over the 20-year planning period, or over some other time period. If is also unclear whether the amount could include the same areas that are treated multiple times during the planning period or whether this is a new area each treatment cycle. Please clarify this. (*Commenter: Tom Littlepage*)

Response: The listings in the final NRP of the activities comprising the preferred alternative includes their implementation timelines.

70. Many of the tables in DEIS Chapter 2 list current and proposed resource management programs. It is not clear whether the proposed programs listed in these tables are being proposed under the preferred alternative. Please clarify this. (*Commenter: Heinz J. Mueller - USEPA*)

Response: The tables and associated text in DEIS Chapter 2 were designed to describe both TVA's current resource management programs and programs proposed under one or more of the alternatives. DEIS Chapter 3 describes which programs are associated with each alternative. Final EIS Chapters 2 and 3 have been revised to better explain this.

71. Please consider including in the final EIS a table listing tracts of TVA lands designated Zone 3 or Zone 4 and their acreage, particularly for tracts over 50 acres. These large tracts could then be analyzed in the context of large-scale cooperative habitat conservation initiatives undertaken by other agencies and organizations. (*Commenter: Zoe Turner*)

Response: Zone 3 and Zone 4 tracts over 50 acres in area make up a significant proportion of the total acreage of these zones. Due to the large number of tracts fitting this description, it is not feasible to include a listing of them in the final NRP or EIS. However, the locations of many of these tracts can be found in the Reservoir Land Management Plans and their associated maps that TVA has issued. These can be found at <a href="http://www.tva.com/environment/land/land\_mgmt\_plans.htm">http://www.tva.com/environment/land/land\_mgmt\_plans.htm</a>. These data would continue to be considered in all large-scale cooperative planning efforts in which TVA is involved.

72. Please include information on State Natural Areas located on TVA lands. (*Commenter: Avis Kennedy*)

Response: The Natural Areas section does not list state natural areas existing on TVA lands specifically but does refer to natural areas and ecologically significant sites occurring on or adjacent to TVA lands under contractual agreements with other agencies. FEIS Appendix A includes a map of these areas. The focus of the NRP is the lands and water that TVA manages, and not those areas managed by others. TVA does not propose to change any of the existing licenses, easements, or other agreements for the management of natural areas on TVA lands as part of the NRP.

73. Please provide a better description of the proposed funding for the various alternatives with the current funding and 1999 funding for comparable programs and activities. (*Commenter: Avis Kennedy*)

Response: Estimated costs for full implementation of the proposed alternatives are as follows: Alternative A: \$7-8 million Alternative B: \$7-10 million Alternative C: \$45-\$55 million Alternative D: \$19-20 million. These are late-stage implementation costs and not initial plan costs. In 1999, TVA spent approximately \$7-10 million on comparable programs and activities. This was the last year in which TVA got appropriations for these activities.

74. Section 1.4 of the draft NRP states that the scope of the plan is the 293,000 acres of reservoir properties and power plant properties. What is the acreage of land that TVA has acquired for possible future power plant projects and is this land within the scope of the plan?

How much of the 293,000 acres is comprised of power plant properties? (Commenter: Joyce Stanley - USDOI)

Response: The 293,000 acre land area refers to TVA reservoir lands, including dam and associated hydroelectric plant reservations. These dam and hydro plants occupy most of the 20,510 acres allocated to Zone 2 - Project Operations. The 293,000 acres of reservoir lands does not include lands occupied by active and former fossil and nuclear power plants. These power plants occupy about 9,100 acres. The major potential power plant site owned by TVA is the Saltillo site near the upper end of Kentucky Reservoir. This 1,600-acre site is outside the scope of the NRP.

75. Since the TVA Environmental Policy provided the "umbrella" policy for the Integrated Resource Plan and NRP and is referenced multiple times in the NRP and NRP DEIS, we recommend that it be added to the appendix of the Final EIS. (*Commenter: Heinz J. Mueller - USEPA*)

Response: The pertinent objectives and critical success factors in the TVA Environmental Policy are stated in Section 1.4 of the Final EIS. The full 14-page Environmental Policy is not reprinted in the EIS in order to conserve resources. It is readily available at <a href="http://www.tva.com/environment/policy.htm">http://www.tva.com/environment/policy.htm</a>; this URL is also given in Final EIS Section 1.3.2.

76. Table S-1 in the EIS Summary should label the preferred alternative. (*Commenter: Heinz J. Mueller - USEPA*)

Response: The preferred alternative has been labeled in the corresponding table in the Final EIS Summary.

77. The arrangement of DEIS Section 2.1, Biological and Cultural Resources Management, is unclear. It begins with an overview of biological resources, followed by an overview of cultural resources, details of cultural resources programs, and details of biological resources programs. We recommend that the cultural resources descriptions be grouped together and that the biological resources descriptions be grouped together. (*Commenter: Heinz J. Mueller - USEPA*)

Response: Final EIS Chapter 2 has been reorganized into separate biological resources and cultural resources sections.

78. The discussion of endangered and threatened species in Section 4.7 and Appendix K of the DEIS is confusing. It interchangeably discusses certain taxonomic groups within the entire TVA region and others only on the 293,000 acres of managed lands. It is also confusing that some taxonomic groups discussed in the DEIS contain not only listed species, but federally protected (i.e., bald eagle) and candidate species. We recommend that federally listed aquatic species and plant species occurring in the TVA region be listed by TVA-managed lands or reservoirs (to better define the action area and potentially affected species). We also recommend that the federally listed species tables (K-9, K-10, and K-12) be identified by individual state occurrences for those areas where the proposed actions would take place. (*Commenter: Joyce Stanley - USDOI*)

Response: This discussion in the Final EIS has been revised to be clearer. Final EIS Sections 4.7.2 and 4.7.3 describe the distribution of federally listed terrestrial animals and plants on TVA lands, and, for some species, list the individual reservoirs on which they occur.

79. The discussions of reservoir lands planning in both the NRP and EIS contain little to no mention of the Zone 1 Non-TVA Shoreland lands. It would be helpful to include them in the allocation tables and discussions to better portray current and potential land use around the reservoirs. It would also be helpful to consistently include the current allocations (for example in NRP Executive Summary Table 2) to show the potential change. (*Commenter: Dan Forster - GDNR*)

Response: Zone 1 lands, which are privately owned, make up approximately 21 percent of the length of the shoreline of TVA reservoirs (TVA 1998). In many instances, TVA owns the right to flood and/or limit structures on portions of these lands. They are not included in the NRP because TVA does not have the right to manage the natural resources on them or, other than activities occurring on the shoreline or in the area where TVA owns the right to flood, have the right to zone their use.

80. The Dispersed Recreation Management activities and Boundary Maintenance do not belong under Biological Resources, where they are listed on NRP page 14 and elsewhere in the NRP and EIS. (Commenter: Joyce Stanley - USDOI)

Response: Comment noted. TVA has decided to retain Dispersed Recreation Management and Boundary Maintenance in the Biological Resources sections of the final NRP and Final EIS. This decision is based on the fact that dispersed recreation is a major source of impacts to biological resources. Adequately maintained boundaries are an important factor in the use of an area for dispersed recreation.

81. The geographic scope of the NRP is a much greater area than the 293,000 acres described by TVA. Therefore additional federally listed species could be affected by TVA's actions and need to be included in Appendix K. TVA has not adequately justified why additional areas have been excluded. TVA should coordinate closely with the seven individual U.S. Fish and Wildlife Service Ecological Service Offices to identify and update the listed species tables in Appendix K. (Commenter: Joyce Stanley - USDOI)

Response: The majority of TVA actions related to NRP programs will occur on the ~293,000 acres described in this document. Other programs (particularly related to Water Quality programs) will occur over the entire Tennessee River watershed. During the planning and implementation of NRP program activities, TVA will consult with the U.S. Fish and Wildlife Service as required under Section 7(a)(2) of the ESA to ensure that potential impacts to federally listed endangered, threatened, or candidate species are avoided, minimized, or mitigated appropriately.

82. The mission statement on NRP page 4 should place more emphasis on the importance of stewardship activities as part of TVA's core business. (*Commenter: Joyce Stanley - USDOI*)

Response: Comment noted. The statement of purpose and need for the NRP has been revised.

83. The mixture of program options, priority levels, and alternatives, along with overlapping names such as "custodial," "enhanced," "blended," "flagship," and "advanced" make it very difficult to determine what is included in the various alternatives and what TVA actually proposes to implement. The descriptions of the programs in the plan do not always align with those in the EIS. The plan and the EIS are, consequently, difficult and confusing to review. (Commenters: Mark Campen, Jean Elmore, Joe Feeman, Sandra Goss - TCWP, Renee Hoyos

- TCWN, Mark Iverson - BGMU, Avis Kennedy, Tom Littlepage, Richard Preston – TOS, Axel C. Ringe - SC, Paul Sloan - TDEC, Dagny Vigander)

Response: Comment noted. The final EIS has been revised to more clearly describe the components of the various alternatives. The overlapping names have also been eliminated from both the final EIS and NRP. TVA also has attempted to provide more consistent descriptions of the various programs and activities comprising the alternatives in the final EIS and NRP.

84. The NRP Executive Summary states that TVA is an environmental steward of the nation's fifth-largest river system (page 4). This should be expounded upon to describe the relative importance of the Tennessee River system in terms of its aquatic and terrestrial biodiversity and the resultant impacts to this biodiversity from the construction and operation of TVA's dams. Other areas in the NRP (e.g., Section 3.5, page 43) fail to mention the Tennessee River's unique and sensitive biodiversity, the historic detrimental impacts of TVA's operations on this biodiversity, and recent attempts to restore this biodiversity. (*Commenters: Axel C. Ringe - SC, Joyce Stanley - USDOI*)

Response: Comment noted. Additional information on the importance of the biodiversity of the Tennessee River system has been added to the Final NRP. TVA has also supplemented the Aquatic Ecology Management program to more directly maintain and enhance this valuable resource.

85. The NRP should better define the geographic scope of the proposed activities. The interchangeable use of TVA-managed lands and TVA's entire 202-county, 59 million- acre power service area throughout the document is confusing. The inclusion of watershed water quality and water resource management (pages 4, 14 and 20) implies that natural resource activities occur on a broad geographic scale. (*Commenter: Joyce Stanley - USDOI*)

Response: The geographic scope of the biological, cultural, and recreation management activities is the 293,000 acres of reservoir lands that TVA manages and the approximately 9,100 acres of non-hydroelectric power plant reservations. The scope of the water resource management activities includes these lands as well as the remainder of the Tennessee River watershed. Section 1.5.1 of the final NRP has been revised to better explain this.

86. The NRP should include a discussion of how TVA will measure the results of implementing the NRP in terms of the resource needs and effort and expenditures in addressing the resource needs. (*Commenter: Avis Kennedy*)

Response: Final NRP Section 9.4 describes how results will be measured during the implementation of the NRP. An immediate NRP implementation activity is to establish a comprehensive assessment process and metrics to evaluate the effectiveness of the NRP.

87. The NRP states "Natural resources management has been a core component of their business since its inception" (page 3). We recommend the NRP include a history of funding for the types of activities included in the NRP, as well as a description of how the proposed funding for the various alternatives relates to historical expenditures. (*Commenter: Joyce Stanley - USDOI*)

Response: A history of stewardship spending is included in the Final NRP executive summary and in Section 1.5. These sections describe TVA funding since federal appropriations were discontinued in 1998.

88. The NRP states that advice on stewardship activities was solicited from the Regional Resource Stewardship Council (page 6). Please add a summary of this advice. (*Commenter: Joyce Stanley - USDOI*)

Response: A summary of advice provided by the Regional Resource Stewardship Council can be found at <a href="http://www.tva.com/rrsc/readingroom5/pdf/10-29-09">http://www.tva.com/rrsc/readingroom5/pdf/10-29-09</a> advice.pdf.

89. The part of Section 4.7 of the DEIS on trends in threatened and endangered terrestrial animals should include more information on white-nose syndrome. This disease causes significant mortality in several species of bats, including the Indiana bat, and may have significant impacts to bat populations in the TVA region. The EIS should document that it has been confirmed in four states within the TVA region (Tennessee, Virginia, North Carolina, and Kentucky). (*Commenter: Joyce Stanley - USDOI*)

Response: Section 4.7 of the Final EIS has been revised to include more information on white-nose syndrome. TVA continues to be involved with various conservation teams addressing and monitoring the spread of WNS throughout the region. In response to a request from the USFWS, TVA has closed all of its caves to public access to help reduce the spread of WNS. Additionally, TVA staff follows all decontamination protocols when monitoring populations of bats.

90. The Partnerships section of draft NRP page 10 states that "TVA will examine collaborative opportunities to address local natural resource needs." Landscape Conservation Cooperatives should be considered as part of this effort. (*Commenter: Joyce Stanley - USDOI*)

*Response:* Landscape Conservation Cooperatives are a likely component of the Conservation Planning activities included in the biological resource management programs.

91. The readability of the NRP would be improved by numbering the tables and adding a list of tables and figures. (*Commenter: Sandra Goss - TCWP*)

Response: In the Final NRP, all tables are numbered and a list of tables and figures is included.

92. The statement "Through public outreach and education campaigns, TVA should promote past, present, and stewardship efforts while reinforcing the public's role in the protection and preservation of natural resources" on draft NRP page 10 requires clarification. (*Commenter: Joyce Stanley - USDOI*)

Response: Comment noted. A chapter on public engagement efforts which encompass the biological, cultural, recreation and water resource areas has been added to the Final NRP.

93. The structure, complexity, and lack of historical context in the draft NRP causes all but the most diligent to surrender. This obfuscation appears to be a deliberate attempt to overwhelm property owners and other interested parties and will reduce the number of comments that TVA would otherwise have succeeded. Other agencies and regulatory authorities, such as the Securities and Exchange Commission, are required to produce simple readable reports without compound sentences and in active (not passive) voice. (Commenters: Hugh L. Davis, III)

Response: Comment noted. The final NRP has been revised to simplify the presentation of the propose programs and activities and to improve its readability.

94. The tables in NRP Chapter 4 and Appendix A require careful and iterative study to infer anything about what TVA would implement under the various program options and priority levels. It would be helpful to have an expanded text explanation of these tables and the quantities listed in the tables. (*Commenter: Sandra Goss - TCWP*)

Response: The final NRP has been revised to include separate chapter for each of the major resource areas. The programs and activities that TVA intends to implement are more clearly described in these chapters. Final EIS chapters 2 and 3 have also been revised to more clearly describe the various programs and options that would be implemented under each alternative, including the bases for the different quantities associated with different alternatives.

95. TVA's current level of natural resource management activities is not clearly described in terms of both the types of actions and the land area or other quantity currently affected by each action. The NRP mentions that staff provided input to help identify TVA's current level of management, but does not describe that level. Is the current level of management comparable to the Custodial Management option? (Commenters: Mark Campen, Richard Preston – TOS, Axel C. Ringe - SC, Joyce Stanley - USDOI)

Response: TVA's current level of natural resource management activities, including the land area and other affected quantities, is describe in Final EIS Chapter 3. The current level of management is comparable to the Custodial Management option for many activities, higher for a few activities, and lower for a few activities.

96. We agree with the statement in the DEIS that bald eagle and gray bat populations appear to have increasing and stable numbers. TVA should include citations/sources that validate this information. (*Commenter: Joyce Stanley - USDOI*)

Response: TVA works with other resource agencies to survey gray bats and bald eagles on TVA lands. TVA provides annual gray bat and bald eagle monitoring data to the USFWS. These data, along with data acquired from other resource management agencies suggest that populations of gray bats have remained stable while bald eagle numbers continue to increase throughout the Valley. As stated in the final EIS, these observations are primarily based on the unpublished observations of TVA staff.

97. We recommend that 303(d) and TMDL information be added to EIS Table 4-5 listing the ecological health ratings of TVA reservoirs. (*Commenter: Heinz J. Mueller - USEPA*)

Response: The state 303(d) and 305(b) impaired waters information has been added to the Final EIS Table 4-7. TMDLs have not been completed for most of the reservoirs and the addition of this information would little useful information.

98. We recommend that EIS Section 5.17, Climate, provide more discussion (in addition to Appendix M) in the FEIS regarding now climate change will impact current and proposed programs listed in the NRP. (*Commenter: Heinz J. Mueller - USEPA*)

*Response:* Final EIS Section 5.17 has been revised to provide more discussion of the interactions between climate change and the proposed programs listed in the NRP.

99. We recommend that EIS Table 1-2 be reorganized to better show the RLMP Developed / Not Developed status. The current configuration is hard to read. (*Commenter: Heinz J. Mueller - USEPA*)

Response: Final EIS Table 1-2 has been reorganized to better show whether an RLMP has been developed for each reservoir.

100. We recommend that the description of the Preferred Alternative provide additional information and details on how TVA proposes to determine which stewardship programs will be implemented first when opportunities and/or resources become available. Will programs be prioritized and how? (*Commenter: Heinz J. Mueller - USEPA*)

Response: Chapter 9 of the final NRP describes how TVA intends to prioritize and implement the various programs and activities.

101. We understand that it is not possible for TVA to initiate consultation under Section 7 of the Endangered Species Act on the NRP, as site-specific activities are not yet identified. The FEIS, however, should include a description of the planning, review, and ESA compliance process TVA will use for future NRP implementation activities. (*Commenter: Joyce Stanley - USDOI*)

Response: TVA has provided a brief overview of its ESA Compliance Process in Appendix H of the Final EIS.

102. While the draft EIS looks very comprehensive, it uses indecisive terms such as "TVA proposes," "is considering," and "would" throughout the document. Because of this word usage, it is difficult to determine which programs and activities will be implemented. (*Commenter: Tom McCulloch - ACHP*)

Response: Final EIS Chapters 2 and 3 have been revised to better define the programs and activities associated with the various alternatives. Because the decision on which alternative will be implemented will not be made until after the final EIS and final NRP are issued, the final EIS continues to use terms such as "proposes," "is considering," and "would." TVA's preferred alternative, Alternative D, is clearly identified in the final EIS.

# 2.7. Endangered & Threatened Species

103. Based on the information provided to us, we believe the following federally listed species have the potential to occur in the NRP project area: Indiana bat, gray bat, Price's potato-bean, interior least tern, relict darter, clubshell, fanshell, fat pocketbook, orangefoot pimpleback, pink mucket, rabbitsfoot, ring pink, rough pigtoe, and sheepnose. We recommend that TVA submit potential projects that have the potential to affect these species for our review and consultation. (*Commenters: Virgil Lee Andrews, Jr. - USFWS*)

Response: When TVA proposes action to implement the NRP programs, it will review the potential environmental effects of this action. Included in this review is compliance with the Endangered Species Act. This process is outlined in Section 5.8 of the FEIS. All federally listed species that could be affected by the proposed action will be addressed through consultation with the U.S. Fish and Wildlife Service as appropriate.

104. Several bald eagle nest sites exist in the NRP project area. Although the bald eagle has been removed from the list of endangered and threatened species, it continues to be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. TVA should comply with the National Bald Eagle Management Guidelines when undertaking any activities within 1,500 feet of a bald eagle nest. (*Commenters: Virgil Lee Andrews, Jr. - USFWS*)

Response: Comment noted. TVA considers the National Bald Eagle Management Guidelines when planning resource management activities as well as during the review process for these and other proposed actions. TVA also maintains data on known bald eagle nests within the TVA region.

105. The endangered smooth coneflower (*Echinacea laevigata*) has the potential to occur in the Clear Creek Lake Dam area. We recommend TVA conduct an inventory of this area prior to any actions that could result in disturbance. If the plant is present, TVA should coordinate with Virginia Department of Agriculture and Consumer Services to ensure compliance with Virginia's Endangered Plant and Insect Species Act. (*Commenter: Roberta Rhur - VDCR*)

Response: TVA recently surveyed its lands for this and other listed species at both Clear Creek and Beaver Creek Lakes in Washington County, Virginia during the development of the Northeastern Tributary Reservoirs Land Management Plan. The smooth coneflower was not found on these lands.

#### 2.8. Environmental Justice

106. We appreciate the discussion of environmental justice in DEIS Chapters 4 and 5. Because the NRP addresses natural resource management strategies at a macro level, it is difficult to identify direct impacts on EJ communities. We recommend that TVA improve the EJ analysis by enhancing public participation and identifying key EJ stakeholders in the study area in order to have more meaningful engagement of the EJ community. Agencies should, as appropriate, acknowledge and seek to overcome linguistic, cultural, institutional, geographic, and other barriers to meaningful participation and incorporate active outreach to affected groups. (Commenter: Heinz J. Mueller - USEPA)

Response: Comment noted. TVA is implementing some of the recommended actions to increase the engagement of the EJ community during its review of place- and facility-based actions.

# 2.9. Managed Areas

107. Beaver Creek Dam is within Sugar Hollow Park. Please contact the City of Bristol for additional information regarding this managed land (<a href="http://www.bristolva.org/parks.html">http://www.bristolva.org/parks.html</a>). (Commenter: Roberta Rhur - VDCR)

Response: Comment noted. TVA will coordinate with the City of Bristol parks department while planning natural resource management activities at Beaver Creek dam.

#### 2.10. Natural Resource Management Funding

# 2.10.1. Historical and Current Funding

108. Draft NRP Section 1.3 describes the loss of historical federal appropriations for non-power programs and the October 1997 legislative directive that TVA fund essential stewardship management activities with power funds. There is, however, no indication that Congress intended the shifting of costs to diminish the importance of non-power natural resource programs. (*Commenter: Paul Sloan - TDEC*)

Response: Comment noted. The Energy and Water Appropriations Act of 1998 required TVA to fund "essential stewardship activities" with power revenues and other funds to the extent appropriations and non-power revenues (e.g., fees) are insufficient. Congress did not indicate that this shifting of costs diminished the importance of natural resource programs.

109. What proportion of TVA's current funding for natural resource management is for labor and how much labor terms of full-time equivalent staff does TVA devote to this management on a per-acre basis? (*Commenter: Paul Sloan - TDEC*)

Response: TVA's current funding for NRP-related activities is approximately \$7 million per year and most of this is for labor. Based on the reservoir land area of 293,000, this is the equivalent of approximately two dedicated full-time equivalent employees per 10,000 acres.

# 2.10.2. Proposed Funding

110. Even the proposed funding for the flagship management alternative, at \$55 million, is less than 0.5 percent of TVA's overall budget and a very small amount relative to TVA's stewardship responsibilities, as well as the economic benefits of the natural resource management activities. (Commenter: Paul Sloan - TDEC)

Response: Comment noted.

111. How do the projected amounts of funding for the proposed alternatives relate to the program priority levels? For example, if little funding is available, would it be spent on custodial level efforts instead of enhanced and advanced levels? (*Commenter: Avis Kennedy*)

Response: TVA's first priority would be to fund all custodial level activities. All of those activities comprise part of the preferred alternative. TVA would fund the other activities in the preferred alternative and then consider increased activity levels as well as additional activities as additional funding and/or partnerships become available. In the Final NRP, the discussions of each resource area (Chapters 3-8) focus exclusively on what the recommended strategy is for TVA, and the implementation strategy (Chapter 9) discusses how the programs would be prioritized.

112. In light of TVA's economic development mission and the benefits from increased sustainable development of the lakes' recreation resources, I recommend TVA consider a larger increase in funding for the Recreation Management programs. If the total proposed increase for funding the NRP needs to remain the same, I suggest the proposed increase for Water Resource Management be reduced.

Benefits of increased development of recreation resources include:

- Benefits to local and national economies by supporting jobs and generating income. An increase in visitation proportional to the increase in funding could result in more than \$100 million increase in visitor spending and more than 1,500 jobs throughout the reason.
- Provide opportunities for active recreation, helping to combat the nation's significant health problem of lack of physical activity.
- Provide programs and activities to strengthen family ties and friendships and opportunities for children to develop personal skills and social values.
- Increased motivation to learn more about the environment and environmental issues. (*Commenter: Avis Kennedy*)

Response: TVA attempts to manage its natural resources in an integrated manner to provide multiple sustainable benefits for users of resources managed by TVA. Good water quality supports water-based recreation as well as providing other benefits. Reducing activities in the water management area would have impacts on recreational activities. Under TVA's preferred alternative, activities under both program areas would be enhanced.

113. Several years ago TVA voluntarily gave up federal funding for natural resource management programs and offered to fund them with power funds. TVA has not lived up to this commitment. A recurrent theme throughout the draft NRP is reliance on partnerships and volunteers. This will not be sufficient for fulfilling TVA's stewardship responsibilities. Successful implementation of the NRP will require dedicated NRM funding that has the same priority as power program funding. Otherwise TVA should transfer the lands to another federal agency. (Commenter: Joe Feeman)

Response: Comment noted. TVA continues to dedicate funds to natural resource management activities. The preferred NRP alternative is designed to improve the cost-effectiveness of those activities and produce more value from TVA's funding. TVA considers partnerships and volunteers as possible ways to supplement TVA funding.

114. The draft NRP highlights the importance of TVA's natural resource management activities with statements highlighting TVA's involvement in preserving and protecting the Valley's lands and its role as the environmental steward of the nation's fifth-largest river system. TVA's recent and proposed funding for stewardship activities do not reflect these statements. TVA historically received \$40-50 million in federal appropriations for these activities. By 2001, after appropriations ceased, TVA spent around \$24 million for these activities. The custodial and preferred blended options call for \$7-10 million and \$20-24 million respectively. These amounts represent a decrease in the proportion of TVA's budget spent on stewardship activities and do not appear to be linked to the actual resource needs. (*Commenter: Axel C. Ringe - SC*)

Response: The NRP programs only make up a portion of the federal appropriations that is referenced in this comment. Prior to 1998, TVA received funding for a number of essential stewardship activities, including flood control, navigation, reservoir operations, dam safety, and programs included in the NRP. At that time, TVA was spending approximately \$79 million on these activities. Since appropriations ceased in 1998, TVA has continued to support these essential stewardship activities each year. In 2009, TVA spent \$94 million on similar activities. More detail on past stewardship spending has been added to the NRP and can be found in Section 1.5 of the introduction.

