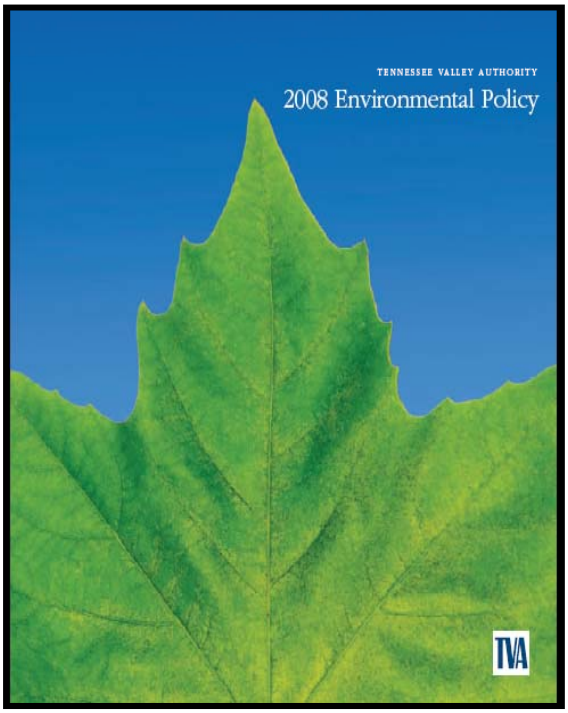
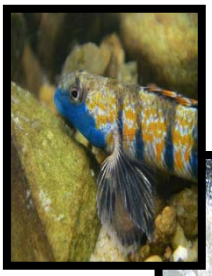
Natural Resource Plan

TVA'S ENVIRONMENTAL AND ENERGY FUTURE





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Regional Resource Stewardship Council

October 29, 2009 *(All times are EDT)*	TVA Headquarters 400 West Summit Hill Drive Knoxville, Tennessee 37902 Phone: 865.632.4077; Cell: 865.604.8639 **Meeting Room: West Tower Plaza**	
Thursday, October 29	**Tour of Stewardship Activities on Tellico Reservoir**	
9:30 a.m.	Safety Briefing	Heather Montgomery *NEPA Specialist* *NEPA Compliance*
10:00 a.m.	Depart West Tower Plaza Overview of Tellico Reservoir, Tour Objectives and Schedule	Darrell Cuthbertson *Manager* *Little Tennessee Watershed Team*
10:45 – 11:00 a.m.	TVA Natural Areas and Hall Bend Trail	Jason Mitchell *Natural Areas Specialist* *Stewardship Programs and Processes*
11:00 a.m.	Tellico Day Use Area	Darrell Cuthbertson *Manager* *Little Tennessee Watershed Team*
11:25 a.m.	East Lake Shore Trail	Darrell Cuthbertson *Manager* *Little Tennessee Watershed Team*
11:45 a.m.	Land Conditions Assessment at East Lake Shore Trail	Jason Mitchell *Natural Areas Specialist* *Stewardship Programs and Processes*
11:45 a.m.	Depart East Lake Shore Trail – Provide introduction to Agricultural License and Jackson Bend	
11:55 p.m.	Agricultural License at Jackson Bend	Darrell Cuthbertson *Manager* *Little Tennessee Watershed Team*
12:05p.m.	Natural Resource Management Partnerships at Jackson Bend	Wes James *Wildlife Biologist* *Stewardship Programs and Processes*
12:15 p.m.	Depart Jackson Bend	
12:20 p.m.	Arrive at Lotterdale Campground for Lunch	
12:45 p.m.	Reservoir Lands Planning	Evan Crews *Manager* *Watts Bar/Clinch Watershed Team*
1:00 p.m.	Depart Lotterdale Campground – Provide Background for Morganton	
1:15 p.m.	Overview of Water Resources	Shannon O'Quinn *Watershed Improvement Specialist* *Stewardship Programs and Processes*
1:20 p.m.	Shoreline Stabilization at Morganton	Darrell Cuthbertson *Manager* *Little Tennessee Watershed Team*
1:30 p.m.	Dispersed Recreation at Morganton	Clay Guerry *Recreation Specialist* *Stewardship Programs and Processes*
1:45 p.m.	Depart Morganton – Provide background for Fort Loudoun State Park	