115. The final plan and EIS should analyze the cost of the different action alternatives in the context of TVA's annual operating budget, revenues, and potential rate impacts. The flagship alternative appears to cost 0.02% of TVA's annual revenues and should have little impact on rates. This is a small amount for the long-term benefits of the flagship alternative. (*Commenters: Mark Campen, Zoe Turner*)

Response: The different alternatives do represent varying amounts of TVA's annual operating budget, although the variation is small relative to total TVA budget. This variation was not a primary consideration in the selection of the preferred alternative. Benefits to the public and strategic considerations were the primary factors of this decision in addition to costs.

116. The proposed funding for NRP implementation (\$21-25 million annually) is modest given the amount of land and water managed by TVA. A rough comparison of this proposed funding with that expended annually by the Nashville District Corps of Engineers for its Recreation and Natural Resources programs shows that the Corps spends slightly less on lakes on the Cumberland River and its tributaries. Given that TVA manages about twice the land and water area as the Corp's Nashville District, the proposed funding is about half the amount per acre. (Commenter: Avis Kennedy)

Response: Comment noted.

117. TVA has the responsibility to be good stewards and properly invest in the management of its lands. It has a long legacy of being an innovative leader and is more than an electric utility. TVA should recognize that its natural resource stewardship activities are as important as electricity. The value of these lands and the threats to them will only continue to increase as the region continues to develop. (*Commenter: concerned citizen*)

Response: Comment noted.

118. What financial commitment will TVA make to implement the NRP? If none, what is the significance of selecting a particular alternative/program option/strategy/priority? Are the costs given in NRP Chapter 6 annual costs? (*Commenter: Sandra Goss - TCWP*)

Response: The costs given in draft NRP Chapter 6 are annual costs. TVA anticipates that under the Preferred Alternative, funding for natural resource management activities would increase gradually over time. Whether that occurs will depend on the amount of revenue available to TVA to support these and all of the other activities in which it engages.

119. What proportion of the proposed funding for each NRP alternative would be devoted to labor and to capital improvements? (*Commenter: Paul Sloan - TDEC*)

Response: As described in final NRP Chapter 2, TVA proposes to increase its funding for implementing the NRP (Alternative D - Blended Management in the Final EIS) from \$9-11 million in the 2012 - 2014 fiscal years to \$19-20 million per fiscal year once it is fully implemented. During this period, TVA proposes to spend about \$750,000 per year for capital improvements. Based on this amount, about 96 percent of NRP funding at full implementation would be for labor and the remainder for capital improvements.

Following are the proposed annual labor and capital improvement expenditures for the other alternatives: Alternative A (current expenditures) — \$7 million for labor and \$1.5 million for capital improvements; Alternative B — \$\$8.5 - 9.5 million for labor and \$15,000 - 25,000 for capital improvements; and Alternative C — \$47 - 48 million for labor and \$1.95 - 2.0 million for capital improvements.

120. While the draft NRP states that the implementation of Alternatives C and D will require increased funding, it fails to address potential revenues that could fund this implementation. Obvious revenues that TVA should address include user fees and timber sales. A nominal user fee such as \$20 per year could raise substantial revenues that would benefit the users. A timber sale program would provide several benefits beyond revenues and could be managed while preserving older forests. (*Commenter: Linda S. Casey - AFC; Joe Feeman*)

Response: Potential sources of funding for implementing the NRP are described in Section 9.2 of the final NRP. They include partnerships, user fees, reallocation of essential stewardship funding (presently ~ \$94 million), increased recreation fees, increased application fees, and the annual budgeting process. TVA does not anticipate timber sales becoming a significant source of revenue.

# 2.11. NEPA Compliance/Adequacy

# 2.11.1. Public Scoping

121. In October 2009 during the public scoping for the NRP, I mailed a letter on behalf of numerous respondents that was not fully included as individual responses to the draft NRP. Please correct this omission and the incorrect calculation of submitted responses. The scoping responses show a clear public request for more conservation and less concentrated development. (*Commenter: Michael Reddoch*)

Response: This comment letter was treated as a single response, rather than as a separate response for each person on whose behalf it was submitted. Nevertheless, both phases of scoping comments showed much greater public support for increased conservation efforts and less concentrated development.

# 2.11.2. Scope of Existing Environment Descriptions

122. DEIS Chapter 4 - Existing Environment does not provide adequate information on the condition of many of the resources on TVA land. For example, while TVA proposes Forest Resource Management programs, there is no description of the how much forest TVA manages. (*Commenter: Louis Smith*)

Response: Final EIS Chapter 4 - Existing Environment has been revised to better describe the various resources including forests that are the subject of the NRP programs and activities.

### 2.11.3. Scope of Impact Assessments

123. The various natural resource management programs are obviously intended to have an effect on the resources being managed. The Draft EIS, however, does not adequately describe these effects. For example, will the proposed Forest Resource Management programs create more forest, improve the forest, or keep the forest the same? The Final EIS should more clearly describe these effects. (*Commenter: Louis Smith*)

Response: Final EIS Chapter 4 - Existing Environment has been revised to better describe the condition of the resources on TVA lands that are the subject of many of the proposed NRP programs and activities. Final EIS Chapter 5 - Environmental Consequences has also been revised to better describe the effects of the NRP alternatives on these resources.

# 2.12. NRP Implementation

### 2.12.1. Implementation Guidance

124. The draft NRP should be simplified so that it can be understood and more effectively used by staff to guide the implementation of natural resource management activities. Given its generality and lack of clarity, it is hard to see how staff would use it. An additional explanation of how it is intended to be used by staff would also be helpful. (*Commenter: Sandra Goss - TCWP*)

Response: The NRP would be used by TVA staff as a high-level strategic plan for prioritizing and implementing its natural resource management activities. It is not intended to provide detailed, year-by-year implementation plans. These will be developed during the annual planning and budgeting process. To improve clarity, the Final NRP has been reorganized to devote a separate chapter to each resource area. This allows the reader to find all information about a resource area (e.g., recreation) in one place, and should improve the readability of the plan.

# 2.12.2. Mitigation and Monitoring

125. A proposed cultural resources management program is to monitor and manage ongoing mitigation measures to ensure compliance with Section 106 of the NHPA and NEPA documents. We applaud this effort and encourage the use of CEQ's 2011 guidance on Mitigation and Monitoring when developing these monitoring plans. (*Commenter: Heinz J. Mueller - USEPA*)

Response: Comment noted. TVA currently has a system for tracking this type of mitigation measures and will follow CEQ's guidance on Mitigation and Monitoring in refining this system for cultural resources mitigation obligations as appropriate.

# 2.12.3. Partnerships for Implementing the NRP

126. TVA should put greater emphasis on the necessity and wisdom of broad-based collaborations and partnerships. The Valley states have a rich diversity of expertise and core competencies among a number of federal, state, and local agencies and organizations. Leveraging these resources will provide great potential energy for implementing the NRP. (Commenter: Paul Sloan - TDEC)

Response: Comment noted. TVA recognizes that collaborations and partnerships will play an increasingly important role in its natural resource management activities.

127. We encourage TVA to contact us when planning lands and water management activities in Virginia so that we can help guide the work in a manner that benefits our constituents and the species and programs for which we are responsible. We also look forward to working with TVA as partners in these activities. (Commenter: Linda S. Casey, AFC; Amy Ewing - VDGIF)

Response: Comment noted. TVA will involve state natural resource management agencies and others when developing reservoir lands plans and when planning other NRP implementing activities as appropriate.

128. We look forward to partnering with TVA as TVA implements those portions of the final Plan that are appropriate for public participation. (*Commenter: Axel C. Ringe - SC*)

Response: Comment noted. TVA plans to actively recruit volunteers as it implements the proposed volunteer program and other activities that could benefit from the participation of volunteers.

#### 2.12.4. Reporting NRP Implementation Expenditures

129. TVA should consider producing an annual natural resources expenditure report similar to the Northwest Power Planning Council's annual reporting of the Bonneville Power Administration's Fish and Wildlife Program expenditures. This report should be available on-line. (*Commenter: Joyce Stanley - USDOI*)

Response: Until 2009, TVA reported its stewardship expenditures in its annual budget (Blue Book) submission to the Office of Management and Budget (OMB). OMB reviewed these submissions and ultimately included them in the Consolidated Budget of the United States. TVA is presently considering how and where to report these expenditures in the future.

# 2.12.5. Short Term Implementation Plan

130. The final NRP and EIS would be improved by including a description of when TVA intends to implement the specific programs and actions. It would particularly help to identify those that TVA intends to implement within the next five years under the preferred alternative in the final EIS. (*Commenters: Ron Fugatt - NU, Heinz J. Mueller - USEPA*)

Response: Final NRP Chapter 9 describes the proposed strategy for implementing the NRP. It identifies and prioritizes programs and activities to be implemented during the years 2012 - 2014, 2015 - 2016, 2017 - 2021, and after 2011.

# 2.12.6. Use of Volunteers to Implement NRP

131. I have spent many hours as a volunteer helping to build and improve the East Lakeshore Trail on Tellico Reservoir which is now almost 20 miles long. I have also been involved with the annual Tellico spring lakeshore cleanup. Please continue to support the partnership between the Watershed Association of Tellico Reservoir and TVA with an adequate budget for proper development, maintenance, and protection of the trail and other resources. (*Commenter: Edwin J. Young*)

Response: Comment noted. TVA plans to continue our support of volunteer partnerships like the one with the Watershed Association of Tellico Reservoir.

132. The Watershed Association of Tellico Reservoir has a pool of volunteers that is willing to be trained and assist in the assessment of dispersed recreation areas. (*Commenter: Lloyd J. Donnelly-WATR*)

Response: Comment noted. Under all alternatives except for the No Action Alternative, TVA proposes to establish a formal volunteer program and anticipates increasing the use of volunteers. This program is described in NRP Section 3.5.2 and FEIS Section 2.6.

# 2.13. NRP Planning Process

#### 2.13.1. Alignment with Environmental Policy

133. A specific goal of the NRP is to align TVA's stewardship programs and plans with the Environmental Policy. The NRP should, therefore, clearly articulate the expectations of the Environmental Policy as a threshold. These expectations set a high bar by calling on TVA to be a proactive leader that makes comprehensive assessments of its resources, improves the quality of those resources, promotes ecological diversity and wildlife habitat and creates measurable indicators of progress. The NRP must be the blue print for achieving these expectations over the next twenty years. (Commenter: Paul Sloan - TDEC)

Response: Comment noted.

134. The draft NRP describes the enhanced and flagship management levels alternately as an "option" and then "opportunity" to elevate "the public value of TVA"s natural resource management programs" (page 8). A more preferable characterization is to fix the value of these programs at a level sufficient to meet TVA's high Environmental Policy expectations. While flagship management is described as a "gold standard" higher than the Environmental Policy objectives, it is, instead, the Environmental Policy that sets the gold standard. The NRP should acknowledge this fact and articulate a plan for achieving it. (*Commenter: Paul Sloan - TDEC*)

Response: TVA's Environmental Policy sets out a number of aspirational goals not only for natural resource management, but for TVA's other activities, including providing electric energy. The Custodial Option has been designed to address the aspirational goals for natural resource management, as well as applicable laws, regulations, and executive orders. The question before TVA is how to do this in light of the entirety of its goals and other activities. The Custodial Option sets the floor, but the other options would provide a more robust response to the policy's goals. The enhanced and flagship management levels have been designed to elevate TVA's resource management through a combination of designed increased commitment of TVA resources, increased engagement and leverage of partnerships and resources from other sources. These alternatives also provide flexibility to address emerging issues and increased user demands on the resources over the life span of the plan.

135. The draft NRP establishes three levels of commitments (Custodial, Blended, and Flagship) distinguished by different funding levels and the level of program activities within each resource area. This construct does not clearly answer the most important question: What level of natural resource management fully meets the expectations of TVA's Environmental Policy? (Commenter: Paul Sloan - TDEC)

Response: See response to Comment 134.

136. The draft NRP seems to suggest that the "custodial" level meets both TVA's legal obligations and its policy expectations. While I defer on the legal issue, it fails to meet the policy expectations defined in the TVA Environmental Policy, including the requirement of proactive leadership. This is apparent in a comparison of the Custodial Priority Level of programs listed in NRP Appendix A with the program options listed in NRP Chapter 4. (*Commenter: Paul Sloan - TDEC*)

Response: Comment noted. TVA acknowledges that the Custodial level contains relatively little additional proactive leadership and to this extent is not as robust of a response to the policy as either the enhanced or flagship options. TVA's preferred alternative does this, however.

137. There are clearly budgetary constraints each fiscal year. These constraints should impact the time period in which the NRP objectives are achieved during the plans 20-year horizon and not determine whether TVA commits to a "gold standard" or a lesser standard that would be inconsistent with the aspirations of TVA's environmental policy. The NRP should be a plan for TVA to fully meet its proactive leadership objectives at some point during the next 20 years that is consistent with budgetary constraints. (*Commenter: Paul Sloan - TDEC*)

Response: See responses to Comments 134 and 136.

# 2.13.2. Benefits Analysis

138. How is TVA using the Entrix economic benefits analysis report in the planning process? This is not clearly explained in the draft NRP. The report is vague and mostly conjecture, with little useful information for making decisions about natural resource management. Environmental economics is not a science that provides "black and white" answers and I hope TVA is not putting too much emphasis on the results of the report. The cost of producing the report would likely have funded a significant number of implementation activities. (*Commenter: Joe Feeman*)

Response: The Entrix report was used as in input into the scenario planning process described in the draft NRP. The report described both quantitative and qualitative benefits provided by

each program that TVA took into account when developing the preferred alternative and prioritizing programs and activities.

139. Reducing the amount of sediment and phosphorus in rivers would reduce the costs of operating water treatment plants. Please quantify the anticipated treatment plant cost reductions for the various amounts of sediment and phosphorus reductions proposed under the different alternatives. (*Commenter: Ron Fugatt - NU*)

Response: The proposed Nutrient Source - Identification and Improvement Program would help leverage wastewater treatment plant upgrades to target and reduce phosphorus loading to reservoirs. This program proposes nutrient and phosphorus reductions from streams entering reservoirs, which would further reduce not only wastewater treatment costs but also reduce costs of treating public drinking water (through reducing organic content of intake water). Quantifying those leveraged dollars and avoided costs at this time is not possible until reduction goals set for reservoirs and watershed streams.

140. The NRP contains little information on the economic costs and benefits of the proposed programs and activities, including the indirect benefits to local economies. How were these benefits considered in determining the preferred alternative? A more detailed explanation of the scope of this cost/benefit and its role would be helpful. (*Commenters: Jean Elmore, Ron Fugatt - NU, Mitch Jones - TMA, Deborah Woolley - TCCI*)

Response: A general discussion of the economic benefits, including indirect benefits to local economies, has been added to final NRP Section 1.6. Benefits of individual programs were weighed against costs during the development of the preferred alternative.

141. While we appreciate the quality and clarity of the proposed programs, the explanation of the choice of the preferred alternative is not transparent. We suspect that the projected program costs and the Economic Benefits assessment by Cardno ENTRIX played a significant part in that choice.

While the benefits assessment methodology appears sound and the limitations and lack of data appropriately described, the problem with the analysis is that it is backward-looking and may have limited relevance to the program benefits in the coming 20 years. Most of the qualitative notes of the benefits assessment consider public perception of TVA rather than benefits to natural resource health and viability, quality of life, and the region's economy in a broad sense. (Commenter: Wolf Naegeli - FGS)

Response: The mix of programs and activities that comprises the final NRP and the preferred Alternative D in the Final EIS was selected based on an analysis of benefits to the resource, economic benefits, economic development, public perception, and strategic considerations by TVA. An overview of the analysis can be found in Section 1.4 of the final NRP and Section 3.1 of the final EIS.

### 2.13.3. Classification of Programs

142. We question the classification as "Enhanced" or "Flagship" assigned to many of the natural resource management activities that are either 1) fundamental NRM activities or 2) have long been carried out by other resource agencies. Examples of fundamental NRM activities are land asset management, endangered and threatened species monitoring and management, and natural areas maintenance. Examples of activities long carried out by others are Leave No Trace and providing interactive, online maps of TVA lands. (*Commenter: Richard Preston – TOS*)

Response: Comment noted. TVA acknowledges that a number of the activities proposed as enhanced or flagship may have been conducted by other agencies for some time. This does not mean that TVA also doing these activities would have no value or would not enhance the natural resources under TVA's management.

## 2.13.4. Historic Natural Resource Planning Efforts

143. The NRP appears to be the "latest and greatest" of repeated TVA efforts to integrate resource management on TVA lands. These efforts included "process redesign" in the mid-1990s, "unit planning" in the late 1990s, the integrated resource team and the Watts Bar integrated resources management plan in the early-mid 2000s, and then another integrated resource team effort in the late 2000s. Then TVA laid off experienced natural resource management staff. The unit planning effort was the only one of these efforts that was successful and its implementation generated a revenue stream. What assurances can TVA make to the public that the current NRP effort will turn out different from these previous efforts? (Commenter: Joe Feeman)

Response: The NRP is the first such strategic plan that TVA has developed and submitted to the Board of Directors for approval that addresses the management of the natural resources entrusted to its care. The NRP builds upon the various historic approaches mentioned in the comment to address a broader range of resource management activities in an integrated approach. The active and continued involvement of the public in implementing and revising the NRP in the future should provide some assurance that this effort will continue.

### 2.13.5. Overall Purpose of Plan

144. Please clarify the purpose of the NRP. Is it to provide strategic direction or a guide for implementing the natural resource management programs and activities? (*Commenter: Deborah Woolley - TCCI*)

Response: The NRP serves both purposes. First and foremost it provides a strategic direction for TVA to manage the natural resources entrusted to its care. Second, it serves as a high level guide for implementing programs, especially during the first five years.

# 2.13.6. Planning Goals and Desired Future Conditions

145. The custodial level options appear to be based on meeting legal requirements rather than the base level of management necessary to maintain the health of the resources. Regulatory compliance does not necessarily result in the broad spectrum of resources being maintained in healthy conditions. (*Commenter: Paul Sloan - TDEC*)

Response: Comment noted.

146. The goal of the NRP stated on draft plan page 18 is laudable. Both the draft plan and EIS fail to succinctly define the actual on-the-ground conditions of the resources that TVA proposes to manage, as well as TVA's desired future conditions for these resources. The lack of this information makes it very difficult to evaluate the likely effectiveness of the proposed program options, priority levels, and alternatives. (*Commenters: Mark Campen, Avis Kennedy, Richard Preston – TOS, Paul Sloan - TDEC*)

Response: Comment noted. Neither the NRP nor the EIS succinctly define TVA's desired future conditions in more than general terms. A high priority during the first few years of implementing the NRP is to more comprehensively assess resource conditions on TVA lands. A related

priority during early plan implementation is to establish a process for measuring the results of implementing the NRP.

- 147. TVA staff should ask these questions during their development of the final NRP:
- 1) Does the NRP call for obtaining sufficient data and related information to conduct a comprehensive assessment of the condition of the resources?
- 2) Does the NRP call for timely development of a comprehensive assessment of the data gathered?
- 3) Does the NRP call for timely development of an implementation strategy based on good data, properly assessed and formulated to fully meet the TVA Environmental Policy expectations? The answer to each of these questions needs to be "yes" before the NRP is submitted to the TVA Board for its approval.

(Commenter: Paul Sloan - TDEC)

Response: Chapter 2 of the final NRP is an implementation strategy for the preferred alternative which addresses these questions.

# 2.13.7. Scenario Planning

148. By attempting to use the same format and scenario planning process as the power-focused Integrated Resource Plan, TVA has created confusing and poorly organized documents. They appear to have been prepared by consultants with little experience in natural resource management. The applicability of the NRP scenarios listed is draft NRP Table 5.2 is unclear, as it fails to note that TVA is required to manage its natural resources regardless of economic and legislative conditions. (Commenter: Joe Feeman)

Response: Comment noted. The format of the Final NRP has been restructured to improve its readability. Each resource area now has its own dedicated chapter that pulls together all discussion in one place. In addition, the final NRP focuses primarily on the specifics of the plan and many of the tables have been removed for simplicity.

# 2.13.8. Sustainability and Adaptation

149. Our primary criticism of the draft NRP is that it is not holistic and visionary enough in analyzing global and regional trends over the past two decades and the likelihood of significant changes during the next 20 years. The only mention of future global change is associated with the carbon emissions from certain activities. Many of the NRPs program proposals have the potential to affect public awareness and society's responses to the threats and impacts of foreseeable changes. Although it is beyond the scope of the NRP to discuss specifics for each program proposal, the NRP should include guidelines on how global-change and sustainability factors will be assessed during program development and implementation. While the data necessary for full life-cycle assessments are lacking in many cases, sustainability science is making rapid progress and TVA should commit to conducting full life-cycle assessments where feasible. (*Commenter: Wolf Naegeli - FGS*)

Response: The various NRP alternatives, especially Alternatives C and D, have been designed to be flexible and adaptable to changing conditions. Under all of the Action Alternatives, TVA would increase its monitoring and assessment activities in order to increase its ability to detect change, regardless of whether the change is driven by climate, human population, or other factors. Many of the management activities such as dispersed recreation area improvement and natural area maintenance would largely be driven by the results of these increased monitoring and assessment activities. TVA also proposes to regularly review and, as necessary, revise the NRP; the need to adapt to changing conditions will be a major factor in this review process.

TVA acknowledges that sustainability science is making rapid progress and the data necessary to conduct life-cycle assessments is becoming more available. A major focus of the proposed improvements to TVA recreation facilities is to increase the sustainability of their operation by reducing energy and water use, using renewable energy, and better managing stormwater. TVA is also closely monitoring the development of life-cycle assessments and starting to incorporate them in its planning efforts. TVA has considered "change" in the NRP, whether or not it was specifically addressed or titled as "global change." For example, within the Dispersed Recreation section, TVA identified the need for increased numbers of key projects such as development of new bank fishing sites and improved access to TVA property due to increased demand. In the Lands Planning section, the driving force behind lands planning efforts is the increased demand on TVA lands for various facilities and recreational uses, tied to increased development and population around TVA reservoirs. All of these issues, as well as others, were taken into consideration with scenario planning. This process was conducted to analyze the optimal program mix across a number of different future scenarios. To ensure that changing conditions are incorporated. TVA has committed to updating the NRP on a 5-year cycle.

#### 2.13.9. TVA Coal Reserves

150. In the NRP, TVA continues to avoid addressing its management of its mineral rights. TVA developed an EIS addressing this for its Koppers coal reserves but has yet to release this EIS. The mining of these reserves would have a tremendous negative environmental impact. As part of its proclaimed environmental leadership, TVA should donate these reserves to the Tennessee Wildlife Resources Agency and ask the federal government to reduce the TVA debt it holds by the value of the mineral rights. (*Commenter: Joe Feeman*)

Response: Comment noted. As stated in the NRP and Final EIS Section 1.5, TVA's management of its mineral rights is outside the scope of the NRP.

151. Neither the recently completed TVA Integrated Resource Plan nor this NRP address TVA's management of its coal reserves, despite the TVA Board's 2006 directive. Coal is an important natural resource and one of the least expensive sources of electricity. TVA invested millions of dollars of rate payer's money in its coal reserves and many thousands of dollars in developing an EIS on its future management of its Koppers coal reserves. This EIS should be completed and released to the public for review and interpretation. It could also influence the pending Lands Unsuitable for Mining petition for the Upper Cumberland Wildlife Management Area and much of the Koppers reserve. (*Commenter: Tim K. Slone*)

Response: Comment noted. As stated in the NRP and Final EIS Section 1.5, the management of TVA's mineral rights is outside the scope of the NRP.

#### 2.14. Other

#### 2.14.1. General Support for Process

152. I am pleased with the Natural Resource Plan and believe it will result in the necessary strong strategic document to guide TVA's natural resource management. (*Commenter: Ronald E. Frere*)

Response: Comment noted.

153. We applaud TVA's efforts in drafting the NRP to guide its natural resource management for the next 20 years. (*Commenters: Dan Forster - GDNR, Heinz J. Mueller - USEPA, Paul Sloan - TDEC*)

Response: Comment noted.

154. We are pleased to see that under the preferred Blended Management Alternative, as stated in DEIS Chapter 5 "TVA would implement additional projects designed to benefit biological and cultural resources and improve recreational opportunities." We are also pleased to see that under the various alternatives, TVA would continue to allocate land containing sensitive resources to the most protective land use zones, land use changes would emphasize developed recreation uses or natural resource conservation, and that air emissions from proposed actions would be avoided, mitigated, or require emissions reductions from other sources. (Commenter: Amin Davis-NCDENR)

Response: Comment noted.

155. We commend TVA for the effort that has gone into developing the plan and the increase in visibility (both within and outside TVA) that it should bring to TVA's natural resource management responsibilities. We hope that TVA will commit the necessary resources to fully meet these responsibilities. (*Commenters: Mark Campen, Richard Preston – TOS*)

Response: Comment noted.

156. We commend TVA for the integrated and holistic approach in preparing the NRP. We suspect it will become another milestone in TVA's record of leadership and contributions to the practice of natural resources management. We are very pleased with the intent to strengthen educational outreach and public participation opportunities, create an independent foundation and trust fund, and institute a volunteer program to encourage active citizen participation. (Commenter: Wolf Naegeli - FGS)

Response: Comment noted.

#### 2.14.2. No Conflict With Existing Or Proposed Activities

157. We have reviewed your proposal and have found no conflict with existing or proposed activities. (*Commenter: Donald Necessary - VDOT*)

Response: Comment noted.

# 2.14.3. Resource Management Unit Plans

158. According to Section 2.1.3 of the DEIS, TVA completed ten Resource Management Unit Plans between 1998 and 2001 that prescribe resource management activities on 17,675 acres. Please put electronic versions of these plans on the TVA website for additional review within the context of the FEIS and the subsequent NRP. (*Commenter: Zoe Turner*)

Response: The Boone Reservoir Resource Management Unit Plan is available on the TVA website at <a href="http://www.tva.gov/environment/reports/boone/index.htm">http://www.tva.gov/environment/reports/boone/index.htm</a>. Other unit plans are available upon request; contact eic@tva.gov.

# 2.15. Permitting

# 2.15.1. Permit and Regulatory Requirements

159. All lands being developed in Virginia are subject to transportation regulations related to the Virginia Department of Transportation's review of local government comprehensive plans, traffic impact analyses, and access management and roadway regulations and standards. These are

described in more detail in <a href="http://www.vdot.virginia.gov/projects/chapter527/default.asp">http://www.virginiadot.org/projects/accessmgt/default.asp</a>. (Commenter: Donald Necessary-VDOT)

Response: Comment noted.

160. Any activity resulting in a new or modification to existing public water supply systems will require approval by the North Carolina Public Water Supply Section of the Division of Environmental Health. The proposed activity should include provisions to protect all public water systems and sources within the project area. (*Commenter: Jim Adams - NCDEH*)

Response: Comment noted.

161. Because the EIS/NRP is programmatic in nature and does not primarily address site-specific future facility development, we request to be informed of any future implementing actions with the potential to impact Division of Parks and Recreation holdings. (*Commenter: Amin Davis - NCDENR*)

Response: Comment noted.

162. If impacts to Virginia State Waters are proposed, TVA should submit a Joint Permit Application to the Virginia Marine Resources Commission. The Department of Environmental Quality Southwest Regional Office will make the final permit decision. All activities requiring instream work should be performed in the dry utilizing coffer dams, stream diversion, and/or working during low flow conditions. Other measures to avoid and minimize impacts should also be utilized and disturbed stream beds should be restored to their original contours. Unavoidable permanent impacts to wetlands or to streams in excess of three hundred linear feet will require mitigation through purchase of mitigation bank credits or the creation, enhancement, or preservation of wetlands or streams within the project's watershed. (*Commenter: Michelle Henicheck - VDEQ*)

Response: Comment noted.

163. Several of the proposed activities, including shoreline stabilization, construction of boat docks/marinas, trail construction, new access roads, and stream and wetland restoration/enhancement activities may result in a discharge of fill material into waters regulated by the Corps under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. (Commenter: Scott Jones - USACE)

Response: Comment noted.

### 2.15.2. TVA Permitting and Land Use Requirements

164. Based on the history of the Pickwick Pines Marina project, we recommend the following: All TVA-managed public lands should be leased or sold for the fair market value and the appraisals should be made available to the public. TVA should require developers of TVA shoreline property to demonstrate that they have the financial means to complete the project as planned and to post a performance bond with TVA before any actual construction begins. This is especially needed for commercial and industrial developments. TVA should enact stricter measures to better conserve riparian zones and more aggressively enforce existing shoreline permitting and land use requirements. If TVA does not have the resources to enforce these requirements, TVA should not approve the project. TVA should hold 26a permit hearings when requested by the public and be transparent in its reviews and subsequent modifications of

permit requirements. Permit requirements should be stated in clear, unambiguous language. (Commenters: Marietta Haaga, John and Mary Ben Heflin, Keith L. Kline, Darrell Williams)

Response: Decisions to lease or sell TVA land are governed by TVA's Land Policy. This policy can be viewed at <a href="http://www.tva.com/river/landandshore/land-policy.htm">http://www.tva.com/river/landandshore/land-policy.htm</a>. TVA recognizes the importance of demonstrated financial means and performance bonds and has addressed them in its new guideline for managing commercial recreation facilities on TVA land. See <a href="http://www.tva.com/river/recreation/commercial.htm">http://www.tva.com/river/recreation/commercial.htm</a>. TVA also recognizes the need for a more aggressive approach to enforcing permit requirements and land use agreement conditions and committed to this at the June 10, 2010 TVA Board of Directors meeting. See <a href="http://www.tva.com/abouttva/board/pdf/06-10-2010\_board%20v9.pdf">http://www.tva.com/abouttva/board/pdf/06-10-2010\_board%20v9.pdf</a>. TVA has inspected or plans to inspect in the near future all commercial and industrial leases as well many permittees to assess and ensure compliance.

TVA typically issues public notices of land use and Section 26a approval requests in the local newspaper and on TVA's website at <a href="http://www.tva.com/river/landandshore/landuse\_action.htm">http://www.tva.com/river/landandshore/landuse\_action.htm</a>. Some land use and 26a approval requests are also the subject of joint public notices issued by TVA and the U.S. Army Corps of Engineers; these are listed at <a href="http://www.lrn.usace.army.mil/cof/proposed\_activities.htm">http://www.lrn.usace.army.mil/cof/proposed\_activities.htm</a>. Public participation is a vital part of the TVA land use and permit approval decision-making process. Public notices are issued for all property proposed to be auctioned and for the disposal of some other TVA lands. TVA ensures meaningful opportunities are made available for public participation in TVA decisions about stewardship land use actions and to provide third parties an opportunity to express interest in commercial recreation properties. TVA's Section 26a regulations contain criteria on when and how TVA will conduct public hearings on 26a applications as well as appeals of decisions on 26a applications. These are available at <a href="http://www.tva.com/river/26apermits/regs\_a.htm#13044">http://www.tva.com/river/26apermits/regs\_a.htm#13044</a>.

# 2.16. Public Engagement

165. Many environmental impacts that affect TVA reservoirs and lands occur on property that TVA does not directly control. TVA should do a better job of providing support to those landowners and resource users to fix their problems and minimize the impacts. For example, Fort Loudoun Reservoir has a large amount of privately owned shoreline that is poorly maintained and highly erodible. This creates a water quality problem and increases sedimentation to the extent that recreation, power production, and navigation could be affected. TVA should have a program that educates individual landowners about options for stabilizing shorelines, including advice on costs and possible contractors. Such a program could be accomplished in coordination with local lake associations. (Commenters: Sandra Goss - TCWP, Tom Littlepage)

Response: TVA recognizes the importance of working with adjacent land owners to improve and protect shorelines and reservoir water quality. TVA has established programs and tools to increase the public's understanding of shoreline management and steps that can be taken to protect the shoreline. TVA's 1999 Shoreline Management Policy addressed this issue by establishing standards for the use of reservoir shorelines by adjacent residential landowners. TVA has also developed a series of riparian management fact sheets that are designed to help property owners understand soil erosion, the importance of vegetation along waterways in reducing erosion, and provide information on erosion prevention measures and management practices to reduce erosion. These fact sheets are available at <a href="http://www.tva.gov/river/landandshore/stabilization/index.htm">http://www.tva.gov/river/landandshore/stabilization/index.htm</a>. TVA intends to develop a new outreach program focusing on waterfront property owners. Goals of this program include increasing the understanding of the benefits of shoreline vegetation in erosion reduction, water quality and

aquatic habitat improvement, and promoting best management practices to stabilize the shoreline. Because costs of shoreline stabilization are greatly dependent on the specific site variables, it is not practical for TVA to issue general cost estimates for this work. Factors such as scope of work, materials used, local availability of materials, design plans, and ease of access vary for each project and affect the project cost.

166. Much of TVA's efforts in outreach and coordination are through small amounts of funding for materials and supplies for efforts such as lake cleanups. These can result in a large investment by others. Can you quantify the benefits of these small investments in terms of dollars and broad-based environmental education and understanding? (*Commenter: Mitch Jones - TMA*)

Response: There is great variability in the types of work performed by volunteers and their levels of participation. Therefore it is not possible to provide a comprehensive cost-benefit or readily quantify increases in environmental understanding or appreciation due to participation in activities supported by TVA. TVA has estimated cost savings incurred during specific events, such as a reservoir shoreline clean up, by tracking the amount of volunteer hours accumulated during the event and comparing it to the number of hours and dollars TVA would have spent to perform the same work.

A recent example is the volunteer participation in National Trails Day. Volunteers worked approximately 265 hours performing maintenance activities on TVA trails. The dollar value associated with this one day event is estimated to be \$6,625. Studies have shown that providing hands-on experiences and information are effective tools in helping people recognize the value of natural resources. Additionally, as reported in the Keep America Beautiful 2009 study, Littering Behavior in America: "Individuals are much more likely to litter into a littered environment. And once there, it attracts more litter. By contrast, a clean community discourages littering and improves overall community quality of life." Therefore, by engaging volunteers to participate in various volunteer activities or environmental education sessions, TVA can promote responsible stewardship.

167. Through its energy education programs, TVA already has a good infrastructure that could be used for improving environmental and ecological literacy. TVA should also consider working with the numerous other environmental education programs that exist across the region. (Commenter: Paul Sloan - TDEC)

Response: During implementation of the NRP environmental education program, TVA intends to coordinate with TVA's other existing education programs to facilitate delivery and gain efficiencies when possible. TVA also intends to engage partners across the region and look for opportunities to coordinate environmental messages and outreach programs.

168. TVA should emphasize the problems caused by soil erosion and solutions to this problem in its education and outreach programs. Soil erosion is a significant problem in the TVA region that many local residents and industries unwittingly contribute to. A valuable solution is the use of no-till agricultural techniques, which is not mentioned in the NRP. No-till also has the benefit of increasing soil storage of carbon. (*Commenter: Deb O'Dell*)

Response: TVA recognizes that soil erosion is a concern throughout the region and has established programs and tools to reduce erosion and increase the public's understanding of the soil erosion's impacts, causes, and preventive measures. TVA's efforts in this area would increase under the preferred alternative. NRP Final EIS Section 2.5.6 lists many of the most

commonly used best management and conservation practices for reducing erosion and improving water quality. This is not an exhaustive list and TVA could recommend no-till techniques in particular situations. The Natural Resources Conservation Service and local Soil Conservation Districts and Soil and Water Conservation Districts currently serve as lead agencies to provide assistance to agricultural land owners for best management practices such as no-till drilling.

169. Why is there no environmental education program included at the custodial level? (Commenter: Ron Fugatt - NU)

Response: The custodial level programs are those that TVA has determined are necessary to meet legal, regulatory and TVA policy requirements and goals. TVA staff determined that the environmental education program and most other public outreach programs do not meet this criterion.

# 2.17. Public Involvement

170. The NRP refers to the Regional Resource Stewardship Council and its role in formulating the NRP. Please explain what the Council is, how it is selected and functions, and the affiliations of those who serve on it. (*Commenter: Sandra Goss - TCWP*)

Response: The role of the Regional Resource Stewardship Council in developing the NRP is described in NRP Section 1.3. Additional information about the Council is available at <a href="http://www.tva.gov/rrsc/">http://www.tva.gov/rrsc/</a>.

#### 2.18. Recreation

# 2.18.1. Boating Capacity and Density

171. Through the current and proposed boating capacity and density studies programs, TVA continues to avoid the boating capacity issue. High boating density is a real problem on certain areas of many reservoirs. TVA needs to work more closely with the state boating agencies to conduct "real" studies and take actions to alleviate the safety problems and crowding. These include looking more closely at the cumulative impacts of permitting new marinas, allowing deed modifications to facilitate more subdivision lots and associated private docks, and increasing harbor limits for marinas. (*Commenter: Joe Feeman*)

Response: Comment noted. TVA anticipates increasing resources to partner with and support state boating law administrators in planning, completing and implementing detail boating capacity studies under Alternative C and would consider this under the preferred alternative as resources become available.

#### 2.18.2. Commercial Recreation

172. How does TVA's new approach to the licensing and management of commercial recreational facilities on TVA land fit into the NRP? (*Commenter: Mitch Jones - TMA*)

Response: The NRP was developed to address TVA's overall natural resource (including recreation) stewardship activities. The licensing and management of specific commercial recreation facilities is outside the scope of the NRP.

173. Why does the NRP exclude consideration of commercial recreation? (*Commenter: Mitch Jones - TMA*)

Response: The facility-based recreation programs and activities included in the various NRP alternatives primarily focus on the management of recreation facilities owned by TVA. The Clean Marina Initiative and the proposed Camp-Right Campground Program address some aspects of commercial recreation facility management. Under the lands planning alternatives, TVA would continue to evaluate proposals for the development of commercial recreation facilities on TVA lands. Other aspects of commercial recreation are outside the scope of the NRP.

174. Will the new fee structure that TVA has imposed on commercial recreation facilities cover the costs of administering the new fee program? (*Commenter: Avis Kennedy*)

Response: While the newly implemented commercial recreation fee structure is outside the scope of the NRP, it is expected to cover the cost of its administration.

# 2.18.3. Dispersed Recreation

175. Dispersed recreation is the primary public use of TVA lands. An inventory of dispersed sites is great, but only if TVA intends to actively manage them. Otherwise TVA should use the inventory money to remediate sites. (*Commenter: Joe Feeman*)

Response: Comment noted.

176. It is unclear why the Dispersed Recreation Management programs are included under Biological and Cultural Resources Management and not in the Recreation Management section. (*Commenter: Heinz J. Mueller - USEPA*)

Response: Dispersed Recreation Management is included in the Biological Resources Management section because the impacts of dispersed recreation (e.g., erosion and vegetation damage) frequently affect biological resources. Many of the experiences sought by dispersed recreation participants are also based on biological resources; these include wildlife and wildflower viewing and hunting.

177. The dispersed recreation management programs should include the development of more informal camping areas with limited infrastructure and low management costs. Informal camping is preferred by many users of TVA land. TVA should also start a campground host program on informal camping areas to control use and abuse. (*Commenter: Joe Feeman*)

Response: Comment noted. Developing new informal or primitive camping areas or recruiting campground hosts for these areas are not components of the preferred alternative. The preferred alternative for dispersed recreation includes ramping up over 3-5 years for an increased effort to repair 5 – 15 heavily impacted dispersed/informal recreation sites annually. These repairs would include improving areas currently used for informal camping so that this use can continue with reduced environmental impacts.

178. We support the establishment of areas (blue ways, draft NRP page 44) that are only open to quiet water recreation such as canoes and kayaks, as well as expanded no wake zones. Such areas are increasingly important in light of both the continuing increase in marinas and motorized boat traffic on TVA reservoirs and the increased interest in non-motorized boating. (Commenters: Sandra Goss - TCWP, Roberta Rhur - VDCR)

Response: Comment noted. Other than issuing permits for boating access areas, docks, and marinas, TVA does not regulate boating. State agencies regulate boating within their respective state boundaries.

179. While the construction of new trails is desirable, the proposed addition of 10 miles of new trails per year under the custodial management is questionable. Why is this activity considered custodial? Some of TVA's existing trails, such as the Hemlock Bluff Trail, are at present not adequately maintained. TVA's custodial trail management efforts should concentrate on better maintaining the existing trails. (*Commenter: Joe Feeman*)

Response: Neither the Custodial Management alternative not the preferred alternative in the Final EIS and NRP include the construction of new trails. TVA would, however, consider allowing partners to construct and maintain trails on TVA lands under the preferred alternative. Under the preferred and other alternatives, TVA proposes to improve the management of its existing trail system. In addition, as part of Public Engagement efforts, TVA proposes to increase its use of volunteers for activities such as maintaining trails.

# 2.18.4. Fishing

180. DEIS Section 2.1.2 lists bank fishing as a dispersed recreation key opportunities. We support actions to improve bank fishing access and facilities. In addition to these improvements, TVA should consider fish habitat rehabilitation and enhancement. Fish habitat quality declines as reservoirs age and can be rehabilitated by improvements such as fish attractors near public access areas. Such habitat improvements increase angler catch rates and the quality of the recreational experience. We welcome the opportunity to partner with TVA and others to implement this. (*Commenter: Dan Forster - GDNR*)

Response: Comment noted. TVA recognizes bank fishing as a growing outdoor pursuit. On many reservoirs throughout the Tennessee Valley, TVA provides the only access bank fishermen have to the reservoir. In areas highlighted for premier bank fishing opportunities, TVA wants fishermen to have maximum success in their endeavor. As outlined in the NRP, partnerships will be an important component to the success of the plan. This would include partnering in projects to improve bank fishing opportunities and the habitat that supports those opportunities. TVA looks forward to working with all existing and potential partners as the NRP is implemented.

#### 2.18.5. Integration with SCORPs

181. The manner in which the NRP integrates with each of the states' State Comprehensive Outdoor Recreation Plans should be better explained. While Land and Water Conservation Funds may not be applicable to TVA's proposed activities, the outdoor planning provided by each SCORP should not be overlooked. For example, increased water access may help meet one of Virginia's most popular recreational resources. (*Commenter: Roberta Rhur - VDCR*)

Response: TVA shares information from its TVA Recreation Inventory Database with the seven TVA states in support of their SCORP planning process and reviews and comments on draft sections of the SCORP that impact the TVA service area. TVA appreciates the guidance provided by the state's SCORPs and provides coordination, plan reviews, land rights, permits and when available, supplemental funding to assist with implementation of approved State and regional recreation plans and associated projects on public lands.

# 2.18.6. Recreation Facility Management

182. According to draft NRP page 62, there is not a Custodial level for operation of Day Use Areas. Please explain this omission. (*Commenter: Avis Kennedy*)

Response: This comment is specific to the operation of day use areas off of dam reservations. TVA determined that its continued operation of these areas did not meet the definition of custodial program options. Therefore, TVA's continued operation of these areas was not included in Alternative B - Custodial Management. TVA's continued operation of these areas is included in the preferred Alternative D and is one of the activities included in Section 6.4.4 of the Final NRP. TVA also proposes to upgrade up to 2 of these areas per year under the preferred alternative.

183. Recreation management should remain a high priority. We support the management of TVA recreation facilities at the enhanced or flagship level. (*Commenter: Dan Forster - GDNR*)

Response: Comment noted. Under the preferred alternative, many recreation management activities would be implemented at the enhanced level and a few would be implemented at the flagship level.

184. The draft NRP contains several references to the Americans with Disability Act and its guidelines without much elaboration. It would be beneficial for the NRP to commit in greater detail to the establishment of trails and campgrounds with handicapped access (e.g., wheelchair-accessible nature trails, streams, and fishing facilities). (*Commenter: Sandra Goss-TCWP*)

Response: Comment noted. Under all alternatives, TVA intends to continue upgrading its facilities to meet ADA standards. TVA also considers accessibility in the design and construction of trails and stream access sites.

185. TVA proposes to continue operating eight campgrounds on dam reservations. Please explain the strategic and security reasons behind this proposal. (*Commenter: Mitch Jones - TMA*)

Response: After the attacks of 9/11, TVA installed security gates at dam and power operations reservations. These gates provide TVA the ability for restrict public access in the event of a heightened security alert by Homeland Security. In this event, the campgrounds and recreation areas on these reservations would be evacuated and closed to the public. Keeping these campgrounds and recreation areas in service and managed by TVA helps meet recreation demand while maintaining TVA's ability to respond to enact necessary security measures.

186. Under the preferred alternative, most of the focus is on the continued operation and upgrades to existing recreation facilities. Relatively few activities are proposed that will likely result in a marked increase in recreational opportunities and use on TVA lands. How will this approach meet the expressed interest and projected increase in recreational demand? (*Commenter: Renee Hoyos - TCWN*)

Response: The approach of the preferred alternative is to achieve a balance between limited TVA resources and providing for unmet recreation needs. To date, making land available for agency and commercial recreation development has helped provide cost-effective recreation opportunities around the reservoir system. This would continue under all alternatives.

#### 2.18.7. Recreation Inventory

187. Why is it necessary to complete a thorough recreation inventory every year? What type of change requires inventories this frequently? (*Commenter: Ron Fugatt - NU*)

Response: TVA has recently implemented a web-based Recreation Map Viewer (<a href="http://recreation.tva.com/ext\_cl.aspx">http://recreation.tva.com/ext\_cl.aspx</a>). The supporting recreation facility information is current updated on a 3-year cycle. Decreasing the update cycle would make the information more timely and useful.

#### 2.18.8. Recreational Access

188. The NCWRC actively pursues and develops boating and fishing access areas for sportsmen and we support increasing the number of these areas as proposed under Alternative C. We specifically encourage consideration of a new public low-water boat ramp on Fontana Reservoir between Mouse Branch and Panther Creek. A ramp here would respond to angler desires and improve access for anglers and hunters, particularly in the mid-lake region where poor winter and spring weather can make access difficult from other ramps. A new ramp would also allow access when other ramps are not usable due to low reservoir levels. (*Commenter: Dave McHenry - NCWRC*)

Response: Comment noted. TVA would work with agency partners to make available TVA public lands for development of this type of public boat access areas in suitable and appropriate locations.

189. We are happy to partner with TVA to develop increased recreational access and use of TVA lands while continuing to management and protect the unique natural resources on TVA's lands and waters in Virginia. We look forward to working with TVA to implement the Biological Resource and Recreation Management access initiatives in the NRP. (*Commenter: Amy Ewing - VDGIF*)

Response: Comment noted.

## 2.18.9. Recreational Use and Visitation Information

190. According to the draft NRP, TVA areas attract about 6 million people per year. What areas are included in this estimate? It would be beneficial for TVA to have better visitation data, better data on expenditures by visitors, and better information on the economic benefits of these expenditures. (*Commenter: Avis Kennedy*)

Response: The estimate of 6 million people per year is for dispersed (informal) recreation users on all TVA reservoir lands. TVA agrees with the desirability of better data on visitation, expenditures, and the economic benefits of these expenditures.

#### 2.18.10. Stream Access Sites

191. Because public access to streams in parts of the TVA Region has diminished over the last few decades, we support the continued operation and improvement of TVA's existing stream access sites as well as efforts to acquire and develop additional stream access sites. (Commenter: Dan Forster - GDNR)

Response: Comment noted. Assisting in acquisition and development of additional sites is not part of the preferred NRP alternative.

# 2.19. Reservoir Lands Planning

### 2.19.1. Allocations for Specific Tracts

192. Regarding draft NRP page 12, please elaborate whether lands already allocated to one of the zones will remain as allocated under the Comprehensive Valleywide Land Plan. (Commenters: Sandra Goss - TCWP, John and Mary Ben Heflin, Drew Wilson)

Response: TVA's first priorities in implementing the proposed Comprehensive Valleywide Land Plan would be to complete land plans with single use parcel allocations for the reservoirs that lack them. TVA would then update existing reservoir land plans on an as-needed or cyclic basis. Zoning allocations could be changed during the plan updates, as well as during off-cycle allocation changes under the conditions defined in the TVA Land Policy.

193. We request that TVA rezone Pickwick Reservoir Tract No. XPR-141PT2 (the former Pickwick Pines Marina property) from Developed Recreation to Natural Resource Conservation. With two large marinas nearby, this area is already heavily congested with boat traffic. (Commenters: Bo Allen, Louis F. Allen, Rodney Baber, Steve & Debbie Blackwell, David L. Bourland, Donald E. Bourland, Douglas Braff, Keith Brown, Andy and Pam Cobb, William Cowan, Wood Dale, Frank Dalton, Kathleen Dalton, Martha Frances Dalton, Frank Davis, David Delich, Gus Denton, Bonnie Doyle, Dena Edelen, Thomas Farnsworth, Robert Field, Marietta Haaga, Glenn W. Habenicht, Betsey Hamilton, Josh Hammond, Tim Hayes, Rob Heflin, Glen Herald, Martha Hester, Jeanne Hollis, Martha H. Huie, Ann Day Hunt, Bill and Pat Johnston, Will Johnston, John Marshall Jones, Kenneth P. Jones, M. Kruger - MAS, Jamie Lendrum, John Lichterman, Rob Liddon - BDBCB, Robert Liddon, Ben Long, H. Lynn Magill, Nancy Magill, Margaret Mallory, Vincent and Marsha Marascuilo, Vic Marlar, Paul A. Matthews, William P. Maury II, Joan and Sarah Melvin, Lancelot Minor, Kimbrough Mullins, Carroll Nenon, Charles Netherly, Lissa Noel, Larry Nolan, Maryin Palmer, Scott B. Peatross, Anne Phillipy, Robert J. Pinstein, Bill Reddoch, Diane Reddoch, Michael Reddoch, King W. Rogers, David M. Rudolph, J. Tyler Shawkey, William Smith, Patrick D. Snow, Michael Stanley, Richard Sweat, Sherry Whitten, Catherine Wilfong, Bailey Williams, Darrell Williams, David Williams, Gloria Williams, Jennifer Williams, Nora Williams)

Response: Comment noted. TVA will consider this and other public comments in determining the future use of Pickwick Reservoir Tract No. XPR-141PT2. This reservoir-specific activity is not within the scope of this programmatic review.