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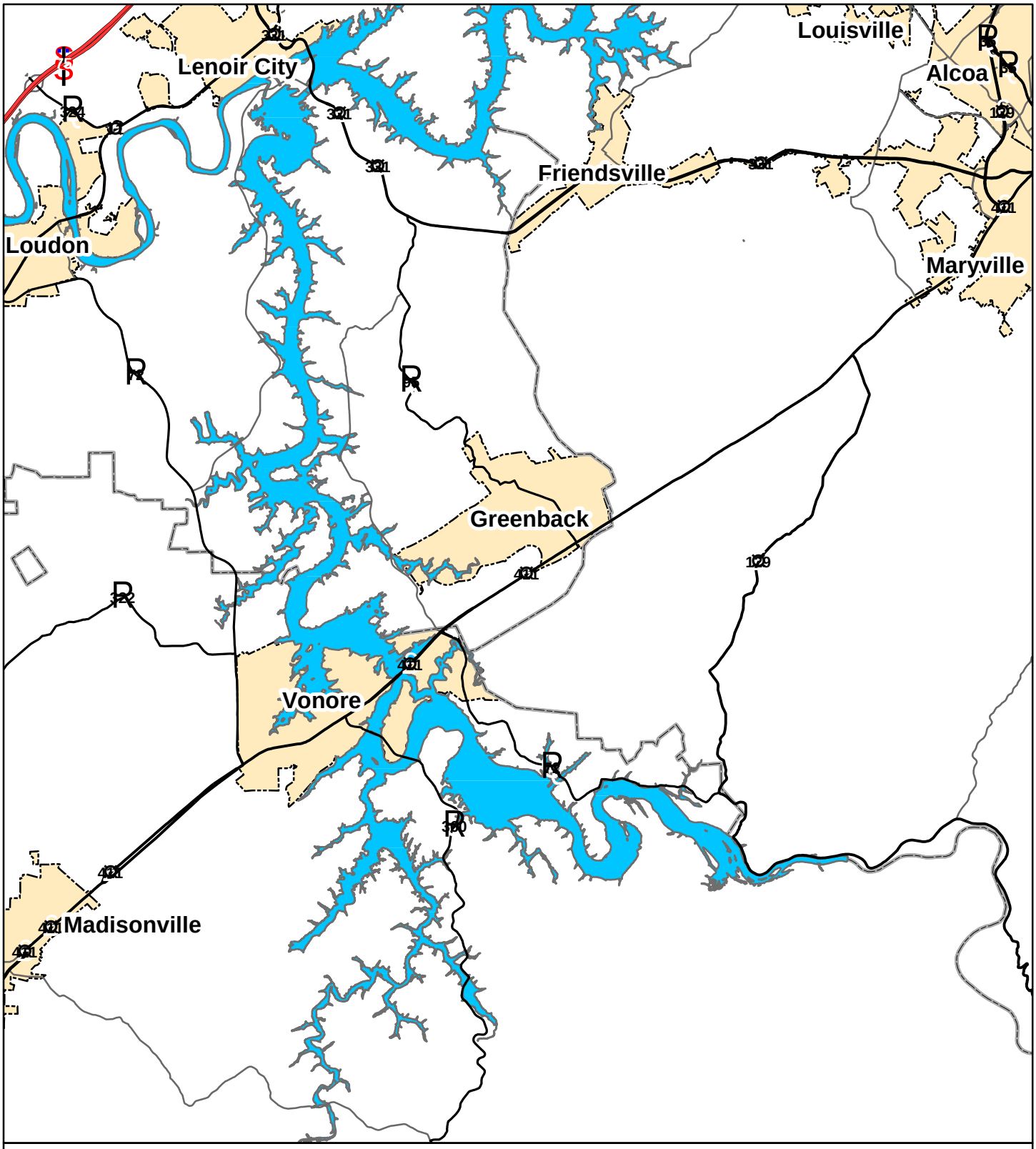
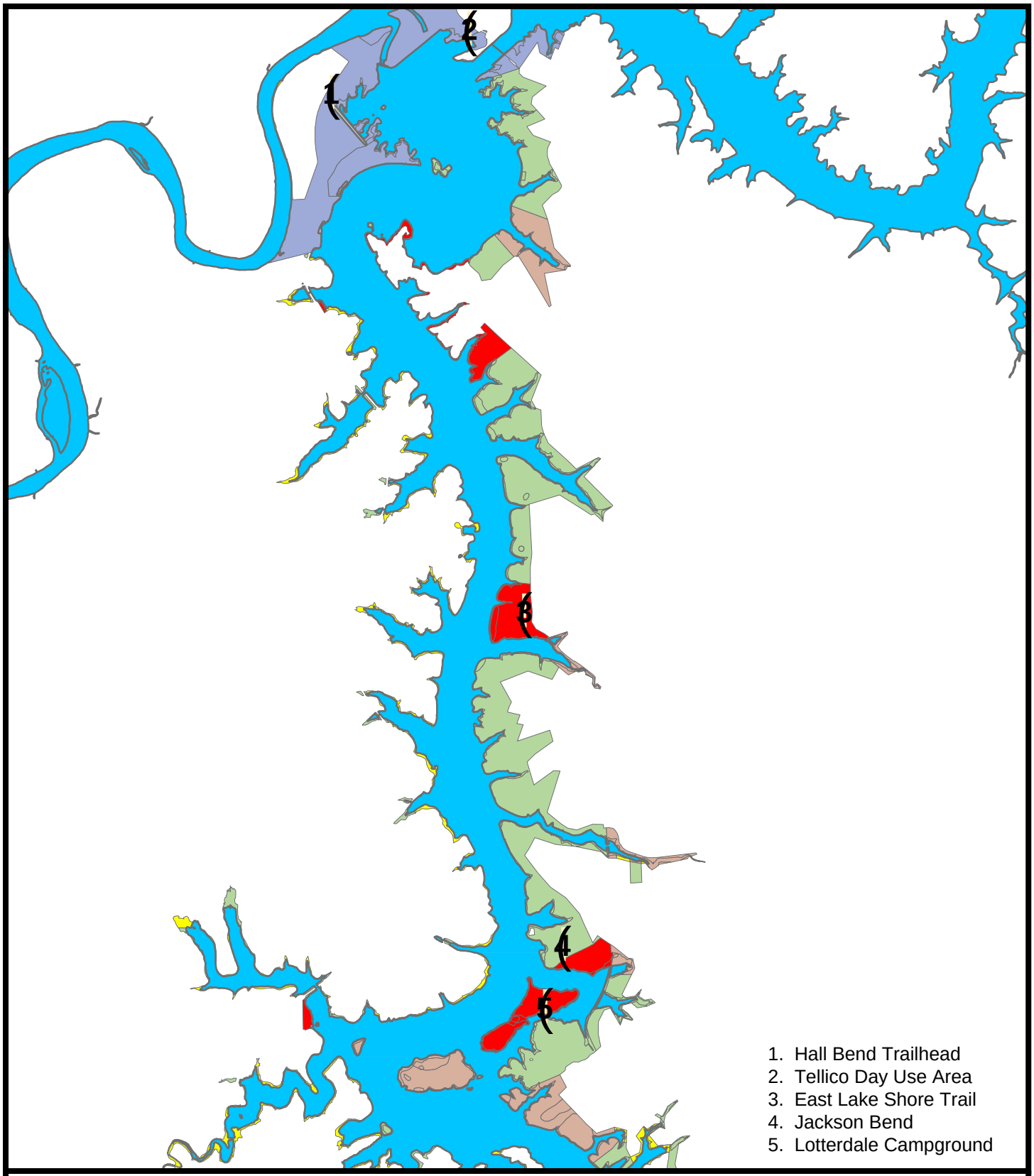
Thursday, October 29	**Tour of Stewardship Activities on Tellico Reservoir**	
2:00 p.m.	Natural Resource Management at Fort Loudoun State Park	Darrell Cuthbertson *Manager* *Little Tennessee Watershed Team*
2:30 p.m.	Cultural Resources Stabilization Partnerships at Fort Loudoun State Park	Eric Howard *Manager* *Historic Permitting and Compliance*
3:15 p.m.	Depart Fort Loudoun State Park – Provide background for Chota Memorial	
3:15 p.m.	Overview of Chota Memorial and Tellico Wildlife Management Area	Darrell Cuthbertson *Manager* *Little Tennessee Watershed Team*
3:50 p.m.	Chota Memorial	Eric Howard *Manager* *Historic Permitting and Compliance*
4:05 p.m.	Natural Resource Management and Waterfowl Refuge	Wes James *Wildlife Biologist* *Stewardship Programs and Processes*
4:30 p.m.	Depart Chota Memorial	
4:45 p.m.	Questions and Feedback from RRSC	Darrell Cuthbertson *Manager* *Little Tennessee Watershed Team*
5:15 p.m.	Wrap Up	Anda Ray, *Senior Vice President, Office of Environment & Research and Designated Federal Officer*
5:45 p.m.	Arrive at Calhoun's for Dinner	