### 2.19.2. Process for Changing Land Use Allocations

194. TVA should modify its Land Policy to allow parcel allocations to be changed outside of the normal planning process when the change is to Natural Resource Conservation or Sensitive Resource Management, rather than only to Industrial or Commercial Recreation uses. Given the long time periods between reservoir planning efforts, the current policy of only allowing interim changes for intensive development uses hinders TVA's ability to manage natural resources and protect public lands. It also reflects a pro-development bias. (*Commenters: Louis F. Allen, Robert Alvarez, Steve & Debbie Blackwell, David L. Bourland, Donald E. Bourland, Edward Boyer, Douglas Braff, William Cowan, Wood Dale, Frank Dalton, Kathleen Dalton, Martha Frances Dalton, Frank Davis, Hugh L. Davis, III, David Delich, Gus Denton, Bonnie Doyle, Dena Edelen, Thomas Farnsworth, Joe Feeman, Robert Field, Marietta Haaga, Glenn W. Habenicht, Betsey Hamilton, Tim Hayes, John and Mary Ben Heflin, Rob Heflin, Glen Herald, Martha Hester, Jeanne Hollis, Martha H. Huie, Ann Day Hunt, Will Johnston, John Marshall Jones, Kenneth P. Jones, M. Kruger - MAS, Jamie Lendrum, Rob Liddon - BDBCB, Robert Liddon, Ben Long, H. Lynn Magill, Nancy Magill, Margaret Mallory, Paul A. Matthews, William P. Maury II,* 

Joan and Sarah Melvin, Lancelot Minor, Kimbrough Mullins, Charles Netherly, Lissa Noel, Larry Nolan, Marvin Palmer, Scott B. Peatross, Robert J. Pinstein, Bill Reddoch, Michael Reddoch, King W. Rogers, David M. Rudolph, J. Tyler Shawkey, William Smith, Patrick D. Snow, Michael Stanley, Matthew Thornton, Sherry Whitten, Catherine Wilfong, Darrell Williams, David Williams, Jennifer Williams, Nora Williams, Drew Wilson, Gina M. Youngblood)

Response: Comment noted. TVA will consider this if and when the Land Policy is reviewed for possible amendments. It was approved by the TVA Board of Directors on November 30, 2006. The NRP proposes to shift TVA's reservoir lands planning to a more comprehensive Valleywide perspective. The CVLP would establish the range of allocated uses for the lands TVA manages across its reservoir system. However, TVA would continue to develop and update RLMPs for a portion of a reservoir, an entire reservoir, or a group of reservoirs using the Single Use Parcel Allocation methodology. A prioritized list of areas to be planned would be developed upon completion of the NRP and one of the goals of the NRP is to accelerate the reservoir land planning cycle.

# 2.19.3. Reservoir Lands Planning Process

195. Because the Rapid Lands Assessment is based on desktop analysis rather than comprehensive field surveys, it is inappropriate to use as a baseline for TVA's land management plans as stated in Section 1.6.3 of the NRP and elsewhere. (*Commenter: Joyce Stanley - USDOI*)

Response: The RLA was used to supplement available information. The baseline acreages under the Comprehensive Valleywide Land Plan were established using a combination of allocations in Board-approved land plans that are based on ground-truthed data and results of the Rapid Lands Assessment methodology. Based on additional surveys, TVA anticipates that some parcels of land may be better represented by different land use allocations. For example, field assessments may identify additional areas that warrant the sensitive resource management allocation.

196. The change in reservoir lands planning proposed under the preferred alternative would affect numerous landowners on TVA reservoirs. When TVA began developing past reservoir land plans it notified shoreline property owners and invited them to meetings to discuss the plan. TVA has not done this with this currently proposed reservoir land plan, and consequently is not adequately involving potentially affected landowners in this land planning process. (*Commenter: Donald Reynolds*)

Response: Public input is essential for making decisions concerning the allocation of TVA-managed public land. When developing reservoir land management plans, TVA will continue to solicit public input. TVA actively solicits public input and will provide opportunities for the public to make comments on the management of reservoir lands. Opportunities for public review could include such venues as a public notice, public meetings, facilitated small group workshops, stakeholder consultations, and/or questionnaires for collecting public input. TVA used a variety of techniques to solicit public input to the NRP. However, because the reservoir lands planning component would not, by itself, result in changes in allocations of individual tracts of TVA land, TVA did not directly specifically notify individual reservoir property owners.

197. The NRP should include the lands planning process for each reservoir. (*Commenter: Darrell Williams*)

Response: Section 2.4.1 of the final EIS and Section 8.3 of the final NRP list the status and type of land plan for each reservoir. If Alternative C or D is selected for implementation, TVA's first priority in implementing the Comprehensive Valleywide Land Plan (see final NRP Section 9.3) would be to complete land plans using the single use parcel allocation method for the reservoirs that are currently planned using the multiple use tract method (Chickamauga, Kentucky, Nickajack, and Wheeler). TVA would then complete land plans for the forecast method reservoirs (Fort Loudoun and Normandy), followed by those with no land plan (Great Falls, Wilson, Beech River Project). Due to the NRP's broad scope, RLMPs for a portion of a reservoir, an entire reservoir, or a group of reservoirs are considered implementation of this project.

#### 2.19.4. Residential Development

198. TVA should discourage large shoreline residential developments such as the Rarity projects. (*Commenter: Virginia Dale - AFORR/TCWP*)

Response: Comment noted. Under the 2006 Land Policy, TVA would not make its reservoir lands where shoreline access rights do not already exist available for such developments.

### 2.19.5. Target Ranges for Allocations to Land Use Zones

199. The ranges for the amount of land proposed to be allocated to the various zones shown in draft NRP Table 2, Page 12, are very broad. Please explain the sources and reasons for these ranges. (*Commenters: Ron Fugatt - NU, Diane Reddoch, Paul Sloan - TDEC*)

Response: In response to public comments and after further analysis, the ranges of allocated land area to the various zones under the Comprehensive Valleywide Land Plan presented in the final EIS and NRP have been narrowed from those presented in the drafts. The bases for the ranges are explained in final EIS Section 2.4.1.

200. TVA should increase the amount of land on Pickwick Reservoir allocated for Natural Resource Conservation and reduce the amount of land allocated for Industrial and Developed Recreation, particularly in the Yellow Creek area. This area is already heavily developed with marinas, industries, barge terminals, and boat ramps and is heavily congested with boat traffic on weekends and holidays. (Commenters: Louis F. Allen, Robert Alvarez, Steve & Debbie Blackwell, David L. Bourland, Donald E. Bourland, Edward Boyer, Douglas Braff, Keith Brown, William Cowan, Wood Dale, Frank Dalton, Kathleen Dalton, Martha Frances Dalton, Frank Davis, David Delich, Gus Denton, Dena Edelen, Thomas Farnsworth, Robert Field, Sandra Goss - TCWP, Marietta Haaga, Glenn W. Habenicht, Betsey Hamilton, Tim Hayes, John and Mary Ben Heflin, Rob Heflin, Glen Herald, Martha Hester, Jeanne Hollis, Martha H. Huie, Ann Day Hunt, Will Johnston, John Marshall Jones, Kenneth P. Jones, M. Kruger - MAS, Jamie Lendrum, Rob Liddon - BDBCB, Robert Liddon, Ben Long, H. Lynn Magill, Nancy Magill, Margaret Mallory, Paul A. Matthews, William P. Maury II, Joan and Sarah Melvin, Lancelot Minor, Kimbrough Mullins, Charles Netherly, Lissa Noel, Larry Nolan, Marvin Palmer, Scott B. Peatross, Robert J. Pinstein, Richard Preston – TOS, Bill Reddoch, Michael Reddoch, King W. Rogers, David M. Rudolph, J. Tyler Shawkey, William Smith, Patrick D. Snow, Michael Stanley, Richard Sweat, Matthew Thornton, Sherry Whitten, Catherine Wilfong, Bailey Williams, Darrell Williams, David Williams, Gloria Williams, Jennifer Williams, Nora Williams, Drew Wilson, Gina M. Youngblood)

Response: Comment noted. TVA will consider these comments when making future land use decisions for Pickwick Reservoir lands.

201. We oppose the reduction in lands zoned for sensitive resource management and natural resource conservation proposed under the recreation-focused lands reservoir planning alternative. We also note that the linkage between the Reservoir Lands Planning component of the NRP and the proposed natural resource management activities is not defined. (*Commenter: Mark Campen*)

Response: Based on public input and a reassessment of likely future needs, TVA reduced the increase in the proportion of land potentially allocated to Developed Recreation under the Comprehensive Valleywide Land Plan to a maximum of 25 percent (i.e., up to 10 percent of TVA reservoir lands). The CVLP allocation ranges for Zone 3 - Sensitive Resource Management (currently 17 percent of TVA reservoir lands) and Zone 4 - Natural Resource Conservation (currently 61 percent of TVA reservoir lands) were also reduced to 16 - 18 percent and 58 - 65 percent, respectively. Although TVA does not propose constructing new developed recreation facilities under the various NRP alternatives, the demand for such facilities is anticipated to increase and the potential increase in lands allocated for Developed Recreation under the CVLP would help accommodate this demand. A large proportion of the biological and cultural resource management activities would occur on Zone 3 and Zone 4 land and the proposed CVLP allocation ranges should continue to provide an adequate land base for these activities.

# 2.20. Water Resource Management

### 2.20.1. Aquatic Monitoring and Management

202. TVA and Georgia Wildlife Resources Division have shared data on several occasions in the past. We believe that data sharing is in the best interest of both agencies and the public and support efficient means of data sharing. We also support continued TVA stream, tailwater, and other ecological monitoring efforts. (*Commenter: Dan Forster - GDNR*)

Response: In addition to continuing to provide stream and tailwater data upon request, TVA is proposing under the preferred alternative to develop an "online" data sharing capability that would satisfy this need. While acknowledging that "continuous" data collection can have different meanings, TVA believes its proposed level of stream and tailwater monitoring, in addition to other monitoring being proposed as part of other NRP programs, will serve to maintain and enhance TVA's and other resource agencies' ability to make future management decisions.

203. We recommend that TVA increase the number of sampling sites in streams, reservoirs and tailwaters to the level described in Alternative C. This monitoring should also include additional embayment sites which often have distinct water quality issues. (*Commenter: Paul E. Davis - TDEC*)

Response: Broad aquatic monitoring serves a crucial role in assessing and protecting Valley water resources. In response to comments on the Draft EIS and NRP, TVA has increased the Stream and Tailwater Monitoring Program "Custodial" and "Enhanced" number of stream assessments to be conducted, respectively, from 50 and 70 to 110 and 125. In addition, a new program, the Nutrient Source-Watershed Identification and Improvement Program, has been added with a strong monitoring emphasis for identifying and reducing nutrient loading into targeted reservoirs (and embayments) and streams, which could also improve conditions in some streams currently listed as nutrient-impaired on states' 303(d) lists.

A new program emphasis on aquatic biodiversity protection has been added to the Aquatic Ecology Management Program, which includes biological monitoring and habitat assessment activities that will foster collaborative efforts among stakeholders to protect exceptionally diverse aquatic biological communities and habitats. Additionally, a new Climate Change Sentinel Monitoring Program is now incorporated into the NRP that will partner with other agencies to conduct long-term climate, water quality, and biological monitoring of 1 to 2 watersheds in each of the five predominant ecoregions in the Tennessee Valley. The combined sampling efforts of these programs would be robust and equal to, or greater than, the flagship number of stations identified in the draft NRP. As part of its Strategic Partnership Planning Program, TVA would partner (coordinate) with other agencies to select and prioritize sites chosen for sampling and analysis. Finally, TVA intends to make its monitored data easily available to all stakeholders and explore utilization of the EPA-supported STORET / WQX framework as a part of its evaluation.

204. We request that TVA use the EPA-supported STORET / WQX framework for managing and sharing water quality monitoring data. This will facilitate data exchange between TVA and state water quality agencies and increase the ease of the use of the valuable information collected by TVA. (*Commenter: Paul E. Davis - TDEC*)

Response: Comment noted. Under Alternative C and preferred Alternative D, TVA proposes to make its monitoring data readily available on the Web. As part of this effort, TVA would explore using the EPA-supported STORET / WQX framework.

205. When prioritizing sites for sampling, TVA should consider the states' most recent 303(d) lists of impaired streams. This will help both TVA and the state water quality agencies identify restoration needs and opportunities. We recommend that TVA coordinate monitoring efforts so that TVA's monitoring and other relevant activities are synchronized with the states' watershed management activities. (*Commenter: Paul E. Davis - TDEC*)

Response: Comment noted. TVA intends to continue monitoring at its current sites but will consider 303(d) listing status and other factors in selecting additional sites to monitor. TVA also proposes to coordinate with other agencies when selecting and prioritizing monitoring sites.

#### 2.20.2. General

206. Given TVA's abilities, resources, and regulatory authorities, its water resources efforts could have more impact by focusing on efforts to improve impaired tributary streams than on things like reservoir shoreline stabilization. Focusing on impaired streams should be a custodial activity. The targeted watershed initiatives should be higher priority than the targeted reservoir initiatives. (*Commenters: Renee Hoyos - TCWN, Paul Sloan - TDEC*)

Response: While TVA has regulatory authority over obstructions in and along the Tennessee River and its tributaries and controls uses and disturbances on property under its control, TVA does not have regulatory authority over private lands. This limits TVA's ability to directly address many of the factors contributing to impaired streams. However, a new Nutrient Source-Watershed Identification and Improvement Program has been added to Alternatives B, C, and D which focuses on improving reservoirs by identifying major watershed sources of pollutants (primarily nutrients and sediment) with pollution load reduction targets for streams flowing into reservoirs. This program is expected to improve some streams that are currently listed as impaired on state 303(d) lists. Under the preferred alternative, this program would focus on improving two of the reservoirs receiving large phosphorus and nitrogen loadings. Additional NRP programs are proposed that would conduct stream monitoring, habitat enhancements, public outreach, and strategic partnerships. These are also expected to improve streams.

207. Many of TVA's current and proposed water resources management programs are not essential activities and overlap efforts of other agencies such as the Natural Resources Conservation Service that are better equipped to handle them. Much of the proposed program funding, such as giving money to partnerships and groups to spend on stream projects, could be better spent on managing TVA lands, where there is little overlap with other agencies. (*Commenter: Joe Feeman*)

Response: Water quality is one of six strategic objectives of TVA's Environmental Policy which states that TVA will actively promote reservoir and stream water quality, reduce the impact of its operations and leverage alliances with local and regional stakeholders to promote water conservation. The NRP would help achieve these objectives by focusing on developing a sustainable and holistic approach for TVA to carry out its resource stewardship activities. The main emphasis of the water resource programs is on monitoring, planning, providing technical support and funding, and implementing programs designed to focus on TVA's reservoirs and tributary streams in a manner that addresses emerging issues and compliments the efforts of other agencies.

208. We recognize and support TVA's effort and future commitment to monitoring, maintaining and enhancing the water resources of the Tennessee Valley. (*Commenter: Dan Forster - GDNR*)

Response: Comment noted.

#### 2.20.3. Mitigation of Impacts

209. According to the discussion of the TVA Environmental Policy on draft NRP page 23, a focus area of the NRP is to "Mitigate TVA's impact on aquatic systems while balancing thermal cooling needs with consumptive use." It is unclear how the actions proposed in the NRP will mitigate these impacts and how this mitigation will be prioritized. (*Commenter: Joyce Stanley - USDOI*)

Response: While this critical success factor is listed as part of the Water Resource Protection and Improvement objective in the TVA Environmental Policy, it is a not major focus area of the NRP programs and activities. Thermal cooling needs for power generation has recently been addressed in TVA's Integrated Resource Plan Final EIS. Other aspects of TVA's consumptive use of water are being addressed under TVA's Strategic Sustainability Performance Plan (Executive Order 13514).

# 2.20.4. Reservoir Shoreline Stabilization

210. Both the enhanced and flagship programs propose specific amounts of shoreline to be stabilized. Based on TVA's shoreline inventories, how much shoreline is in need of stabilization? How do the proposed amounts of stabilization relate to the need for stabilization? (*Commenter: Mark Iverson - BGMU*)

Response: TVA is charged with the management and stewardship of some 11,000 miles of reservoir shoreline. In the early 1990s TVA assessed this shoreline and identified that 8 percent were eroding. Some of these areas are classified as sensitive resource areas because they contain archeological resources. In addition, eroding sites affect water quality, aquatic and terrestrial habitat, and recreational opportunities. TVA, working on its own and with partners, has been successful in protecting over 80 miles of eroding reservoir shoreline since 1992. The NRP proposes to continue this effort by stabilizing approximately 60 miles for water quality purposes and up to 22 miles for protection of archaeological sites over the next 20 years. It is

understood that this is a dynamic system and with continuing land use changes, increased development, and more water craft on TVA reservoirs, shoreline erosion could increase. The main focus is taking corrective action, continuing to assess and target resources, and to minimize erosion and manage the shoreline resource for the greatest public benefit.

211. How much sediment input to reservoirs is the result of sediment runoff from exposed unvegetated areas within the reservoir drawdown zones? (*Commenter: John Matney*)

Response: The amount of sediment entering reservoirs as a result of sediment runoff from exposed drawdown zones has not been determined. Quantifying this sediment input in some reservoirs would be a component of the Nutrient Source-Watershed Identification and Improvement program.

212. The discussion of reservoir shoreline erosion and stabilization does not describe the impacts of the higher summer reservoir levels implemented through the Reservoir Operations Study on shoreline erosion. What effects did the ROS changes have on erosion? How accurately were they predicted in the ROS EIS? (*Commenter: Joe Feeman*)

Response: Comment noted. TVA has not conducted an assessment of the effects of the ROS changes on shoreline erosion.

213. TVA is doing too little to prevent the loss of islands from erosion. Many islands that provide important habitat for waterfowl, eagles, ospreys, and other wildlife have greatly decreased in size in recent years. Increased boat traffic and the trend towards larger boats with larger wakes contribute to this loss of islands. TVA should do something to stabilize these islands for future generations to enjoy. (*Commenter: Tom Aslinger*)

Response: TVA agrees that islands in reservoirs are special features. They are valued for their recreational opportunities, ecological and archaeological significance, waterfowl and wildlife habitat, and scenic interests. Because of these values, a significant portion of TVA's shoreline stabilization work since 1994 has been on islands. Stabilization projects on islands include Seven Mile Island on Pickwick Reservoir; Bucky's Island on Boone; Patterson Island on Kentucky; Leuty, Huffine, Jackson Branch, Sand, and Gordon Branch Islands on Watts Bar; and Skull Island and Hiwassee Islands on Chickamauga. Under the preferred NRP alternative, TVA plans to stabilize about 3 miles of shoreline per year, and part of this will likely be island shorelines.

214. TVA's shoreline stabilization efforts and outreach efforts should emphasize biostabilization. This technique is often as effective, has lower costs, and is a more environmentally friendly solution for streambank stabilization and restoration. (*Commenter: Deb O'Dell*)

*Response:* Stream restoration work performed by TVA when implementing the NRP would use the principles of natural stream channel design and biostabilization techniques when possible. The text of final EIS Section 2.5.6 has been revised to clarify this.

### 2.20.5. Strategic Partnership Planning

215. Regarding Strategic Partnership Planning: TVA continues to be a valuable partner when managing the resources of North Georgia. We hope that our partnership will continue or expand. (*Commenter: Dan Forster - GDNR*)

Response: TVA recognizes that working with partners and stakeholders is the most effective and sustainable approach to managing natural resources across the Tennessee Valley. This is why TVA has included the Strategic Partnership Planning program as a major component of the NRP water resource management activities. The program focuses on building strong partnerships with state, regional, and national organizations to address stewardship issues of mutual importance. This includes maintaining and exploring new opportunities for collaboration with partners in North Georgia and other states in the Valley.

216. Strategic partnership planning should be one of the highest priority water resource programs given its potential for increasing holistic watershed management. I urge you to implement it at the advanced flagship level. (*Commenter: Tom Littlepage*)

Response: TVA recognizes that working with partners and stakeholders is the most effective and sustainable approach to managing natural resources across the Tennessee Valley. This is why TVA developed a Strategic Partnership Planning program as a major component of the water resource programs and proposes to implement it under the preferred alternative The program focuses on building strong partnerships with state, regional, and national organizations to address stewardship issues of mutual importance. This includes maintaining and exploring new opportunities for collaboration with partners in North Georgia and other states in the Valley.

217. The TVA support for local watershed groups has been critical for their success in addressing water quality issues. TVA should continue to provide staff support and funding to leverage other funds and support. (*Commenters: Carol A. Doss - UPRR/KSWVB, Sarah Ketron - BWP*)

Response: Over the past two decades, TVA has worked to protect and improve water quality through implementing watershed initiatives. These efforts focused on working with federal, state, and local agencies and organizations to identify and quantify water quality problems, then working collaboratively with the partner to develop plans that target improvement actions. In addition to providing technical expertise, the TVA provided support in leveraging funds, building partnerships/coalitions, and promoting outreach efforts for water quality improvement. These watershed initiatives have been successful because of partnerships and TVA recognizes that working with partners and stakeholders is the most effective and sustainable approach to managing natural resources across the Tennessee Valley. TVA proposes to continue these efforts through the Strategic Partnerships Planning program included in Alternatives B, C, and D, and expand them under Alternatives C and D. Additional information on this program is available in final EIS Section 2.5.2.

# 2.20.6. Water Resource Improvement Tools

218. DEIS Section 2.4.5, Water Resource Improvement Tools, lists a Stream and Riparian Management and Restoration Program. We recommend the use of natural stream channel design when possible for stream restorations. We also recommend that TVA provide additional details on the stream restoration methodologies that would be used under this program. (*Commenter: Heinz J. Mueller - USEPA*)

*Response:* Comment noted. Stream restoration work performed by TVA would use the principles of natural stream channel design when possible. Final EIS Section 2.5.3 has been revised to clarify this. Final EIS Section 2.5.6 describes stream restoration methodologies.

219. The description of the Water Pollutant Trading program in DEIS Section 2.4.5 states "Regulatory processes that allow Trading would be present in the watershed, and stakeholders

would be involved in developing the Trading mechanisms." Please provide more details on water pollutant trading opportunities in the Tennessee Valley. (*Commenter: Heinz J. Mueller - USEPA*)

Response: Such a program does not yet exist in the Tennessee Valley. Water quality pollutant trading can be an effective tool for reducing point-source pollutant loads at a lower cost by achieving those reductions from non-point sources within the same watershed (with appropriate pollutant reduction credit ratios). Although both a regulatory requirement (such as a point-source permit limit that would require substantial wastewater treatment costs) and a regulatory allowance for trading (trading rules) normally would need to be present to support a trade, this tool also could be used, with a proper funding stimulus (such as "credit banking"), to achieve non-regulatory pollutant load reductions. From a regulatory perspective, promulgation of new or more stringent water quality criteria and/or a regulatory requirement to reduce pollutant loading from a water body could increase opportunities for pollutant trading as a tool.

220. We applaud the inclusion of the Urban Storm Water Assistance program. Choosing effective stormwater BMPs is a key challenge facing anyone interested in improving the quality of our rivers, lakes, and coastal waters. We encourage TVA to visit the EPA Urban BMP Performance website at <a href="http://cfpub.epa.gov/npdes/stormwater/urbanbmp/bmpeffectiveness.cfm">http://cfpub.epa.gov/npdes/stormwater/urbanbmp/bmpeffectiveness.cfm</a> for additional BMPs that could be considered for implementation. (*Commenter: Heinz J. Mueller - USEPA*)

Response: Comment noted. TVA recognizes the use of proper storm water management practices is a critical component in protecting and improving water resources in the Tennessee Valley, including lands owned and managed by TVA. These practices are included in the NRP as tools that could be used in implementation of TVA's water resource programs. Final EIS Section 2.5.6 describes these tools. TVA has found EPA's Urban BMP Performance website to be a valuable resource and intends to continue consulting it as the NRP is implemented.

#### 2.20.7. Water Resources Improvement Programs

221. How will the various amounts of sediment and phosphorus reductions proposed under the different alternatives be measured? (*Commenter: Ron Fugatt - NU*)

Response: Phosphorus and sediment reductions targets in the Natural Resource Plan are estimates from simple models (see Appendix I) for evaluating relative impacts of the different alternatives. For implementation of the plan, load reductions will be estimated based on modeling and/or monitoring as appropriate.

222. It appears from the program description in DEIS Appendix H that programs listed to reduce suspended sediment and phosphorus have set goals under the "no-action" alternative and that these goals would be eliminated under the preferred alternative. Please clarify this. (Commenter: Heinz J. Mueller - USEPA)

Response: A new program, the Nutrient Source-Watershed Identification and Improvement Program, has been added to the Natural Resource Plan that would achieve the phosphorus and sediment reductions under the preferred alternative. See FEIS Section 2.5.4 for a description of this program.

223. The listing of water resources improvement programs contains many promising ideas, but most are only included in Alternative C. We suggest that TVA include more of them in Alternative D. (*Commenter: Dan Forster - GDNR*)

Response: The Water Resources Improvement Programs category has been revised to include several new and combined programs that are included in Alternative D (Preferred Alternative).

224. The most important part of Water Resource Management should be to cleanup small streams flowing into the TVA system. This will require the Flagship option and TVA, the states, and volunteer organizations working together and having the resources and leadership to do it properly. This area could benefit from TVA establishing an independent Foundation and Trust Fund to provide stream cleanup funds. (*Commenter: Sandra Goss - TCWP*)

Response: Comment noted. The NRP includes a Strategic Partnership Planning program that would be implemented under the preferred alternative at the Flagship level. This program would develop regional collaborative projects to improve water quality in the Tennessee River watershed, provide technical assistance through enhanced data collection and sharing opportunities, build relationships with key contacts at agencies and organizations throughout the Valley, and network with current and prospective financial contributors to enhance TVA's ability to secure external funding. The funding of stream cleanup efforts could be brought to the attention of the Foundation and Trust Fund, depending on how the Fund is implemented.

# PART 3

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# PART 4

# COMMENT LETTERS FROM FEDERAL AND STATE AGENCIES AND FEDERALLY RECOGNIZED INDIAN TRIBES

# **Comment Letters from Federal Agencies**

Rei'd 4/27/11



# DEPARTMENT OF THE ARMY WILMINGTON DISTRICT, CORPS OF ENGINEERS 151 PATTON AVENUE ROOM 208 ASHEVILLE, NORTH CAROLINA 28801-5006

April 25, 2011

Regulatory Division

Action ID Number: SAW-2011-00772

Charles P. Nicholson NEPA Compliance Manager Tennessee Valley Authority 400 West Summit Hill Drive, WT 11D Knoxville, Tennessee 37902

Dear Mr. Nicholson:

Reference is made to the request for comments regarding the Tennessee Valley Authority's (TVA) Natural Resource Plan (NRP) and Draft Environmental Impact Statement (EIS) dated March 23, 2011. We have reviewed both documents and have provided general comments below.

Wilmington District's Regulatory boundary encompasses North Carolina which includes three TVA reservoirs and their surrounding managed lands: Chatuge Lake, Fontana Lake, and Hiwassee Lake. These lakes along with jurisdictional streams and wetlands adjacent to the reservoirs and in the surrounding managed lands are all subject to Section 404 of the Clean Water Act and in the case of Fontana Lake subject to Section 10 of the Rivers and Harbors Act. Activities in these regulated aquatic resources that result in the discharge of dredged and/or fill material may require a Department of the Army (DA) permit. Based upon a review of your Natural Resource Plan, there appears to be some planned recreational and watershed resource improvements that may result in a discharge of fill material into regulated waters. Some examples include shoreline stabilization activities, construction of boat docks/marinas, trail construction, new access roads, and stream and wetland restoration/enhancement activities. The type of DA authorization required (i.e., general or individual permit) will be determined by the location, type, and extent of jurisdictional area impacted by the project, and by the project design and construction limits.

We realize that the implementation of these planned activities are dependent upon many factors and are preliminary in nature. Our main concern is to make your agency aware of potential permitting requirements for work within jurisdictional waters and wetlands within TVA reservoirs and surrounding managed lands. As projects arise, we suggest that you contact our

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office to coordinate any potential DA permits that may be needed. Should you have any further questions related to DA permits, please contact me at 828-271-7980, extension 222. You may also visit our website at the following link, <a href="http://www.saw.usace.army.mil/wetlands/index.html">http://www.saw.usace.army.mil/wetlands/index.html</a> for more information on our regulatory program.

Sincerely,

Scott Jones, PWS

Chief, Asheville Regulatory Field Office



# United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601
(502) 695-0468
May 2, 2011

Mr. Charles P. Nicholson NEPA Compliance Manager Tennessee Valley Authority 400 West Summit Hill Drive, WT 11D Knoxville, Tennessee 37902

Re: FWS 2011-B-0463; Tennessee Valley Authority (TVA), Natural Resource Plan (NRP), for TVA Natural Resources Management Activities within the State of Kentucky

Dear Mr. Nicholson:

The U.S. Fish and Wildlife Service (Service) Kentucky Field Office has reviewed TVA's draft NRP and the associated draft Environmental Impact Statement pursuant to your March 23, 2011 request. The Service offers the following comments in accordance with the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended: 16 U.S.C. 1531 et seq.), the Migratory Bird Treaty Act (MBTA) (40 Stat. 775, as amended: 16 U.S.C. 703 et seq.), and the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d). Please note that these comments only apply to TVA activities that would occur within the State of Kentucky. Please contact the Service's Tennessee, Alabama, Georgia, North Carolina, and Virginia Field Offices for their comments regarding activities, associated with the NRP, which would occur in their respective States.

#### **Endangered Species Act**

TVA's managed lands within the State of Kentucky are confined to the following counties: Calloway, Graves, Lyon, Livingston, Marshall, McCracken, and Trigg Counties. In order to assist you in determining if the proposed activities, associated with the NRP, have the potential to impact protected species we have searched our records for occurrences of listed species within the above-listed Counties. Based upon the information provided to us and according to our databases, we believe that the following federally listed species have the potential to occur within or within the vicinity of proposed activities that are associated with the NRP.

Common Name	Scientific Name	Federal Status
Indiana bat	Myotis sodalis	endangered
gray bat	Myotis grisecens	endangered
Price's potato-bean	Apios priceana	threatened
Interior least tern	Sterna antillarum athalassos	endangered

relict darter Etheostoma chienense endangered endangered clubshell Pleurobema clava endangered fanshell Cyprogenia stegaria Potamilus capax endangered fat pocketbook Plethobasus cooperianus endangered orangefoot pimpleback pink mucket Lampsilis abrupta endangered Quadrula cylindrica candidate rabbitsfoot Obovaria retusa endangered ring pink Pleurobema plenum rough pigtoe endangered candidate Plethobasus cyphyus sheepnose

We must advise you that collection records available to the Service may not be all-inclusive. Our database is a compilation of collection records made available by various individuals and resource agencies. This information is seldom based on comprehensive surveys of all potential habitats and thus does not necessarily provide conclusive evidence that protected species are present or absent at a specific locality.

In general, projects involving tree removal, ground disturbing activities, stream bank disturbances, stream channel disturbances, alteration of stream flow, or discharges have the potential to alter habitat that coincides with the habitat that is required for the above-listed species. Therefore, we recommend submitting projects, associated with the NRP, which would involve any of these activities to our office for project-specific consultations. This would ensure that the projects would be in full compliance with the ESA.

### **Bald and Golden Eagle Protection Act**

Several records for bald eagle (Haliaeetus leucocephalus) nest sites exist within the Kentucky counties in which TVA operates. Although the bald eagle has been removed from the List of Endangered and Threatened Species, it continues to be protected under the MBTA and the BGEPA.

The Service developed the National Bald Eagle Management (NBEM) Guidelines to provide landowners, land managers, and others with information and recommendations to minimize potential project impacts to bald eagles, particularly where such impacts may constitute "disturbance," which is prohibited by the BGEPA. A copy of the NBEM Guidelines is available at: <a href="http://www.fws.gov/migratortbirds/BaldEagle.htm">http://www.fws.gov/migratortbirds/BaldEagle.htm</a>. Those guidelines recommend: (1) maintaining a specified distance between the activity and the nest (buffer area); (2) maintaining natural areas (preferably forested) between the activity and nest trees (landscape buffers); (3) avoiding certain activities during the breeding season; and, (4) informing on-site personnel of the possible presence of nesting bald eagles within the project boundary, and identifying, avoiding, and immediately reporting any such nests to this office.

A 1,500 foot radius around the proposed project area should be surveyed for the presence of bald eagle nests. If a bald eagle nest is discovered within 1,500 feet of a proposed project area, then the NBEM Guidelines should be followed to determine whether the project is likely to disturb nesting bald eagles.

Thank you again for your request. Your concern for the protection of endangered and threatened species is greatly appreciated. If you have any questions, please contact Jim Gruhala of my staff at (502) 695-0468 extension 116.

Sincerely,

Virgil Lee Andrews, Jr.

Field Supervisor

## **Advisory Council on Historic Preservation**

From: Tom McCulloch [mailto:tmcculloch@achp.gov]

Sent: Wednesday, May 11, 2011 12:40 PM

To: Pritchard, Erin E

Subject: RE: TVA Programmatic Agreement

I've looked over the NPR document, and have only a couple of comments.

First, it all looks very comprehensive, but still uses soft language throughout when it discusses what TVA will do, giving the impression that stuff may or may not get done or get implemented. For example, on page 26 and other places is a lot of "TVA proposes" to do this, TVA "is considering" doing that. In part 5.9 again is a lot of TVA "would" do this and that. Throughout, this should be changed to the active voice of "TVA will" or "TVA intends to ..."

Second, in the discussion below Table 2-6, is there a need also to develop plans for late or inadvertent discoveries in addition to for emergencies? The final activity on this chart is "Develop PAs with individual states for compliance with repetitive actions. This is a good idea, and some may be applicable to more than individual states. We have been compiling lists of repetitive actions that generally have no potential to cause effects to historic properties that I can send to you if you decide to go forward on this activity.

What is the timetable for selecting an alternative?

I'll have comments on the PA later this week, tom



# United States Department of the Interior



#### OFFICE OF THE SECRETARY

Office of Environmental Policy and Compliance Richard B. Russell Federal Building 75 Spring Street, S.W. Atlanta, Georgia 30303

11/308 9043.1

May 9, 2011

Charles P. Nicholson NEPA Compliance Manager Tennessee Valley Authority 400 West Summit Hill Drive, WT 11D Knoxville, TN 37902

Re: Comments and Recommendations on the Draft Programmatic Environmental Impact Statement (DPEIS) for the Tennessee Valley Authority Natural Resources Plan (NRP)

Dear Mr. Nicholson:

The United States Department of the Interior (Department) have reviewed the Draft Programmatic Environmental Impact Statement for the Tennessee Valley Authority Natural Resources Plan (NRP)

According to the document, the geographical scope for biological and cultural resource management has been limited to current reservoir lands, and active and former fossil and nuclear properties. However, the geographical scope for the water resource management component of the NRP includes the entire Tennessee River watershed because of the programs associated with improving watershed water quality.

Consequently, we found that several federally listed species occurring in Mississippi, within the Tennessee River watershed, had been omitted from Appendix K – Listed Species and Sensitive Ecosystems within the TVA Region: Table K-4.

#### They are as follows:

Mitchell's satyr butterfly
Price's potato bean
Cumberlandian combshell
Rabbitsfoot mussel
Slabside Pearlymussel

Neonympha mitchellii mitchellii
Epioblasma brevidens
Epioblasma brevidens
C
Uuadrula cylindrica cylindrica
C
Lexingonia dolabelloides

C

Bald eagle Haliaeetus leucocephalus BGPA, MBTA

E-endangered, CH-critical habitat designated, T-threatened, C-candidate, BGPA-Bald and Golden Eagle Protection Act, MBTA-Migratory Bird Treaty Act

Each of these species can be greatly affected by the degradation as well as the improvement of water quality. Therefore, we believe it is appropriate to consider these species within the application of any water management activities, as well as all land based resource management.

These comments pertain only to those TVA management areas located in Mississippi. For further information or coordination, please contact Kathy Lunceford on (601) 218-4298.

Additionally, in accordance with the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16U.S.C. 1531 et seq.), the following comments apply to the portion of the project located in Kentucky and do not consider the potential impacts to federally listed species occurring in other states within the study area. The Department is also including several general comments regarding additional information that should be included in the DEIS, that is not specific to Kentucky.

<u>Federally Listed Species</u>: TVA has stated in the DEIS that TVA's actions will not harm any species listed as threatened or endangered and will not adversely modify critical habitat. This applies to all actions authorized, funded, or carried out by TVA. If an action has the potential to affect listed species or their habitats, TVA must consult with the Department. Therefore, the Department believes that any management actions proposed under the preferred alternative (Blended Management-Alternative D) will be evaluated under Section 7 of the ESA and should not result in any long-term adverse effects to federally protected species or designated critical habitat and may lead to long-term beneficial effects for many species.

General Comments: The Department does recommend that TVA include additional information in the Threatened and Endangered Species section of the DEIS (Section 4.7) under the Trends of Listed Terrestrial Animals sub-heading (pg. 166) related to White-nose Syndrome (WNS). White-nose Syndrome has been shown to cause significant mortality in several species of bat, including the Indiana bat, and may have significant impacts to bat populations within the TVA region. The DEIS should document that WNS has been confirmed by the Department in four states that occur within the TVA Region (Tennessee, Virginia, North Carolina, and most recently, Kentucky).

The DEIS also states that bald eagles and gray bats appear to have increasing and stable numbers. While the Department does not dispute this statement, we do believe that TVA should include a citation/source that validates this information. Questions concerning these comments should be directed to Carrie Allison at (502) 695-0468.

Furthermore, the TVA Region (TVA's power service area) comprises 202 counties and approximately 59 million acres. The NRP and DPEIS describe how TVA will manage its natural resources over the next 20 years on 293,000 acres of lands adjacent to reservoirs, active and former fossil and nuclear properties, and the Raccoon Mountain Pumped Storage Plant and Buffalo Mountain Wind Power Project sites. This 458 square-mile area encompasses parts of seven states, including Tennessee, Alabama, Georgia, Kentucky, Mississippi, North Carolina and Virginia. The NRP would be implemented at TVA's fossil and nuclear properties and at Raccoon Mountain and Buffalo Mountain as interim and/or secondary management teclmiques, as appropriate. The NRP addresses the planning processes and TVA's Environmental Policy

(approved May 2008) objectives related to water resources protection and improvement, sustainable land use, and natural resources management. The DPEIS examines potential impacts associated with implementing the NRP proposed for these resources and reasonable alternative management strategies, including a no action alternative and three action alternatives.

Under Alternative A - No Action Alternative, TVA would continue to implement its existing stewardship programs and tools, aligning with existing policies and strategies, and continue to apply the existing methodology when planning lands along TVA reservoirs; this alternative would emphasize regulatory technical requirements assessments of TVA-managed resources and partnerships, and capital projects associated with TVA-managed recreational facilities. Under the three action alternatives (alternatives B, C, and D), TVA would alter its management approach to reflect the implementation of varying levels of activities across numerous stewardship programs. Under Alternative B - Custodial Management, specific programs that address safety and compliance with TVA's mission, applicable laws, regulations, and EOs and policies would be implemented; as laws, regulations, policies and EOs are created or amended, implementation activities would be revised to reflect this. In those areas in which TVA would discontinue programs or projects, existing contractual agreements relating to those programs or projects would be honored. Under Alternative C - Flagship Management, TVA would explore, pilot, test, and implement new strategies for enhancing stewardship programs and developed recreational facilities while emphasizing sustainable technologies; similarly, activities or projects that address safety and compliance with TVA's mission and applicable laws, regulations, policies, and EOs would be implemented. Under the preferred alternative, Alternative D - Blended Management, key programs have been identified that are integral toward enhancing future implementation efforts while maintaining activities and projects that address safety and comply with TVA's mission and applicable laws regulations, policies and executive orders (EOs); this alternative takes into account the interconnectivity of each resource area and their supporting programs, helping to establish a foundation by which TVA may implement greater levels of programs in the future.

Under each of the above described alternatives, TVA would continue to conduct environmental reviews to address site-specific issues prior to the approval of any proposed activity on lands under TVA's control. Future activities and land uses would continue to be guided by the TVA Land Policy and other relevant policies. In its reservoir lands planning activities, the allocation of uses on TVA property is not intended to supersede deeded land rights that may be held by others.

TVA indicated in the DPEIS that no federally listed aquatic species are known to occur on lands that would be directly managed by TVA as part of the NRP. However, they do recognize that federally listed aquatic species do occur throughout the TVA region, including 51 species within the state of Tennessee (one insect, 37 mollusks, and 13 fish). They have further identified five federally listed, protected, or candidate terrestrial animal species as potentially occurring on TVA-managed lands and 44 federally listed as endangered or threatened plant species occurring throughout the seven-state TVA Region. We found it confusing that TVA interchangeably discusses certain taxonomic groups within the entire TVA Region and others only on the 293,000 acres of managed lands (Section 4.7 Endangered and Threatened Species and Appendix K in the DPEIS). It is also confusing that some taxonomic groups, included in the DPEIS, contain not only listed species, but also federally protected (i.e., bald eagle (Haliaeetus

leucocephalus]) and candidate species. We recommend that federally listed aquatic species and plant species occurring in the TVA Region (included in tables K-9 and K-12 of the DPEIS) be listed by TVA- managed lands or reservoirs (if this is the proposed action area or otherwise better define the action area and listed species clearly linked to the action area). We further recommend that federally listed aquatic, terrestrial, and plant species tables (K-9, K-10, and K-12) be identified by individual state occurrences for those areas where the proposed action would take place. We also noted that the federal status of the spectaclecase (Cumberland monodonta), sheepnose (Plethobasus cyphyus), and rayed bean (Villosa fabalis) have been included in Table K-8 as candidate species. This is incorrect; the status of these three species has recently been revised to "proposed endangered". In addition, the snuffbox (Epioblasma triquetra), another species with a recent change in status to "proposed endangered", should be included in Table K-8 because it also occurs in the Tennessee River watershed within the TVA Region.

In general, we feel that the geographic scope of the proposed NRP is a much greater area than the 293,000 acres described by TVA and that additional federally listed species, which could be potentially affected by TVA's actions, need to be included in Appendix K. We believe that effects to listed species would extend and include additional areas within the TVA Region and feel that TVA has not adequately justified why additional areas have been excluded. We recommend that TVA coordinate closely with the seven individual ESOs to identify and update the listed species tables included in Appendix K.

TVA determined under 5.8.1 Aquatic Species (pages 241-242) and 5.8.2 Terrestrial Species (pages 243-244) in the DPEIS that short-term direct and indirect adverse impacts may occur as a result of the implementation of specific projects under any one of the alternatives and that any direct, indirect, or cumulative impacts to listed aquatic and terrestrial species would be assessed, avoided, and/or minimized via existing regulatory mechanisms (particularly the Endangered Species Act [ESA] and National Environmental Policy Act). They indicate that only beneficial long-term changes to aquatic resources and benefits to terrestrial species and their habitats, including listed species, are anticipated from TVA's proposed resource management and stewardship activities and that adoption of any of the four alternatives would not result in direct, indirect, or cumulative adverse impacts to federally listed species or their habitats. We find the above determinations to be confounding and inconsistent. TVA indicates that short-term direct and indirect impacts "may occur" under any of the alternatives, but only "beneficial" long-term changes are anticipated and that adoption of any of the alternatives "would not" result in direct, indirect, or cumulative impacts.

An assessment of potential impacts from each alternative was not included in the DPEIS under 5.8.3 Plants (pages 244-245) as it was under 5.8.1 Aquatic Species and 5.8.2 Terrestrial Species. However, TVA has indicated under 5.8.3 that direct and indirect impacts would be anticipated to listed plant communities from the introduction and spread of nonnative invasive plant (NNIP) species, including indirect impacts to the federally listed as endangered Ruth's golden aster (*Pityopsis ruthii*) from the spread of NNIPs and woody vegetation on the Hiwassee and Ocoee rivers. TVA further indicated that cumulative impacts to listed plant species may be expected from rare plant habitat destruction as a result of increased commercial and residential development in the TVA region. We suggest that TVA be consistent and include an assessment of potential impacts to listed plants from each alternative in the same manner that they addressed aquatic and terrestrial species.

We understand that it is not possible for TVA to initiate ESA consultation on the NRP, as site-specific activities have not yet been identified. However, TVA should include a description of planning, review, and the ESA compliance process to be completed for future programs and activities.

TVA stated in the DPEIS that palustrine wetlands are the predominant wetlands in the TVA Region and that approximately 90 percent of the wetlands on TVA-managed lands are located on mainstem Tennessee River reservoirs. In Section 5.5 Wetlands of the DPEIS (pages 227-229), TVA has indicated that there would be no significant direct wetland impacts under Alternative A and that TVA would continue to comply with state and federal wetland protection regulations and EO 11990 through its environmental review process. direct wetlands impacts are unavoidable, impacts would be assessed and mitigated via existing regulatory mechanisms. Indirect and cumulative adverse effects on wetlands under Alternative A would be related to the indirect effect of increased demand for shoreline access and regional growth. TVA determined that wetland impacts under Alternative B would be similar to those under Alternative A. TVA describes implementation of Alternative C as a positive effect on wetlands on TVA-managed lands, and indicated that no direct or indirect adverse wetlands impacts would result from this alternative. TVA would continue to comply with federal wetland protection regulations and EO 11990 through its environmental review process. TVA determined that cumulative impacts under Alternative C would have a long-term, moderate, beneficial cumulative effect on wetlands due to wetland identification, protection, and restoration efforts and that regionally, cumulative adverse effects on wetlands would be related to the indirect effect of increased demand for shoreline access and regional growth. Under Alternative D, TVA would mix portions of the programs and policies included in alternatives B and C. TVA indicated that direct, indirect, and cumulative impacts on wetlands would be similar to those under Alternative C and that as strategic partnerships and resources become available. TVA would enhance management of both the in-house wetland database and wetlands on its lands.

Based on the alternatives described by TVA in the DPEIS, we recommend that TVA select Alternative C - Flagship Management as the preferred alternative. This alternative would address natural resources from a broader scale. It provides greater opportunities for protection and recovery of listed species and their habitats, as well as other trust resources.

We have the following recommendations specific to the draft NRP that we believe would assist in improving and clarifying portions of the document:

The NRP states that "Natural resources management has been a core component of their business since its conception" (page 3). We recommend that a history of funding for the types of activities included in the NRP be provided in the NRP's foreword to illustrate TVA's expenditures to natural resources to date and how the various alternatives presented in the DPEIS relate to historical expenditures. TVA should also consider producing a natural resources expenditure report on an annual basis and providing on-line access to that information, similar to the Northwest Power Planning Council's annual reporting of the Bonneville Power Administration's

- (BPA) Fish & Wildlife Program expenditures (refer to http://www.naylometwork.com/app-ppd/articleslindex-v2.asp?aid=121787&issueiD=22627 for an example; BPA expended a total of \$12.69 billion on fish and wildlife expenditures from 1978 to 2009).
- 2. In the mission statement (page 4), we recommend that more emphasis be placed on the importance of stewardship activities as part of TVA's core business.
- 3. In the Executive Summary it is stated that, that TVA is an environmental steward on the nation's fifth-largest river system" (page 4). We recommend that this be further expounded upon, specifically with regard to the relative importance of the Tennessee River system in terms of its aquatic and terrestrial biodiversity and resultant impacts to various species from construction and operation of TVA's dams. Other areas in the document fail to mention the Tennessee River's unique and sensitive biodiversity (3.5, page 43).
- 4. As with the DPEIS, the geographic scope of proposed activities needs to be better defined. It is confusing whether TVA is referring to TVA-managed lands or to TVA's entire 202-county, 59 million- acre power service area because both continue to be mentioned interchangeably throughout the document. Reference is also made to watershed water quality and water resource management (pages 4, 14 and 20), which implies that stewardship, natural resource activities occur on a broad geographic scale.
- 5. TVA describes the public scoping process in some detail in the DPEIS, but detailed information regarding how public scoping occurred (how information was disseminated, who was invited, what questions were posed to the public, and how were those questions evaluated, etc.) have not been included under "Public Participation and Stakeholder Input" of the NRP (page 6). We are concerned that the public seeping process was likely confused because the Notice of Intent included the NRP with TVA's Integrated Resource Plan. Very few public comments have been received for such a broad geographic area and associated constituents (page 30).
- 6. The document mentions soliciting advice on stewardship activities from the Regional Resource Stewardship Council (page 6). We recommend including a summary of their advice (particularly advice provide by their natural resource committees) under "Public Participation and Stakeholder Input".
- 7. We are unclear on TVA's current level of management. The document mentions that staff provided input to help identify TVA's current level of management, but that level is not indicated. Is the current level of management comparable to the "Custodial Management" option?
- 8. Because the Rapid Lands Assessment is based on desktop analysis, rather than comprehensive field surveys, we believe that it is inappropriate to use as a baseline for TVA's land management plans, as indicated in the discussion about Reservoir Lands Planning Approach and Methodology (1.6.3, page 23).

- 9. The statement, "Through public outreach and education campaigns, TVA should promote past, present and future stewardship efforts while reinforcing the public's role in the protection and preservation of natural resources", requires clarification (page 10 under "Analysis Results").
- 10. TVA indicates that they will "examine collaborative opportunities to address local natural resource needs" (page 10 under "Partnerships"). We recommend that Landscape Conservation Cooperatives be considered as part of such an effort.
- 11. At a minimum, we recommend that TVA implement the priority level "Advanced Management". At the "Advanced Management" level, the proportion of TVA's annual operating budget (\$55 million) expended for natural resources management would still amount to only 0.4% of the TVA total annual budget. This does not convey environmental leadership in a region rich in biological resources that has historically been adversely affected by TVA's construction and operation of dams. In comparison, BPA also receives no congressional appropriations, expended \$745.2 million on their Fish & Wildlife Program in 2009.
- 12. The "NRP Snapshot" (page 14) includes "dispersed recreation" (second bullet under Biological and Cultural Resources and seventh bullet under Blended Program List [Biological]). We feel that this activity does not fit under either category. In addition, we do not believe that "boundary maintenance" belongs in the Blended Program List (Biological) (8th bullet).
- 13. It is unclear how TVA prioritizes mitigation of their impacts on aquatic systems and how mitigation would be accomplished (first bullet under "Water Resource Protection and Improvement", page 23).
- 14. It is unclear whether the 293,000 acres indicated as TVA managed lands (first paragraph, page 19) includes lands that were acquired for possible future power projects.
- 15. There currently is not an existing Memorandum of Understanding between TVA and the Department that identifies how TVA will accomplish the requirements of the Migratory Bird Executive Order (Table 4.3, page 35 and page 54).
- 16. More information should be included regarding the "Natural Resources Communication Program" (Table 3.9, page 48) and how this program differs from the "Environmental Education Program" listed in the same table.
- 17. Many of the activities that would be part of the Trails Management Program (Table 4.3, page 52) and many Forest Resource Management activities (Table 4.3, page 56) will require ESA consultation.
- 18. The activity to expand information gathering efforts for identification of sensitive natural resources (included under the Flagship Option in Table 4.3, page 53), development of a

list of target species, creating monitoring plans, developing management plans, etc. (Table 4.3, page 54) and implementation of maintenance needs on natural areas (Table 4.3, page 55) should be included in the Custodial Option. If there are questions regarding these comments, please contact Todd Shaw at (931) 528-6481, extension 215.