Tellico Vicinity Map

- Interstate Highways
- US Highways
- State Highways
- Major Highways
- Major Roads
- Reservoir
- State Boundary
- County Boundary
- Tiger Places 2000

0 1 2 4 6 Miles



Tellico Reservoir

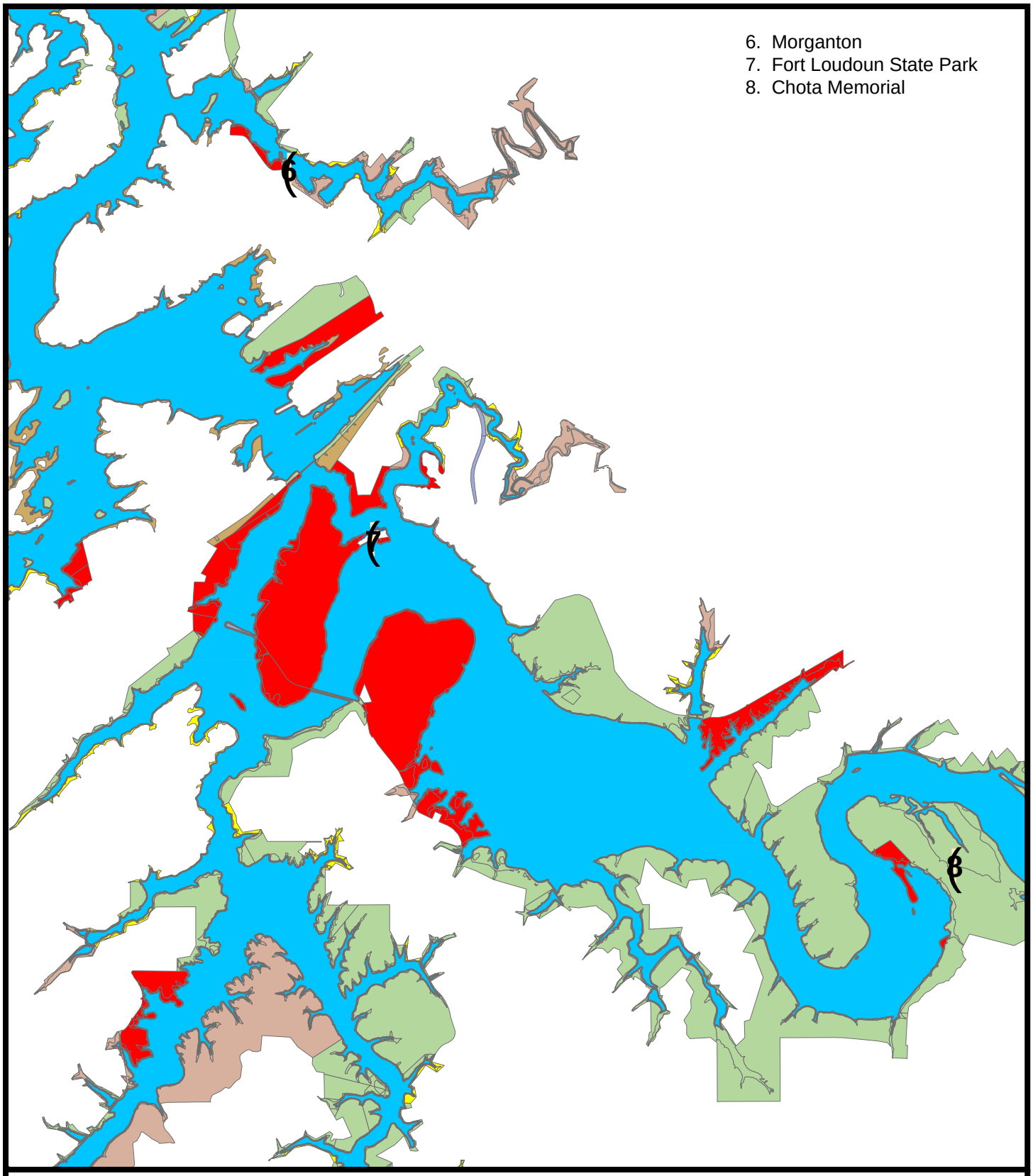
3

Land Plan Zone

- Private Ownership
- Dam Reservation
- Sensitive Resource Management
- Natural Resource Conservation
- Industrial/ Commercial
- Recreation
- Residential

4,500 2,250 0 4,500

Feet



Tellico Reservoir

3

Land Plan Zone

- Private Ownership
- Dam Reservation
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- Natural Resource Conservation
- Industrial/ Commercial
- Recreation
- Residential

4,500 2,250 0 4,500

Feet

Natural Resource Plan

General Information

On June 15, 2009, TVA published a notice of intent (NOI) to prepare an environmental impact statement (EIS) and to conduct a comprehensive study of its future energy and environmental stewardship needs known as the Integrated Resource Plan (IRP). Since publishing the NOI, TVA has determined that planning processes for the Environmental Policy goals not closely tied to energy production and use, notably Water Resource Protection and Improvement, Sustainable Land Use and Natural Resource Management, would be better addressed in a separate study—the Natural Resource Plan (NRP) and EIS.