Thank you for the opportunity to comment on this project. I can be reached on (404) 331-4524 or by email at joyce stanley@ios.doi.dov.

Sincerely,

Joyce Stanley, MPA

Regional Environmental Protection Assistant

for

Gregory Hogue Regional Environmental Officer

cc: Jerry Ziewitz – FWS
Brenda Johnson - USGS
David Vela – NPS
Jeffery Coker – OSMRE
OEPC - WASH



#### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4 SAM NUNN ATLANTA FEDERAL CENTER 61 FORSYTH STREET ATLANTA GEORGIA 30303-8960

May 16, 2011

Ms. Susan J. Kelly Senior Manager Tennessee Valley Authority 400 West Summit Hill Drive Knoxville, Tennessee 37902

Subject: EPA NEPA Review Comments on TVA's DEIS for "Natural Resource Plan"; CEO #20110092

Dear Ms. Kelly:

The U.S. Environmental Protection Agency (EPA) has reviewed the subject Tennessee Valley Authority (TVA) Draft Environmental Impact Statement (DEIS) in accordance with our responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. It is our understanding that TVA proposes to adopt a Natural Resource Plan (NRP) to determine how the agency will manage its natural resources over the next twenty years. The NRP addresses the planning processes and Environmental Policy objectives related to Water Resources Protection and Improvement, Sustainable Land Use, and Natural Resource Management. <sup>1</sup>

EPA has reviewed several TVA EISs over the past several years that relate to the development of the NRP. These include: the Reservoir Operations Study Programmatic Environmental Impact Statement (PEIS), the Shoreline Management Initiative: An Assessment of Residential Shoreline Development Impacts in the Tennessee Valley Final Environmental Impact Statement, and various Reservoir Management Plan EISs. We applaud TVA's efforts in development of a comprehensive plan to manage TVA's vast natural resources across the Tennessee Valley. We also appreciate TVA's efforts to coordinate with the Region on this EIS, which resulted in a meeting at TVA's Knoxville office on May 10, 2011.

Accompanying the NRP DEIS was a separate Draft NRP document. While we have concentrated on the NEPA review and comment of the DEIS, we have also provided review comments on the Draft NRP. Our comments are provided for TVA's consideration during its development of the Final EIS (FEIS) and the Final NRP.

#### Overview

The NRP in combination with the Integrated Resource Plan (IRP), which EPA recently reviewed, are implementation plans for the 2008 Environmental Policy. It is our

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understanding that the NRP is the first plan that TVA has developed that will comprehensively guide TVA's management strategies of all natural resources that TVA oversees. As stated in the DEIS, TVA's goals of the NRP are to align TVA's stewardship programs and plans with the 2008 TVA Environmental Policy, guide TVA's land use and resource management decisions and actions, integrate effective, efficient stewardship objectives with the goal of optimizing the public use benefits of TVA-management lands, provide clarity and transparency to the public, and lastly strike a balance between the competing and sometimes conflicting resource uses of TVA-managed lands.<sup>2</sup>

#### Alternatives

TVA analyzed four alternatives in the DEIS including the no-action alternative:

- Alternative A, the "No Action" Alternative TVA would continue to implement the existing stewardship programs and tools, aligning with existing policies and strategies, and would continue to apply the existing methodology when planning lands along TVA reservoirs.
- Alternative B, the "Custodial Management" Alternative TVA would only
  implement specific programs that address safety and compliance with TVA's
  mission, applicable laws, regulations, executive orders, and policies.
- Alternative C, the "Flagship Management" Alternative TVA would explore, pilot test, and implement new strategies for enhancing stewardship programs and developed recreation facilities while emphasizing sustainable technologies.
- Alternative B, the "Blended Management" Alternative (Preferred) TVA
  identified key programs that are integral toward enhancing future implementation
  efforts while maintaining activities and projects that address safety and comply
  with TVA's mission and applicable laws, regulations, policies, and EOs.

The DEIS evaluates four primary resource areas in a programmatic manner. These resource areas included: Biological and Cultural Resources, Recreation, Water Resources, and Reservoir Lands Planning. Under each resource multiple programs were listed. Under the preferred alternative, some existing programs will be maintained at the current levels, some existing programs will be enhanced, and in some cases new programs will be proposed.

Planning strategies listed in the NRP provides the outline of how TVA will manage its natural resources over the next 20 years. It should be noted that based on the May 10, 2011 meeting, EPA understands that TVA intends to treat the NRP as a "living document" and will re-evaluate the document every 5 years. It is also our understanding that based on the significance of the changes to the NRP in the future, TVA will determine the level of NEPA necessary. EPA applauds TVA's use of NEPA in this planning process.

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#### **EPA Recommendations**

# Organization of DEIS and NRP:

EPA finds it difficult to determine which programs will be enhanced and developed under the preferred alternative. EPA notes numerous tables in Chapter 2 that provided information on current and proposed programs yet it is unclear if these programs are being proposed under the preferred alternative (see enclosure for more detail). Appendix H appears to provide clearer detail and should be used more prominently in the document.

EPA also notes from the May 10, 2011 presentation material that TVA intends to restructure the NRP document. TVA has proposed to re-organize the NRP and dedicate separate chapters for each resource area. EPA concurs with this modification as it should provide for a more concise document.

#### Near Term Programs and Actions:

EPA understands that the NRP and the DEIS are addressing resource areas in a programmatic manner in which only minimal information on specific implementation actions may be available. EPA recommends that TVA provide some "near term" (next five years) programs and actions that TVA intends to implement under the preferred alternative in the FEIS.

#### Alternatives:

Based on the information provided in the DEIS, EPA prefers alternative C, which would provide the greatest overall benefit to the environment. Although, EPA understands that Alternative C may not be the most practicable alternative due to resource constraints and therefore accepts TVA's preferred alternative D, the blended management approach. However, EPA has some specific comments below regarding specific programs listed in Appendix H.

#### Anticipated Future Conditions - Climate Change:

On October 14, 2010 the Climate Change Adaption Task Force, which included representatives from the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA) released an interagency report that addressed how federal agencies can better prepare for impacts from climate change. The task force made the following recommendations:

- Make adaptation a standard part of Agency planning to ensure that resources are invested wisely and services and operations remain effective in a changing climate.
- Ensure scientific information about the impacts of climate change is easily
  accessible so public and private sector decision-makers can build adaptive
  capacity into their plans and activities.

- Align Federal efforts to respond to climate impacts that cut across jurisdictions and missions, such as those that threaten water resources, public health, oceans and coasts, and communities.
- Develop a U.S. strategy to support international adaptation that leverages
  resources across the Federal Government to help developing countries reduce
  their vulnerability to climate change through programs that are consistent with the
  core principles and objectives of the President's new Global Development Policy.
- Build strong partnerships to support local, state, and tribal decision makers in improving management of places and infrastructure most likely to be affected by climate change.

Based on our review of the DEIS, TVA has adequately described the current environmental setting for the NRP, but possible changes to the environment in the future due to climate change may change the way TVA manages its natural resources. EPA encourages TVA to incorporate the above recommendations from the task force into future planning efforts associated with the NRP. EPA does note information regarding climate change was included in Appendix M, but we are requesting additional information and clarification of how TVA will respond to climate change in light of the above recommendations.

# Environmental Justice (EJ)

EPA appreciated TVA's efforts to address EJ in Chapters 4 and 5. The socioeconomic and EJ discussions focused on state population density, employment, income, minority populations, and poverty. Since the NRP is addressing management strategies of natural resources at such a macro level, it is difficult to identify direct impacts on EJ communities. However, EPA does recommend that TVA improve the EJ analysis by enhancing public participation and identifying key EJ stakeholders in the TVA study area. This would provide for a more meaningful engagement of the EJ community. TVA should also note that agencies should, as appropriate, acknowledge and seek to overcome linguistic, cultural, institutional, geographic, and other barriers to meaningful participation, and should incorporate active outreach to affected groups.

## **EPA DEIS Rating**

EPA commends TVA for its development of a comprehensive natural resource management plan and DEIS that provides a strategic plan to guide the management of TVA's natural resources, and EPA concurs with TVA's preferred alternative – Blended Management. Overall the proposed programs listed under the preferred alternative provide positive benefits to the environment. Based on our review, EPA recommends that TVA focuses on the following areas for revision in the FEIS: document organization, identification of near term action items, adaption to anticipated future conditions, and EJ. EPA rates this DEIS as an "EC-2" (Environmental Concerns, with additional information requested). Regarding our request for additional information, please refer to the attached document labeled *Detailed Comments*.

EPA appreciates the opportunity to review the DEIS. Should TVA have questions regarding our comments, please feel free to contact Dan Holliman of my staff at 404/562-9531 or <a href="mailto:holliman.daniel@epa.gov">holliman.daniel@epa.gov</a>.

Sincerely,

Heinz J. Mueller

Chief, NEPA Program Office Office of Policy and Management

Enclosures: Summary of Rating Definitions Detailed Comments

# **DETAILED COMMENTS**

Consistent with Section 102(2)(c) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the U.S. Environmental Protection Agency (EPA) Region 4 appreciates the opportunity to provide scoping comments on the proposed EIS for the referenced project. It is our understanding that TVA proposes to adopt a Natural Resource Plan (NRP) to determine how the agency will manage its natural resources over the next twenty years. The NRP addresses the planning processes and the planning processes and Environmental Policy objectives related to Water Resources Protection and Improvement, Sustainable Land Use, and Natural Resource Management. The NRP addresses biological and cultural resources management, recreation management, reservoir lands planning, and water resource management.

TVA analyzed four alternatives in the DEIS including the no-action alternative:

- Alternative A, the "No Action" Alternative TVA would continue to implement the existing stewardship programs and tools, aligning with existing policies and strategies, and would continue to apply the existing methodology when planning lands along TVA reservoirs.
- Alternative B, the "Custodial Management" Alternative TVA would only
  implement specific programs that address safety and compliance with TVA's
  mission, applicable laws, regulations, executive orders, and policies.
- Alternative C, the "Flagship Management" Alternative TVA would explore, pilot test, and implement new strategies for enhancing stewardship programs and developed recreation facilities while emphasizing sustainable technologies. Under Alternative
- Alternative B, the "Blended Management" Alternative (Preferred) TVA
  identified key programs that are integral toward enhancing future implementation
  efforts while maintaining activities and projects that address safety and comply
  with TVA's mission and applicable laws, regulations, policies, and EOs.

#### **EPA Comments**

#### Summary:

 Table S-1: EPA recommends that TVA label the preferred alternative in Table S-1 for clarity.

# Chapter 1:

- Table 1-2: EPA recommends that the Table be reorganized to show RLMP Developed / RLMP Not Developed. The current configuration is somewhat hard to read.
- Since the TVA Environmental Policy provides the "umbrella" policy for the IRP and NRP and it is referenced multiple times in the DEIS. EPA recommends that the document be added to the appendix of the FEIS.

# Chapter 2:

- Tables 2-1 2-3 These tables provide a listing of specific management programs for different resources. It is unclear if the "proposed programs" listed in these tables are being proposed under the preferred alternative. If so, this should be made clear in the FEIS.
- Table 2-2 is located in the Biological Resource Section yet includes information regarding Culture Resource Management programs. EPA recommends that the Cultural Resource Management information be moved into the Cultural Resource Management discussion section for clarity.
- The Cultural Resource Management Overview begins before Section 2.1.1 titled "Cultural Resource Management." EPA recommends moving the Cultural Resource Management Overview into section 2.1.1.
- EPA notes TVA's proposal to establish a program to monitor and manage ongoing measures to ensure compliance with Section 106 of the NHPA agreement and NEPA documents.<sup>4</sup> EPA applauds TVA's efforts and encourages the use of CEQ's guidance on Mitigation and Monitoring (2011) when developing these monitoring plans.
- Table 2-10 Again it is unclear if the improvement activities listed in table 2-10 are associated with the preferred alternative.
- Table 2-19 and 2-27- Table provides a listing of specific management programs for different resources. It is unclear if the "proposed programs" listed in these tables are being considered under the preferred alternative. If so, this should be made clear in the FEIS. Additional discussion is provided with regards to Table 2-27 in proceeding comments. Also, EPA notes that several "current programs" will be enhanced under different alternatives. EPA recommends that TVA add an "enhanced" column to tables similar to Table 2-27 in Chapter 2.
- Terrestrial Greenhouse Gas Sequestration is discussed in Chapter 2. EPA
  recommends that TVA consider the offsetting effects of GHGs produced by fire
  suppression activities when discussing the benefits of terrestrial carbon
  sequestration of forested lands.
- Table 2-21 Again it is unclear if the improvement activities listed in table 2-21 are associated with the preferred alternative.
- Section 2.4.1 Aquatic Ecology Management Provides a description of the program using future tense (would)<sup>5</sup> yet this program is listed in the Table 2-27 as a current program. EPA noted this issues for multiple program descriptions throughout Chapter 2.
- Section 2.4.3 Water Resource Outreach Campaigns A statement "Water Resource Outreach Campaigns could include focused efforts to raise public awareness ......" is made in this section. The word "could" leaves the reader wondering what this program will actually entail when implemented. EPA

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<sup>5</sup> P. 68

<sup>6</sup> P. 72

- recommends that TVA make an effort in the FEIS to be more definitive about newly proposed programs.
- Section 2.4.5 Water Resource Tools Urban Storm Water Assistance –
  EPA applauds TVA's efforts to address urban storm water issues. Choosing
  effective stormwater BMPs is one of the key challenges facing anyone interested
  in improving or protecting the quality of our rivers, lakes, and coastal waters.
  EPA encourages TVA to visit the EPA Urban BMP Performance website for
  additional BMPs that could be considered for implementation on TVA land:
  http://cfpub.epa.gov/npdes/stormwater/urbanbmp/bmpeffectiveness.cfm
- Section 2.4.5 Water Resource Improvement Tools Stream and Riparian Management and Restoration – EPA recommends that use of natural stream channel design when possible for stream restorations. EPA recommends that TVA provide additional details regarding stream restoration methodologies that TVA will utilize under this program.
- Section 2.4.5 Water Resource Improvement Tools Water Pollutant
  Trading EPA request clarification of the statement "Regulatory processes that
  allow Trading would be present in the watershed, and stakeholders would be
  involved in developing the Trading mechanisms."

  It may be beneficial to readers
  if TVA provided more details on water pollutant trading opportunities in the
  Tennessee Valley.

## Chapter 3

- Table 3-1 The term "Enhanced Management" is used in Table 3-1 which
  appears to be the same management strategy listed in the other parts of the
  document as the "Blended Management" approach, which TVA has selected as
  the preferred alternative. EPA request clarification.
- Alternatives Development EPA notes that information regarding how and why
  TVA selected the four alternatives analyzed in the DEIS is lacking. EPA
  recommends that TVA provide additional information on how alternative
  management strategies where selected. EPA also recommends that TVA provide
  more detail in the FEIS on how and why specific new programs are being
  proposed under the preferred alternative.
- Section 3.2.1.1 Biological and Cultural Resources Management EPA is unclear on why the "Dispersed Recreation Management" discussion is included in this section and not the Recreation Management section.
- Section 3.2.1.4 Water Resource Management It is stated section 3.2.1 that "Under the No action Alternative, TVA would continue its current natural resource management efforts by implementing the existing stewardship programs...." by yet several programs such as the aquatic ecology management program and the water efficiency program, which are listed in table 2-27 as current programs, are not listed in Section 3.2.1.4. It would be logical for a reader to assume that if these are current programs (listed in table 2-27) they would be included in the no-action alternative. In addition, Appendix H, appears to exclude

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<sup>7</sup> P. 82

- these programs, which is consistent with the text in section 3.2.1.4. EPA recommends clarification of tables in document.
- Section 3.6 The Preferred Alternative EPA recommends that TVA provide addition information and details on how TVA proposes to determine which stewardship programs will be implemented first when opportunities and and/or resources become available. Will programs be prioritized and how?

# Chapter 4

 Table 4-5 – Ecological Health Ratings of TVA Reservoirs – EPA recommends that 303(d) and TMDL information be added to this table.

#### Chapter 5

 Section 5.17 - Climate - EPA recommends that TVA provide more discussion (in addition to Appendix M) in the FEIS regarding how Climate Change will impact current and proposed programs listed in the NRP.

**Appendix H** – EPA finds this table to be very helpful in summarizing the specific programs being proposed for each alternative. EPA did review the table in Appendix H and had some concerns with regards to the elimination of certain programs.

# EPA comments on Appendix H:

- Biological and Cultural Resource Management
  - Terrestrial Greenhouse Gas Sequestration Management
    - Currently TVA conducts demonstration projects on 41 acres of TVA managed land focusing in issues related to terrestrial GHG management practices. Under the preferred alternative this effort would be eliminated. EPA recommends that these efforts be at least maintained at the existing levels.
    - Currently TVA conducts 2 demonstration projects focusing on issues related to terrestrial GHG management practices. Under the preferred alternative this effort would be eliminated. EPA recommends that these efforts be at least maintained at the existing levels.
    - Currently TVA has entered into 2 third-party consortiums focusing on issues related to terrestrial GHG management. Under the preferred alternative this effort would be eliminated. EPA recommends that these efforts be at least maintained at the existing levels.

#### Recreation

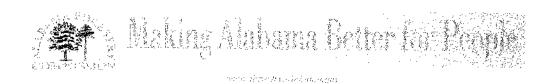
o It appears that assisting in the development of greenway miles may decrease from current effort levels listed under the "no-action" alternative. EPA recommends that these efforts be at least maintained at the existing levels.

#### Natural Resource Plan

- · Water Resource Management
  - It appears that stream assessments may decrease from current effort levels listed under the "no-action" alternative. EPA recommends that these efforts be at least maintained at the existing levels.
  - O Addition clarification is requested for programs listed to reduce suspended sediment and reduce phosphorus. It appears from Appendix H that these programs currently have set goals under the "no-action" alternative and these goals would be eliminated under the preferred alternative.

# **Comment Letters from State Agencies**

## **Alabama**



May 10, 2011



Ms. Susan J. Kelly Senior Manager Tennessee Valley Authority 1101 Market Street Chattanooga, TN 37402-2801

Dear Ms. Kelly:

The Alabama Forestry Commission has reviewed your Draft Natural resources Plan and Draft Environmental Impact Statement as requested. We have considered all four alternatives for management as discussed in the documents. Our preferred method would be Alternative C (Flagship Management) as a minimum and Alternative D (Blended Management) if funding is available. While we recognize that more enhanced management would be more costly, this could be offset with income from sustainable forest management and recreational activities on those lands. As stated in your Plan, the benefits expected would increase in direct proportion with your level of natural resources management.

We would also recommend an enhanced Land Conditions Assessment described in the Plan as funding is made available. Partnerships would assist in achieving the goals set out in your Plan and we are willing to assist as needed in helping to achieve a higher level of sustainable forest management and wildlife habitat enhancement. We are encouraged that TVA has realized that proper natural resource management is the key to healthy forests, with better and more abundant wildlife habitat, along with many other ecosystem services. Thank you for the opportunity to comment.

Sincerely,

Linda S. Casey, RF State Forester

Gordo Careel

# Georgia

Rec' d 4/1/11

# GEORGIA STATE CLEARINGHOUSE MEMORANDUM EXECUTIVE ORDER 12372 REVIEW PROCESS

TO: Charles Nicholson

Tennessee Valley Authority

400 W. Summit Hill Drive, WT 11D

Knoxville, TN 37902

FROM: Barbara Jackson

DATE: 3/28/2011

APPLICANT: Tennessee Valley Authority

PROJECT: Draft Natural Resource Plan (NRP), Draft Environmental Impact

Statement (EIS)

CFDA #:

STATE ID: GA110328002

FEDERAL ID:

Material related to the above project was received by the Georgia State Clearinghouse on 3/28/2011. The review has been initiated and every effort is being made to ensure prompt action. The project will be reviewed for its consistency with goals, policies, plans, objectives, programs, environmental impact, criteria for Developments of Regional Impact (DRI) or inconsistencies with federal executive orders, acts and/or rules and regulations, and if applicable, with budgetary restraints.

The initial review process should be completed by 4/29/2011 (approximately). If the Clearinghouse has not contacted you by that date, please call (404) 656-3855, and we will check into the delay. We appreciate your cooperation on this matter.

When emailing or calling about this project, please reference the State Application Identifier number shown above. If you have any questions regarding this project, please contact us at the above number.

> Form SC-1 Aug. 2010

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			ARINGHOUSE MEMORANDUM ER 12372 REVIEW PROCESS		
TO:	Ge 27	Barbara Jackson Georgia State Clearinghouse 270 Washington Street, SW, Eighth Floor Atlanta, Georgia 30334			
FROM		R. F. ALLEN BARNES A DNR-EPD DIRECTOR'S O	Hen Barner		
APPLI	ICANT:	Tennessee Valley Author	rity		
PROJE	ECT:	Draft Natural Resource F	lan (NRP), Draft Environmental Impac	t Statement (EIS)	
STAT	E ID:	: GA110328002			
FEDE	RAL ID:				
DATE					
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			GEORGIA STATE CLEARINGHOUSE		



MARK WILLIAMS COMMISSIONER DR. DAVID CRASS DIVISION DIRECTOR

March 30, 2011

Barbara Jackson Georgia State Clearinghouse 270 Washington Street, SW, Eighth Floor Atlanta, Georgia 30334

Re: Draft Natural Resource Plan, Draft Environmental Impact Statement

Statewide, Georgia GA-110328-002

Dear Ms. Jackson:

The Historic Preservation Division (HPD) has received information concerning the above referenced undertaking. Our comments are offered to assist the Tennessee Valley Authority (TVA) in complying with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended.

HPD has received the documents entitled "Natural Resource Plan Draft March 2011" and "Natural Resource Plan Environmental Impact Statement Draft March 2011." We look forward to future coordination with TVA on Section 106 compliance for future activities as appropriate.

If we may be of further assistance, please do not hesitate to contact Elizabeth (Betsy) Shirk, Environmental Review Coordinator, at (404) 651-6624.

Sincerely,

Karen Anderson-Cordova

Program Manager

Environmental Review & Preservation Planning

KAC/ECS

RECEIVED

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GEORGIA STATE CLEARINGHOUSE

254 WASHINGTON STREET, SW | GROUND LEVEL | ATLANTA, GEORGIA 30334 404.656.2840 | FAX 404.657.1368 | www.gashpo.org



MARK WILLIAMS COMMISSIONER DAN FORSTER DIRECTOR

May 16, 2011

Charles P. Nicholson, PhD NEPA Compliance Manager Tennessee Valley Authority 400 West Summit Hill Drive Knoxville, TN 37902

Dear Dr. Nicholson:

Thank you for the opportunity to review TVA's Draft Natural Resource Plan (NRP) and associated Environmental Impact Statement. We applaud TVA's extensive efforts in drafting the NRP which will guide TVA natural resource management for the next 20 years. The NRP evaluated four management approaches, with each strategy reflecting an increasing level of commitment to implement. We agree with TVA's selection of the Blended Management Action Alternative (D); however, there may be opportunities to improve upon certain areas in the Blended Alternative (D) by adding elements of Alternative C to it. Those areas include aquatic habitat, improving or expanding stream and reservoir access, nuisance and invasive species awareness, ecological data monitoring, and web-based data sharing. By including selected programs proposed under the Flagship Option (C) into Alternative (D), the NRP could be strengthened in the areas noted above.

We appreciate the opportunity to provide comments to the NRP and look forward to our continued partnership in natural resource management. Specific comments to the Draft NRP and EIS are included for your consideration. If you have any questions or need further information, please contact Jim Hakala at (770) 387-4821.

Sincerely.

Dan Forster

cc: Jim Hakala

2070 U.S. HIGHWAY 278 S.E. | SOCIAL CIRCLE, GEORGIA 30025-4711 770.918.6400 | FAX 706.557.3030 | WWW.GEORGIAWILDLIFE.COM May 16, 2011 Page 2

#### Comments for Draft Natural Resource Plan

Executive Summary, Analysis Results, Page 12: The Allocation Designation table (Table 2) should include land use Zone 1 (Non-TVA Shoreland). The table seems incomplete without it, and the reader must search Appendix F of the EIS to determine there is, in fact, a Zone 1. Also consider including existing land-use values for each zone to see how land use could change under the NRP targets.

Chapter 2, Section 4, Draft NRP Public Comment Period, Page 30: The NRP states, "TVA will use three techniques to collect public input during the draft document stage". Only two techniques are listed.

Chapter 4, Section 5, Stream Access, Page 63: Public access to north Georgia streams has diminished over the last few decades. Increasing or improving stream access would be beneficial, and we support increased public stream access.

Chapter 4, Section 7, Stream and Tailwater Monitoring Program, Page 66: TVA and Georgia Wildlife Resources Division have shared data on several occasions in the past. We believe that data sharing is in the best interest of both agencies and the public. Therefore, we continue to support efficient means of data sharing. We also support TVA sampling efforts in local streams and tailwaters.

Chapter 4, Section 7, Strategic Partnership Planning, Page 66: TVA continues to be a valuable partner when managing the resources of North Georgia. We hope that our partnership will continue or expand.

Chapter 4, Section 7, Water Resources Improvement Programs, Page 67: Many promising ideas reside here, but most are included only in Alternative C. We suggest that TVA include more goals under Alternative D.

Chapter 6, Section 4.2.1.1, Habitat Management, Page 83: Aquatic habitat improvements such as fish attractors and artificial spawning beds could be used to enhance fish communities and recreational angling opportunities on many TVA lakes.

Chapter 6, Section 4.2.3, Recreation Management, Page 84: We agree that recreation management should remain a priority. We support management of TVA recreation facilities at the enhanced level or higher.

Appendix A, Figure A-5: Documentation of TVA stream access sites is appreciated. TVA stream access is very important for north Georgia anglers and boaters. This is especially

May 16, 2011 Page 3

important given the predicted rate of human population increase reported for the region in the NRP and EIS.

#### Comments for Draft Environmental Impact Statement

Executive Summary, Environmental Consequences, page S-7: Paragraph two states Alternative D would create the greatest potential benefit in only three categories (visual resources, listed plant species and vegetation). Table S-1 (pg. S-8) indicates alternative D would also "provide the greatest beneficial impact" on aquatic ecology relative to all other alternatives. Therefore, aquatic ecology should be added to the list of "greatest potential benefit" categories under alternative D.

Chapter 2, Dispersed Recreation Management, Page 30: Two important aspects of "Dispersed Recreation," are improved bank fishing opportunity and TVA facility improvements. In addition to improving shoreline bank fishing access and facilities, TVA should also consider fish habitat rehabilitation and enhancement. Fish habitat quality declines over time as a reservoir ages and such habitat requires rehabilitation. Fish habitat improvements, such as fish attractor sites near public accesses, also improve angler catch rates and the quality of the recreational experience. TVA should consider the additions described, above, to the document text. We welcome the opportunity to partner with other agencies or stakeholders to improve recreational angling accessibility and quality.

Chapter 2, Endangered and Threatened Species Monitoring Page 40-41: We support TVA's monitoring of critical habitats for known T&E species on TVA managed areas. The Executive Summary (Endangered and Threatened Species, Page S-5) states no T&E species are 'known to occur on the TVA-managed lands that are a part of this plan." This is contradictory to statements made in Chapter 3, "Endangered and Threatened Species Program" (Page 93) stating that about 40 sites "containing populations of federally listed animals and plants on TVA-managed or influenced public lands are monitored." These statements may need clarification.

Chapter 3, Aquatic Monitoring and Management, Page 99: We support TVA's continued efforts to collect and share data from annual stream assessments and other ecological monitoring efforts.

Chapter 4, Section 4.5, Water Quality and Ecological Health Monitoring, Pages 159-160: We recognize and support TVA's effort and future commitment to monitoring, maintaining and enhancing the water resources of the Tennessee Valley.

Blended Management Action Alternative (D): TVA's preferred alternative. This alternative is predicted to have the greatest beneficial impact on aquatic ecology (Table S-1, pg. 13), while providing an intermediate (between alternatives B and C) level of benefit for recreational activities and water quality. Alternative D generally improves upon TVA's current level of

May 16, 2011 Page 4

commitment to natural resource management on TVA holdings. However, there are several program components in Alternative C that should be considered to Alternative D. (see Appendix H – "Comparison of Programs and Goals Across Alternatives" (pgs. 351-366). Suggested additions follow:

Appendix H, Develop and implement improvements at stream access sites, Page 363: of which there are four in Georgia. Improving angler access is an increasingly important goal as the state population grows. Appendix H, Assist partners with acquisition and development of additional stream access at sites, as appropriate, Page 363.

Appendix H, Provide technical support to other agencies and stakeholders and share recreation information, as appropriate, Page 363: This would assist in identifying underdeveloped recreational opportunities and planning desired improvements.

Appendix H, Foster partnerships to assist in identifying unmet recreation needs around TVA-managed reservoirs, Page 363: Once unmet recreational opportunities are identified, TVA could bring its technical resources to bear in implementing partnered programs.

Appendix H, Develop....opportunities to improve public awareness of exotic and invasive species... Page 365: Since these challenges are not confined by geo-political boundaries, a regional approach to education that incorporates existing state agency policies may be desirable.

Appendix H, Share stream (and tailwater) and reservoir data with other agencies and stakeholder groups, Page 365: We appreciate TVA's willingness to share data "upon request", and encourage development of passive biological data availability through Web-based platforms. Further, expanding continuous data collection efforts for key aquatic resources would provide TVA and other resource agencies valuable data to guide future management actions.

## Kentucky



101 d Apr 25, 2011

## KENTUCKY STATE NATURE PRESERVES COMMISSION

Steven L. Beshear Governor 801 Schenkel Lane Frankfort, Kentucky 40601-1132 Phone (502) 573-2886 Fax (502) 573-2355 www.naturepreserves.ky.gov Dr. Leonard Peters Secretary Energy and Environment Cabinet

Donald S. Dott, Jr. Director

April 18, 2011

Charles P. Nicholson, PhD Manager, NEPA Compliance Tennessee Valley Authority 400 West Summit Hill Drive, WT 11B Knoxville, TN 37902-1499

Dear Mr. Nicholson.

Thank you for the opportunity to comment on TVA's draft natural resource plan and associated EIS.

We applaud TVAs continuing efforts to manage their lands in ways that support multiple uses, while striving for sustainability of natural resources and protection of sensitive areas and species associated with these lands.

Forests throughout the region continue to be fragmented and disturbed, increasing their susceptibility to invasions by exotic species and reducing habitat for forest interior species, and resulting in a decline of native plant diversity. TVA has an opportunity to develop and protect interior forest habitat and play an important role in supporting those species that depend on it, as well as create forest tracts that are resilient to invasions by exotic species.

We encourage TVA to consider protecting more of their forest lands as contiguous, naturally maturing forest. We recognize that TVA is also interested in managing their forests for other uses but believe that all needs can be met if careful planning is conducted, including identifying those tract that could significantly contribute to large forest blocks. We urge TVA to reconsider creating additional early successional habitat. Much of the remaining forest is already in various stages of early succession. Forests throughout the region continue to be fragmented and intensely logged, while contiguous blocks of mature forests are becoming increasingly rare. Early successional habitat increases fragmentation and risks for invasion by exotics, and can contribute to a drop in regional biodiversity. We also discourage the management practice "day lighting" as it encourages spread of exotics, increases fire danger, and results in fragmentation. While roads can serve as fire breaks, more roads also provide more access for arsonists, and increase spread of exotics and fragmentation.

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We further discourage TVA from continuing dewatering projects, except where essential to maintain safe operations of TVA facilities, and to restore and protect natural wetlands.

Please contact me if you have any questions or would like additional information. We would be glad to assist you throughout the planning process.

Sincerely,

Donald S. Dott, Jr.

Director

mkh

# <u>Mississippi</u>

# Mississippi Department of Wildlife, Fisheries, and Parks

Name: Dennis Riecke

Comments: The Mississippi Department of Wildlife, Fisheries, and Parks has reviewed the TVA

Natural Resource Plan and Draft Environmental Impact Statement. We support the recommended alternative and concur with the findings stated in both documents.

## **North Carolina**



# North Carolina Department of Cultural Resources

State Historic Preservation Office Claudia Brown, Acting Administrator

Beverly Eaves Perdue, Governor Linda A. Carlisle, Secretary Juffrey J. Crow, Deputy Secretary Office of Archives and History Division of Historical Resources David Brook, Director

April 11, 2011

Tennessee Valley Authority 400 West Summit Hill Drive Knoxville, TN 37902-1499

Re: Natural Resource Plan Consultation, Integrated Resource Plan for TVA's Environmental And Energy Future, Multi County, CH 09-1621

We have received the above project from the State Clearinghouse for review and have the following comments.

We continue to support TVA's efforts for protecting and preserving archaeological sites, and recommend that TVA move forward with monitoring along reservoir shorelines, as well as evaluating the National Register eligibility of previously recorded archaeological sites.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579. In all future communication concerning this project, please cite the above-referenced tracking number.

Sincerely,

Claudia Brown

cc: State Clearinghouse

Rence Bledhill-Earley

# DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF ENVIRONMENTAL HEALTH

Inter-Agency Project Review Response

1	Project Number 11-0227	
	County Asheville Region	

rovided by:  Il Program Person  Supervisor for Public Water Sup  Office program person  Adams-Asheville RO  mber: (628) 296-4500  In Division of Environmental Heal  Vater Supply	Date _	future natura View at	latural Resource Plan to guide al resource mgmt activities. va.gov/environment/reports/nrp
Supervisor for Public Water Sup Office program person  Adams-Asheville RO  mber: (628) 296-4500  n Division of Environmental Heal Vater Supply	Date _		
Office program person  Adams-Asheville RO  mber: (628) 296-4500  n Division of Environmental Heal	Date _	04/05/2011	
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Return to:

Public Water Supply Section Environmental Review Coordinator for the Division of Environmental Health



# North Carolina Department of Environment and Natural Resources Division of Parks and Recreation

Beverly Eaves Perdue, Governor

Dee Freeman, Secretary

Lewis Ledford, Director

May 12, 2011

#### MEMORANDUM

TO:

Melba McGee, Environmental Coordinator

Office of Legislative and Intergovernmental Affairs

FROM:

Amin Davis, Environmental Review Coordinator QKD

Division of Parks and Recreation

SUBJECT:

TVA Natural Resource Plan - Draft Environmental Impact Statement

REFERENCE: Project No. 11-0227 (Reference Nos. 11-0207, 11-0086, & 10-0010)

#### Dear Melba,

The North Carolina Division of Parks and Recreation (DPR) has reviewed the above-referenced project information available for review at http://www.tva.gov/environment/reports/nrp/. DPR understands that the Tennessee Valley Authority (TVA) has completed a Draft Environmental Impact Statement (DEIS) associated with its programmatic Natural Resources Plan (NRP) to identify and select a long-range strategy that will guide future decisions by TVA associated with the management and protection of regional natural resources. This DEIS evaluates the potential environmental consequences of four alternative management strategies on natural resource elements within the TVA power service area which comprises 201 counties within a 58 million-acre region; 15 of these counties are situated in North Carolina.

A review of Geographic Information Systems (GIS) data provided by TVA revealed that all three TVA facilities located in North Carolina are hydropower dams that are not within the vicinity of any areas managed by DPR. Additionally, the nearest TVA coal-fired facility (John Sevier Coal Plant in Tennessee) is located at least 50 miles from the nearest DPR lands (Yellow Mountain State Natural Area). Additionally, DPR is pleased to know the following based on information provided in the DEIS, Chapter 5 (Environmental Consequences):

- Under TVA'a Preferred Alternative (Blended Management Alternatives), "TVA would implement additional projects designed to benefit biological and cultural resources and improve recreational opportunities";
- 2.) Under all alternatives, "TVA would continue to allocate parcels containing sensitive resources (archaeological and historic properties, wetlands, rare species, and natural areas) to the most protective [land use] zone";
- 3.) "Maximum projected changes in land uses would either emphasize developed recreation uses or natural resource conservation"; and
- 4.) "Air emissions identified from proposed development associated with this alternative would be reviewed to determine whether they could be mitigated by control technology, emission-reduction strategies, or avoidance. For any air quality impacts that cannot be mitigated, a full air quality analysis would be required, and the emissions from sources associated with any alternative would be controlled to meet current applicable regulatory requirements".

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However, since the nature of TVA's DEIS/NRP is 'programmatic' in nature and doesn't primarily address site-specific future facility development, DPR respectfully requests to be informed of any future facility/operational development that may potentially impact existing or future DPR holdings.

CC via email: Brian Strong, DPR Chief of Planning and Natural Resources

Carol Tingley, DPR Deputy Director

Harry LeGrand, Natural Heritage Program Biologist Jon Blanchard, DPR Natural Resources Program Head

Linda Pearsall, Office of Conservation, Planning, and Community Affairs Director

Marshall Ellis, DPR Mountain Region Biologist

Max Rogers, DPR Parks Planner Mike Lambert, DPR Chief of Operations

Tom Jackson, DPR West District Superintendent

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# 

Gordon Myers, Executive Director

#### MEMORANDUM

TO: Melba McGee, Environmental Coordinator

Office of Legislative and Intergovernmental Affairs

FROM: Dave McHenry, Mountain Region Coordinator

Habitat Conservation Program

DATE: May 11, 2011

SUBJECT: Tennessee Valley Authority Natural Resource Plan

OLIA No. 11-0227

The Tennessee Valley Authority (TVA) is seeking comments on a Natural Resource Plan (NRP) and Environmental Impact Statement (EIS). Comments from the North Carolina Wildlife Resources Commission (NCWRC) on the NRP are provided under provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the North Carolina Statutes (G.S. 113-131 et seq.), and the National Environmental Policy Act (42 U.S.C. 4332(2)(c)).

The NCWRC actively pursues and develops boating and fishing access areas for sportsmen throughout North Carolina. Therefore, we support increasing these areas on TVA lands as articulated under Alternative C of the NRP. If additional opportunities are pursued under the plan, then we specifically encourage consideration of a new public low-water boat ramp on Fontana Reservoir between Mouse Branch and Panther Creek. Anglers have expressed a desire for better access in this area. A ramp here would improve access for anglers and hunters, particularly in the winter and spring when poor weather makes access to the mid-lake region more difficult from other ramps. A new ramp also would be useful because it would allow access when other ramps are not useable due to low reservoir levels.

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721 Telephone: (919) 707-0220 • Fax: (919) 707-0028 TVA NRP Page 2 May 11, 2011 OLIA 11-0227

The NCWRC supports prescribed burning and other efforts to improve habitat, particularly early successional, wherever appropriate on TVA lands. Early successional habitat is sparse on both public and private lands in western North Carolina and it is important to ruffed grouse, whitetail deer, and many other game and nongame species such as the golden-winged warbler. Alternative C of the NRP, and to a lesser extent D, would provide the greatest wildlife habitat benefits. Of particular benefit is the Agricultural and Open Lands Management program that converts lands that are unsuitable or poorly suited for agriculture into quality early successional or forested wildlife habitats. Under the program, mowing, herbicide treatments, and/or burning as well as warm season grass planting could be used to improve and maintain much needed early successional habitat. Similarly, where timber harvest or salvage is undertaken, we recommend clearing log decks and widening skid trails to create early successional "openings". As outlined under plan alternatives, we also support the formation of a fire management crew and implementation of a burn program to promote forest health, facilitate collaboration with other land management agencies, and complement ongoing habitat improvement work in the region.

We appreciate the opportunity to provide comments on this plan. Please call me at (828) 452-2546 extension 24 if there are any questions about these comments.

cc: Mr. Powell Wheeler, NC Wildlife Resources Commission Mr. David Stewart, NC Wildlife Resources Commission

## Virginia



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219

Mailing address: P.O. Box 1105, Richmond, Virginia 23218

TDD (804) 698-4021

www.deq.virginia.gov

David K. Paylor Director

(804) 698-4000 1-800-592-5482

May 9, 2011

Mr. Charles P. Nicholson NEPA Compliance Manager Tennessee Valley Authority 400 West Summit Hill Drive, WT 11D Knoxville, Tennessee 37902

RE: Draft Programmatic Environmental Impact Statement: Tennessee Valley Authority, Natural Resource Plan (DEQ 11-060F)

Dear Mr. Nicholson:

Douglas W. Domenech

Secretary of Natural Resources

The Commonwealth of Virginia has completed its review of the above-referenced draft programmatic environmental impact assessment (PEIS) for the Tennessee Valley Authority's (TVA) Natural Resource Plan (NRP). The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of environmental documents prepared pursuant to the National Environmental Policy Act and responding to appropriate officials on behalf of the Commonwealth. The following agencies joined in this review:

Department of Environmental Quality
Department of Game and Inland Fisheries
Department of Conservation and Recreation
Department of Historic Resources

The City of Bristol, Washington County and Mt. Rogers Planning District Commission also were invited to comment.

#### PROPOSED ACTION

The TVA has issued a NRP and a PEIS regarding biological and cultural resources management, recreation management, reservoir lands planning, and water resource management. While TVA is engaged in its planning process, it is continuing to implement activities consistent with its current resource management strategies and programs. The geographical scope for biological and cultural resources management and recreation management components is the approximately 293,000 acres of reservoir lands and active and former fossil and nuclear properties. Two TVA-managed lands in Virginia are Clear Creek Reservoir and Beaver Creek Dam near the City of Bristol, which is surrounded by Washington County.

The PEIS examines potential impacts associated with implementing the NRP proposed for these resources and reasonable alternative management strategies, including a No Action Alternative. Under the No Action Alternative, TVA would continue its current management approach. Under three Action Alternatives (Alternatives B – Custodial Management, C –Flagship Management, and D—Blended Management), TVA would alter its management approach to reflect the implementation of varying levels of activities across numerous stewardship programs. TVA's Preferred Alternative is Alternative D.

#### COMMONWEALTH OF VIRGINIA COMMENTS

## 1. Water Quality and Wetlands.

1(a) Agency Jurisdiction. The State Water Control Board promulgates Virginia's water regulations, covering a variety of permits to include Virginia Pollutant Discharge Elimination System Permit, Virginia Pollution Abatement Permit, Surface and Groundwater Withdrawal Permit, and the Virginia Water Protection (VWP) Permit. The VWP Permit is a state permit which governs wetlands, surface water and surface water withdrawals/impoundments. It also serves as § 401 certification of the federal Clean Water Act § 404 permits for dredge and fill activities in waters of the United States. The VWP Permit Program is under the Office of Wetlands and Water Protection/Compliance within the DEQ Division of Water Quality Programs. In addition to central office staff who review and issue VWP permits for transportation and water withdrawal projects, the six DEQ regional offices perform permit application reviews and issue permits for the covered activities.

## 1(b) Agency Comments.

#### Comments on Alternatives

Under Alternative C (Flagship Management Alternative), TVA would explore, pilot/test and implement new strategies for enhancing wetland stewardship. This would include development and implementation of a wetland management policy that includes a proactive program for wetland identification, management, and protection on TVA-

#### Natural Resource Plan

TVA PEIS Natural Resource Plan DEQ 11-060F

managed lands. Implementation of the proposed action would result in a positive effect on wetlands on TVA-managed lands, and no direct or indirect adverse wetland impacts would result from this alternative.

Under Alternative D (Blended Management Alternative), TVA mixes portions of the programs and activities as described under Alternatives B (Custodial Management Alternative) and C. The direct, indirect, and cumulative impacts on wetlands would be similar to those described under the Flagship Management Alternative. As strategic partnerships and resources become available, TVA would enhance management of both the in-house wetland database and wetlands on its lands.

According to the report, under any of the alternatives, TVA would comply with all applicable federal, state, and local regulations. Likewise, prior to approving any proposal to use TVA land, TVA would conduct an appropriate level of site-specific environmental review to determine the potential environmental effects of the proposed use.

## Application and Permitting Process

If impacts to state waters are proposed, a Joint Permit Application (JPA) should be submitted to the Virginia Marine Resources Commission (VMRC). The DEQ Southwest Regional Office (SWRO) will make the final permit decision regarding potential impacts to state waters.

Unavoidable permanent impacts to all wetlands or to streams in excess of three hundred linear feet will require mitigation through the purchase of mitigation bank credits or through the creation, enhancement or preservation of wetlands or streams within the project's watershed.

## Protection and Mitigation Methods

- Once a final strategy has been developed, any activities requiring instream work should be performed in the dry, utilizing cofferdams, stream diversions and/or working during low flow conditions.
- Heavy equipment should work from uplands to the greatest extent possible and utilize mats and strict erosion and sediment controls for work that must be conducted from within surface waters.
- Caution should be taken to ensure prevention of the release of any oil or fuel from heavy equipment into surface waters.
- All disturbed stream beds should be restored to their original contours prior to redirecting the stream into the work area.
- Restore temporary impact areas to their original contours and revegetate with the same or similar species.
- Strictly adhere to erosion and stormwater management practices.
- DEQ OWWP encourages the project proponent to monitor construction activities to ensure erosion and stormwater management practices are adequately

preventing sediment and pollutant migration into surface waters, including wetlands.

1(c) Agency Finding. DEQ OWWP states that it agrees with the use of either Alternative C or Alternative D for the proposed activities.

1(d) Agency Recommendations. DEQ has the following recommendations:

- Conduct pre-application coordination with all applicable state agencies, including DEQ (Allen Newman at 276-676-4804) and VMRC (Justin Worrell at 757-247-8063), that may have jurisdiction over the proposed project.
- Ensure that environmental documents for site-specific projects include adequate
  descriptions of wetlands and surface waters within the project area and proposed
  project site, potential impacts, protection and mitigation methods, coordination
  with appropriate agencies, and permitting and regulatory requirements, including
  local requirements, and any other applicable information.

#### 2. Recreational Resources.

2(a) Agency Jurisdiction. The Department of Conservation and Recreation's (DCR) Division of Planning and Recreational Resources (DPRR) administers the Virginia Scenic Rivers, Virginia Byways, and state trails programs and is responsible for developing the Virginia Outdoors Plan (VOP), the state's comprehensive outdoor recreation and open space plan. The VOP recognizes the importance of scenery to Virginians and many of the top ten activities are water based.

2(b) Agency Comments. DCR DPRR states that the plan offers the goal of engaging the public in future assessment and management, and this plan will no doubt need educated and dedicated staff for its goals to come to fruition. This need should not be understated in the plan. Where appropriate, how recreational resources associated with the reservoir are related to each other should be highlighted and clearly discussed for the benefit of decision makers.

The clarification of recreational areas conducive for non-motorized boating should be mentioned since this is a growing area of interest in Virginia. With regard to this and other non-motorized water activities, recreational management options which include no wake zones may be appropriate in certain areas.

The way this plan fits into each of the states' State Comprehensive Outdoor Recreation Plans (SCORPs) could be mentioned. While land and water conservation funds may not apply on the reservoir, the outdoor planning the SCORPs afford each state should not be overlooked. For example, the access to water via this TVA project work may help meet one of Virginia's most popular recreational resources.

Additionally, there is little in the plan regarding the protection and preservation of scenic resources, which are abundant within the coverage area of the plan. DCR DPRR

4

#### Natural Resource Plan

TVA PEIS Natural Resource Plan DEQ 11-060F

suggests that under Sensitive Biological Resources a discussion and management strategy be included of identified scenic resources within their planning area. Identification and protection of these resources are within the responsibility of TVA as acknowledged by Arthur E. Morgan, the first chairman of the TVA board.

Further it is recommended that under the Sensitive Biological Resources section that the Virginia Scenic River Program be introduced as a laudable goal for the rivers within TVA's lands. This program gives a framework for educated citizens to create an awareness of the benefits and uniqueness of their local natural resources. It also integrates land and water stewardship for the optimum public benefit in conjunction with providing awareness that helps protect and manage the river resources within the Tennessee River System. Many localities also use it as an environmental tourism tool, which is economically helpful. The implementation of the Virginia's Scenic River program would support all of the strategic Objectives of the NRP, Water Resources Protection and Improvement, and Sustainable Land Use and natural Resource Management, while actively engaging the public, especially if a local river committee was formed. Additional information on the Scenic River Program is available on the DCR website at the following address: www.dcr.virginia.gov/recreational\_planning/srmain.shtml.

## 2(c) Agency Recommendations. The DCR DPRR has the following recommendations:

- Ensure the document reflects the need that educated and dedicated staff will be needed to implement the plan.
- Where appropriate, highlight the interconnectivity of recreational resources associated with the reservoir.
- Clearly discuss the interconnectivity of recreational activities.
- Clarify that recreational areas conducive for non-motorized boating are a growing area of interest in Virginia.
- Describe how this plan relates to each of the states' State Comprehensive Outdoor Recreation Plans (SCORPs).
- Include a discussion and management strategy of identified scenic resources within their respective planning area under Sensitive Biological Resources.
- Under the Sensitive Biological Resources section, introduce the Virginia Scenic River Program as a laudable goal for the rivers within TVA's lands.

Contact DCR DPRR (Lynn Crump at Lynn.Crump@dcr.virginia.gov) for additional information about these comments and recommendations.

#### 3. Natural Heritage Resources.

3(a) Agency Jurisdiction. The mission of DCR is to conserve Virginia's natural and recreational resources. The DCR Division of Natural Heritage's (DNH) mission is conserving Virginia's biodiversity through inventory, protection and stewardship. The Virginia Natural Area Preserves Act, 10.1-209 through 217 of the Code of Virginia, was passed in 1989 and codified DCR's powers and duties related to statewide biological

inventory: maintaining a statewide database for conservation planning and project review, land protection for the conservation of biodiversity, and the protection and ecological management of natural heritage resources (the habitats of rare, threatened and endangered species, significant natural communities, geologic sites, and other natural features).

3(b) Agency Findings. According to the information currently in DCR's files, Smooth coneflower (Echinacea laevigata, G2G3/S2/LE/LT) populations have the potential to occur at Clear Creek Lake Dam project area. Smooth coneflower, the only native purple coneflower in Virginia, is a perennial herb with pink ray flowers. Throughout its range, this species is known from xeric woodlands and meadows, usually on basic or circumneutral soils over basic rock. In Virginia, the parent rocks include limestone, diabase, and gabbro. It requires relatively open areas created by natural disturbances; particularly fire (Ludwig, 1991). Smooth coneflower is threatened by the loss of naturally open habitat and over-collection (Ludwig, 1991). It is known from more than 40 occurrences in Virginia. This species is currently classified as endangered by the U.S. Fish and Wildlife Service (FWS) and as threatened by the Virginia Department of Agriculture and Consumer Services (VDACS). Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and DCR, DCR has the authority to report for VDACS on state-listed plant and insect species.

3(c) State Natural Area Preserves. DCR's files do not indicate the presence of any State Natural Area Preserves under the agency's jurisdiction. DCR states that Beaver Creek dam is within Sugar Hollow Park.

3(d) Agency Recommendations. DCR has following recommendations:

- Since new and updated information is continually added to the Biotics Data System, contact DCR DNH at (804) 786-7951 for site-specific information.
- Due to the potential for this site to support populations of Smooth coneflower, DCR recommends an inventory for the resource in the area noted on the attached map if disturbance will occur in this area. With the survey results, DCR can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources. (DCR did not provide a copy of the map. Contact DCR — Robbie Rhur at Robbie.Rhur@dcr.virginia.gov — directly.)
- Contact the City of Bristol for additional information regarding Beaver Creek dam (www.bristolva.org/parks.html).
- Contact DCR DNH (J. Christopher Ludwig, Natural Heritage Inventory Manager, at Chris.Ludwig@dcr.virginia.gov or 804-371-6206) to discuss arrangements for field work. A list of other individuals who are qualified to conduct inventories may be obtained from the FWS. DCR DNH biologists are qualified and available to conduct inventories for rare, threatened, and endangered species.

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#### 4. Wildlife Resources.

4(a) Agency Jurisdiction. The Department of Game and Inland Fisheries (DGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state or federally listed endangered or threatened species, but excluding listed insects (Virginia Code Title 29.1). DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 et seq.) and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce or compensate for those impacts.

4(b) Agency Comments. DGIF states that the Tennessee drainage in Virginia is known to support a large number of Virginia's imperiled aquatic species as well as some imperiled terrestrial species, as identified in the NRP. This area is considered a global "biological hot spot" for imperiled aquatic species. DGIF uses a significant amount of resources to manage, protect and recover imperiled wildlife and their habitats within this region of the Commonwealth. DGIF is supportive of TVA's initiatives to protect and manage such wildlife resources through the stewardship and management of its lands and waters within this region of Virginia.

DGIF is willing to partner with TVA, as appropriate, to develop management scenarios that allow for increased recreational access to and use of its lands while continuing to manage and protect the unique natural resources known from TVA's lands and waters in Virginia. DGIF looks forward to working with TVA to implement the biological resources management and recreational access initiatives as described in the NRP.

DGIF states that it maintains the Aquatic Wildlife Conservation Center (AWCC) at a hatchery in Marion. This facility gives DGIF the opportunity to propagate species of mollusks, fishes and amphibians native to the Tennessee drainage, and other drainages, for the purposes of research and the recovery of these species and those closely associated with them. DGIF is interested in finding ways to work cooperatively with TVA towards meeting the goals supported by the AWCC through funding opportunities available through TVA and its partners.

DGIF understands that economic factors must be considered when developing TVA lands and waters management scenarios, but encourages the TVA to implement as many of the forward-thinking initiatives from the Flagship Management alternative as necessary. DGIF understands that a blended management structure may be the most practical alternative.

4(c) Agency Recommendations. DGIF has the following recommendations for TVA:

- Contact DGIF (Amy Ewing at 804-367-2211) as necessary to evaluate specific projects occurring within Virginia, so that DGIF may have the opportunity to guide the work in a manner that benefits its constituents and the species and programs for which DGIF is responsible.
- Contact DGIF (Mike Pinder, DGIF Region III Aquatic Biologist, at 540-961-8387 or Mike.Pinder@dgif.virginia.gov) to discuss how TVA can assist DGIF in its efforts to recover highly imperiled species native to the Tennessee drainage.

#### 5. Historic Architectural Resources.

5(a) Agency Jurisdiction. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources under its jurisdiction. DHR, as the designated State's Historic Preservation Office, ensures that federal actions comply with Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulation at 36 CFR Part 800. The preservation act requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places. Section 106 also applies if there are any federal involvements, such as licenses, permits, approvals or funding. DHR also provides comments to DEQ through the state environmental impact report review process.

5(b) Agency Comment. DHR states that it will respond directly to the TVA.

## 6. Local and Regional Comments.

6(a) Jurisdiction. In accordance with the Code of Virginia, Section 15.2-4207, planning district commissions encourage and facilitate local government cooperation and state-local cooperation in addressing, on a regional basis, problems of greater than local significance. The cooperation resulting from this is intended to facilitate the recognition and analysis of regional opportunities and take account of regional influences in planning and implementing public policies and services. Planning district commissions promote the orderly and efficient development of the physical, social and economic elements of the districts by planning, and encouraging and assisting localities to plan for the future.

6(b) Comments. The Mount Roger Planning District Commission, Washington County and the City of Bristol did not respond to DEQ's request for comments.

#### REGULATORY AND COORDINATION NEEDS FOR FUTURE PROJECTS

 Surface Waters and Wetlands. Conduct pre-application coordination with all applicable state agencies, including DEQ (Allen Newman at 276-676-4804) and VMRC (Justin Worrell at 757-247-8063), that may have jurisdiction over the proposed project. Contact VMRC (Justin Worrell at 757-247-8063) for information on submitting a JPA regarding site-specific projects.

#### 2. Natural Heritage Resources.

- Contact the DCR DNH at (804) 786-7951 for an update on natural heritage information for site-specific projects.
- Contact the City of Bristol for additional information regarding Beaver Creek dam (www.bristolva.org/parks.html).
- Contact DCR DNH (J. Christopher Ludwig, Natural Heritage Inventory Manager, at Chris.Ludwig@dcr.virginia.gov or 804-371-6206) to discuss arrangements for field work related to inventories.
- 3. Wildlife Resources. Contact DGIF (Amy Ewing at 804-367-2211) as necessary to evaluate specific projects occurring within Virginia, so that DGIF may have the opportunity to guide the work in a manner that benefits its constituents and the species and programs for which DGIF is responsible.

#### 4. Site-Specific Reviews.

- DEQ encourages TVA to submit site-specific environmental documents as
  required under the National Environmental Policy Act (NEPA) and the State
  Corporation Commission's laws and regulations. Other state approvals which
  may apply to future site-specific projects may not be included in this review. TVA
  must ensure that future projects in Virginia are constructed and operated in
  accordance with all applicable federal, state and local laws and regulations.
- Site-specific environmental documents should be submitted to the DEQ Office of Environmental Impact Review (Attention: Ms. Ellie Irons), P.O. Box 1105, Richmond, VA 23218. Please submit one hard copy for DEQ and each affected locality and associated planning district commission as well as 16 compact discs (CDs) with electronic copies or provide a website or FTP site for distribution during a coordinated review.

#### CONCLUSION

Thank you for the opportunity to review the PEIS. DEQ supports the implementation of either Alternative C or Alternative D for the proposed activities. DGIF encourages the TVA to implement as many of the forward-thinking initiatives from Alternative C – Flagship Management as necessary but understands that a blended management structure (Alternative D) may be the most practical alternative. Participating reviewing agencies have no objection to the preferred alternative.

We look forward to reviewing future, site-specific projects located in Virginia as well as those located outside the Commonwealth with the potential to affect Virginia's environment and natural resources. Detailed comments of reviewing agencies are attached for your review. Please contact me at (804) 698-4325 or Julia Wellman at (804) 698-4326 for clarification of these comments.

Sincerely,

Ellie L. Irons, Manager

Office of Environmental Impact Review

#### Enclosures

cc: Dave Barrett, Mount Rogers PDC Mark K. Reeter, Washington County James F. Rector, City of Bristol

ec: Amy Ewing, DGIF Robbie Rhur, DCR Keith Tignor, VDACS Allen Newman, DEQ SWRO Roger Kirchen, DHR

## Virginia Department of Game and Inland Fisheries

#### Wellman, Julia (DEQ)

From:

Ewing, Amy (DGIF) Monday, May 09, 2011 1:38 PM Sent:

Wellman, Julia (DEQ) To:

Cc: igfouse@tva.gov; Watson, Brian (DGIF); Pinder, Mike (DGIF); Reynolds, Rick (DGIF); Kittrell,

Bill (DGIF); Boynton, Allen (DGIF)

Subject: ESSLog# 31714\_11-060F\_TVA Natural Resource Plan and Programmatic EIS

Please see updated comments in bold below:

We have reviewed Tennessee Valley Authority's (TVA) Natural Resource Plan (NRP) and Programmatic EIS and offer the following comments.

The Tennessee drainage in VA is known to support a large number of Virginia's imperiled aquatic species as well as some imperiled terrestrial species, as identified in the NRP. In fact, this area is considered a global bio hot spot for imperiled aquatic species. Our agency spends a lot of effort to manage, protect, and recover imperiled wildlife and their habitats within this region of the Commonwealth. We are supportive of TVA's initiatives to protect and manage such wildlife resources through the stewardship and management of their lands and waters within this region of VA.

We are happy to partner with TVA, as appropriate, to develop management scenarios that allow for increased recreational access to and use of their lands while continuing to manage and protect the unique natural resources known from TVA's lands and waters in Virginia. We look forward to working with TVA to implement their Biological Resources Management and Recreational access initiatives as described in the NRP

We understand that economic factors must be considered when developing TVA lands and waters management scenarios, but encourage the TVA to implement as many of the forward-thinking initiatives from the Flagship Management alternative as necessary. We understand that a blended management structure may be the most practical alternative.

We further encourage TVA to contact us as necessary to evaluate specific projects occurring within Virginia so that we may have the opportunity to guide the work in a manner that benefits our constituents and the species and programs for which we are responsible.

We currently maintain the Aquatic Wildlife Conservation Center (AWCC) at our hatchery in Marion, VA. This facility allows us the opportunity to propagate species of mollusks, fishes, and amphibians native to the Tennessee drainage, and other drainages, for the purposes of research and the recovery of these species and those closely associated with them. We are interested in finding ways to work cooperatively with TVA towards meeting the goals supported by the AWCC through funding opportunities available through TVA and it's partners. Mike Pinder, VDGIF Region III Aquatic Biologist, may be contacted at 540-961-8387 or Mike.Pinder@dgif.virginia.gov to further discuss how TVA can assist us in our efforts to recover highly imperiled species native to the Tennessee drainage.

Thank you, Amy

Amy Ewing Environmental Services Biologist VA Dept. of Game and Inland Fisheries 4010 W. Broad Street Richmond, VA 23230 804-367-2211 amy.ewing@dgif.virginia.gov

Douglas W. Domenech Secretary of Natural Resources



David A. Johnson Director

# COMMONWEALTH of VIRGINIA

#### DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street Richmond, Virginia 23219-2010 (804) 786-1712

#### MEMORANDUM

DATE: April 20, 2011

TO: Julia Wellman, DCR

FROM: Roberta Rhur, DCR, Environmental Impact Review Coordinator

Subject: DEQ 11-060F, TVA Natural Resource Plan

## Division of Planning and Recreational Resources

The Department of Conservation and Recreation (DCR), Division of Planning and Recreational Resources (PRR), develops the *Virginia Outdoors Plan* and coordinates a broad range of recreational and environmental programs throughout Virginia. These include the Virginia Scenic Rivers program; Trails, Greenways, and Blueways; Virginia State Park Master Planning and State Park Design and Construction.

DCR finds the plan comprehensive and well thought out and DCR/PRR staff would like to make the following recommendations and comments. The plan offers the goal of engaging the public in future assessment and management, this plan will no doubt need educated and dedicated staff for its goals to come to fruition. This need should not be understated in the plan.

Where appropriate, the interconnectivity of recreational resources associated with the reservoir should be highlighted. The document does a great job of talking about each of the recreational activities and interconnectivity is inferred, but should be articulated to clearly leaves decision makers with the knowledge that all these activities on this resource work together to create and awesome resource. At some point in the document, the clarification of recreational areas conducive for non-motorized boating should be mentioned as this a growing area of interest in Virginia. With regard to this and other non-motorized water activities, recreational management options which include no wake zones may be appropriate in certain areas.

The way this plan fits into each of the states' State Comprehensive Outdoor Recreation Plans (Scarps) could be mentioned. While Land and Water Conservation Funds may not apply on the reservoir, the outdoor planning the SCORPs afford each state should not be overlooked. For example, the access to water via this TVA project work may help meet one of Virginia's most popular recreational resources.

Additionally, there is little in it regarding the protection and preservation of scenic resources, which are abundant within the coverage area of the plan. We suggest that under Sensitive Biological Resources a discussion and management strategy be included of identified scenic resources within their planning area.

State Parks \* Soil and Water Conservation \* Natural Heritage \* Outdoor Recreation Planning Chesapeake Bay Local Assistance \* Dam Safety and Floodplain Management \* Land Conservation

#### Natural Resource Plan

Identification and protection of these resources is within the responsibility as acknowledged by "Arthur E. Morgan, the first chairman of the TVA board, to the agency on March 2, 1956, highlighting the importance of TVA's involvement in preserving and protecting the Valley's lands."

Further it is recommended that under the Sensitive Biological Resources section that the Virginia Scenic River Program be introduced as a laudable goal for the rivers within TVA's lands. This program gives a framework for educated citizens to create an awareness of the benefits and uniqueness of their local natural resources. It also integrates land and water stewardship for the optimum public benefit in conjunction with providing awareness that helps protect and manage the river resources within the Tennessee River System. Many localities also use it as an environmental tourism tool, which is economically helpful. The implementation of the Virginia's Scenic River program would support all of the strategic Objectives of the NRP, Water Resources Protection and Improvement, and Sustainable Land Use and natural Resource Management, while actively engaging the public, especially if a local river committee was formed. There is additional information on the Program at the following website: http://www.dcr.virginia.gov/recreational planning/srmain.shtml

Please feel free to contact Lynn Crump, if you have additional questions on the Scenic River Program or protection of scenic resources.

#### Division of Natural Heritage

The Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, Smooth coneflower (Echinacea laevigata, G2G3/S2/LE/LT) populations have the potential to occur at Clear Creek Lake Dam project area. Smooth coneflower, the only native purple coneflower in Virginia, is a perennial herb with pink ray flowers. Throughout its range, this species is known from xeric woodlands and meadows, usually on basic or circumneutral soils over basic rock. In Virginia, the parent rocks include limestone, diabase, and gabbro. It requires relatively open areas created by natural disturbances; particularly fire (Ludwig, 1991). Smooth coneflower is threatened by the loss of naturally open habitat and over-collection (Ludwig, 1991). It is known from more than 40 occurrences in Virginia. Please note that this species is currently classified as endangered by the United States Fish and Wildlife Service (USFWS) and as threatened by the Virginia Department of Agriculture and Consumer Services (VDACS).

Due to the potential for this site to support populations of Smooth coneflower, DCR recommends an inventory for the resource in the area noted on the attached map if disturbance will occur in this area. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

DCR-Division of Natural Heritage biologists are qualified and available to conduct inventories for rare, threatened, and endangered species. Please contact J. Christopher Ludwig, Natural Heritage Inventory Manager, at <a href="mailto:christopher-Ludwig@dcr.virginia.gov">christopher-Ludwig</a>, or 804-371-6206 to discuss arrangements for field work. A list of other individuals who are qualified to conduct inventories may be obtained from the USFWS.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. Survey results should be coordinated with DCR-DNH and USFWS. Upon review

of the results, if it is determined the species is present, and there is a likelihood of a negative impact on the species, DCR-DNH will recommend coordination with VDACS to ensure compliance with Virginia's Endangered Plant and Insect Species Act.

In addition, our files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity. Please note the Beaver Creek dam is within Sugar Hollow Park. Please contact the City of Bristol for additional information regarding this managed land (http://www.bristolva.org/parks.html)

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <a href="http://vafwis.org/fwis/">http://vafwis.org/fwis/</a> or contact Shirl Dressler at (804) 367-6913.

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.

Cc: Tylan Dean, USFWS

#### Literature Cited

Ludwig, J.C. 1991. Smooth Coneflower. In Virginia's Endangered Species: Proceedings of a Symposium. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, Virginia. Pp. 144-145.

## MEMORANDUM

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER QUALITY
Ellen Gilinsky, Ph.D., Director

TO: Julia Wellman

Office of Environmental Impact Review

FROM: Michelle Henicheck

Office of Wetlands and Water Protection

DATE: May 3, 2011

SUBJECT: TVA Natural Resource Plan and EIS

11-060F

The Department of Environmental Quality (DEQ) has reviewed the information for the above-referenced project. The Tennessee Valley Authority (TVA) has developed a draft Natural Resource Plan (NRP) and associated programmatic environmental impact statement (EIS) to evaluate the implementation and management of TVA's reservoir lands planning, biological and cultural resources management, water resources management, and recreation programs. The purpose of this study is to develop a plan that will allow TVA to proactively manage these resources of the Tennessee Valley over the next 20 years.

The objective of TVA's biological and cultural resources management is to implement sustainable practices to balance protection of natural and cultural resources while providing dispersed recreation opportunities across the region. The goal of TVA's recreation strategy is to work with regional partners to enhance existing recreation opportunities and address unmet recreation needs, while managing resources on and along the Tennessee River system.

TVA decided on four future program options each for biological and cultural resources management, recreation management, and water resource management, and three future options for reservoir lands planning. The four future options for biological and cultural resources management, recreation management, and water resource management are current management, custodial management, enhanced management, and flagship management

Section 5.5 on page 227 analyzes impacts to wetland that are associated with the four alternatives, including direct, indirect, and cumulative impacts. Under Alternative C (Flagship Management Alternative), TVA would explore, pilot/test, and implement new strategies for enhancing wetland stewardship. This would include development and implementation of a wetland management policy that includes a proactive program for wetland identification, management, and protection on TVA-managed lands. Implementation of the proposed action would result in a positive effect on wetlands on TVA-managed lands, and no direct or indirect adverse wetland impacts would result from this alternative.

Under Alternative D (Blended Management Alternative), TVA mixes portions of the programs and activities as described under Alternatives B (Custodial Management Alternative) and C. The direct, indirect, and cumulative impacts on wetlands would be similar to those described under the Flagship Management Alternative. As strategic partnerships and resources become available, TVA would enhance management of both the in-house wetland database and wetlands on its lands.

According to the report, under any of the alternatives, TVA would comply with all applicable federal, state, and local regulations. Likewise, prior to approving any proposal to use TVA land, TVA would conduct an appropriate level of site-specific environmental review to determine the potential environmental effects of the proposed use. DEQ agrees with the use of either Alternatives C or D for the proposed activities.

If impacts to State Waters are proposed, a Joint Permit Application (JPA) should be submitted to the Virginia Marine Resources Commission (VMRC). The DEQ Southwest Regional Office will make the final permit decision regarding potential impacts to State Waters.

Once a final strategy has been developed, any activities requiring instream work should be performed in the dry utilizing cofferdams, stream diversions and / or working during low flow conditions. Heavy equipment should work from uplands to the greatest extent possible and utilize mats and strict erosion and sediment controls for work that must be conducted from within surface waters. Caution should be taken to ensure prevention of the release of any oil or fuel from heavy equipment into surface waters. All disturbed stream beds should be restored to their original contours prior to redirecting the stream into the work area.

Unavoidable permanent impacts to all wetlands or to streams in excess of three hundred linear feet will require mitigation through the purchase of mitigation bank credits or through the creation, enhancement or preservation of wetlands or streams within the project's watershed. Restore temporary impact areas to their original contours and revegetate with the same or similar species.

We recommend strict adherence to erosion and stormwater management practices, and further encourage the project proponent to monitor construction activities to make certain that erosion and stormwater management practices are adequately preventing sediment and pollutant migration into surface waters, including wetlands.

## **Virginia Department of Transportation**

TVA CCMS - View Comments

Page 1 of 1

Name: Donald Necessary

Comments: The VDOT Bristol District Planning Division has reviewed the Tennessee Valley Authority's submission of proposed land use and management plan. No existing or future transportation projects will be impacted in Virginia.

> All lands being developed in Virginia are subject to the following regulations. Each of the regulations define the procedures required in the development of property or changes in land use:

> http://www.vdot.virginia.gov/projects/chapter527/default.asp - This document provides guidance on the details of §15.2-2222.1 of the Code and its supporting regulations that establish the rules, procedures, and deadlines for VDOT's review of local government comprehensive plans/plan amendments and traffic impact analyses for certain rezoning applications, site plans and subdivision plats.

http://www.virginiadot.org/projects/accessmgt/default.asp - The access management regulations and standards for principal arterials began implementation on July 1, 2008. Minor arterial, collector, and local streets regulations will be implemented on October 1, 2009.

Should you have any additional questions or comments, please advise.

## **Comment Letters from Federally Recognized Tribes**



DATE: 3 - June - 11

TO: Tennessee Valley Authority
Patricia Bernard Ezzell
400 W. Summit Hill Drive
WT 11D - Cultural Resources
Knoxville, TN 37902

Eastern Band of Cherokee Indians Tribal Historic Preservation Office P.O. Box 455 Cherokee, NC 28719 Ph: 828-554-6852 Fax 828-488-2462

## PROJECT(S): Comments regarding the draft Natural Resource Plan.

The Tribal Historic Preservation Office of the Eastern Band of Cherokee Indians (EBCI THPO) is in receipt of the notification to act as a consulting party for the above-referenced project information and would like to thank you for the opportunity to comment on this proposed section 106 of the National Historic Preservation Act (NHPA) activity. The EBCI THPO accepts the invitation to act as a consulting party on the above referenced section 106 undertaking as mandated under §36 CFR 800.

The EBCI THPO recognizes the draft Natural Resource Plan (NRP) was constructed "to enable TVA to better balance its stewardship objectives and obligations while working within resource and financial considerations." However, it is the opinion of the EBCI THPO that a monetary value cannot be placed on some resources, such as non-renewable cultural resources. Given that the TVA holds nearly 293,000 acres of reservoir land, approximately 11,000 miles of shoreline, and nearly 42,000 miles of tributary streams and rivers, the protection of cultural resources should be the TVA's first priority.

Continuing the *Custodial* level of cultural resource stewardship, while working within the letter of the NHPA, does not move the TVA into the spirit of the NHPA. For example, how does the suggestion of monitoring 1.1 to a total of 2.1 miles of shoreline exemplify a *Flagship* management level? With nearly 11,000 miles shoreline, 2.1 miles of shoreline monitoring is not even a drop in the bucket.

Likewise, with only two TVA ARPA dedicated law enforcement officers, how does the TVA intend to ramp up ARPA inspections from the *Custodial* level "by reported incident" to between 2,500 and 5,000 annual inspections for the *Enhanced* and *Flagship* levels? From reported incidents to 2,500 inspections annually is an enormous jump. Is it even wise to consider this percentage of increase, and yet only continue to train and outfit the 2 current officers?

Please define your custodial tasks as they pertain to cultural resources. With such an enormous land base impacting such a wide cross section of the Cherokee traditional territory, the EBCI THPO defines the TVA's task as protecting all currently known sites from development, wave action, looting and etc. Likewise, utilizing section 106 of the NHPA as a starting point, the TVA should work on protecting unknown sites, and

moderate and high probability areas from similar threats to one of the TVA's most important non-renewable resource.

Similarly, how does the TVA define their section 110 of the NHPA obligations when it comes to archeological surveys of their own properties? While the EBCI THPO recognizes that the NHPA never adequately determined a federal agencies level of involvement, it seems that 1,000 acres under the *Custodial* level pales in comparison to the 293,000 acres of reservoir land, 11,000 miles of shoreline, and nearly 42,000 miles of tributary streams and rivers, much of which lays within high probability areas.

How does the TVA know if they are doing enough to fulfill their section 110 of the NHPA responsibilities? For example, if TVA holds 293,000 acres of reservoir lands, it will take roughly 293 years to conduct the required archeological field work. Transversally, if TVA holds roughly 53,000 miles of shoreline, rivers, and streams, and conducts shovel tests at 20 meter intervals it will conduct roughly 1.325 million shovel tests. However, it will take 293 years to conduct said tests at the *Custodial* level. With a federal government failing to define the level of involvement under section 110, does the TVA consider 293 years an adequate amount of time to fulfill its section 110 responsibilities? According to the proposals in the NRP, which determined that the preferred alternative lies somewhere between *Custodial* and *Balanced*, the TVA has determined 293 years is appropriate. How does your agency know if it is doing enough beyond the required section 106 responsibilities, in addition to its section 110 responsibilities when considering cultural resources are one of the TVA's most important non-renewable resources?

To reiterate, the EBCI THPO does not believe you can place a monetary value upon cultural resources. It would be an affront to our Tribal Elders to state that such important Cherokee sites such as Chota or Nickojack were damaged because the lead federal agency who is in charge of their stewardship did not find it economically beneficial to monitor, stabilize, or protect the sites. Many such sites are held in stewardship by the TVA not only for their importance to Cherokee history, but to the larger aspects of United States history. Nor can one place a value upon the dignity of the resting places of the dead. Former Cherokee villages, which played an integral part in Cherokee and emerging US history, are also the resting places for untold numbers of Cherokee ancestors. TVA is looked upon as the federal stewards of both these sites, and the burial contained therein, and the EBCI THPO does not believe placing a dollar value upon such resources is neither within the spirit of cultural resource management, nor being a good neighbor.

We look forward to continuing the consultations regarding the NRP, and associated documents. If we can be of further service, or if you have any comments or questions, please feel free to contact me at (828) 554-6852.

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Sincerely

Tyler B. Howe
Tribal Historical Preservation Specialist

Eastern Band of Cherokee Indians