The NRP would evaluate the implementation of TVA's reservoir lands planning, natural resource management, water resources management, and recreation processes and strategies. The content of this EIS would be consistent with TVA's Environmental Policy and Land Policy and with the previous Shoreline Management Initiative EIS and Reservoir Operations Study EIS. Stewardship activities associated with TVA's Aquatic Plant Management, Mosquito Management, or Reservoir Releases Improvement programs are not within the scope of the review. Similarly, this project would not result in potential changes to reservoir operations or river flows, to shoreline permitting activities, or to opening more shoreline for residential development. These specific activities have been excluded due to the prior public input processes used to establish the procedures that direct them.

How Can the Public Be Involved in the Natural Resource Plan?

TVA invites comments from the public through the public scoping process. The purpose of public scoping is to gather information from a diversity of agencies, organizations, and individuals who are users of public land and water. This information helps the planning team identify key planning and environmental issues and concerns to be considered during the development of the NRP.

TVA is interested in the public's thoughts and comments concerning the types of implementation activities that should be addressed in the EIS. TVA is also interested in any concerns regarding environmental issues or any other concerns about TVA-managed public lands across the Valley. All comments pertaining to this study that have been received during the IRP public scoping period will be used in the NRP project scoping. Additional comments on the scope of this EIS should be submitted no later than November 2, 2009.

To provide input to the NRP, send comments to TVA via mail, e-mail, or the Internet. Written comments may be mailed to Natural Resource Plan c/o TVA NEPA Compliance (Attention: Heather Montgomery, NEPA Specialist), Post Office Box 1010, CTR 2W, Muscle Shoals, Alabama 35662-1010. To be added to the project mailing list or to make a comment via e-mail, contact nrp@tva.gov. Web-based comments may be submitted at http://www.tva.gov/environment/reports/nrp. For additional information, please call Ms. Montgomery at (256) 386-3803. Please note that any comments received, including names and addresses, will become part of the administrative record and will be available for public inspection.

How Does TVA Use Public Input?

The information generated during public scoping will be compiled and analyzed. The planning team will use this input to help form objectives and to guide the development of alternatives in the draft EIS. After public review of the draft EIS and public comments are addressed, a final plan will be submitted to the TVA Board of Directors for approval.

NATURAL AREAS

General Information

"TVA will be a leader in natural resource management through the implementation of sustainable practices in dispersed recreation while balancing the protection of cultural, heritage, and ecological resources." – TVA Environmental Policy

TVA's network of 154 Natural Areas is nationally recognized because most of the Natural Areas protect populations of federal- and/or state-listed plants or animals. The Natural Areas Program promotes environmental leadership and ensures TVA's compliance with the section of the *Endangered Species Act* (ESA) that requires federal agencies to perform activities to ensure protection of listed species within their jurisdiction.

TVA Natural Areas are designated during land use planning. Biologists identify sites on TVA land where our most sensitive and critical resources occur. Once approved by the TVA Board, management strategies for protection of these areas are developed in coordination with Watershed Teams.

The four types of Natural Areas encompass about 15,000 acres. Small Wild Areas (31) are sites with exceptional natural, scenic, or aesthetic qualities which are suitable for low-impact public use, such as hiking trails and overlooks. Habitat Protection Areas (112) are established to protect rare plants, animals or exemplary biological communities or unique geological features. Ecological Study Areas (5) consist of sites suitable for ecological research or environmental education. Wildlife Observation Areas (6) are sites that have concentrations of viewable wildlife such as shorebirds, songbirds, and waterfowl.

In some cases, a species' largest or healthiest population in the world occurs on TVA Habitat Protection Areas. Pryor Branch, in North Alabama, protects one of only two known populations of Alabama Pygmy Sunfish, a very vulnerable fish. Most of the world's populations (70%) of Spreading False Foxglove, a rare plant, are located along a few TVA reservoirs. Approximately 25% of the world's federal-endangered Gray Bat population rears their young in caves within TVA Natural Areas.

Project Challenges and Successes

Program challenges include balancing personnel logistically across the Valley to ensure areas are monitored and managed, allocating time for establishing partnerships, and controlling invasive exotic plants.

Due to the conservation afforded by Natural Area designation, management, and regular monitoring, a species may not be listed under the ESA, when otherwise; it would have met the criteria for listing – resulting in less regulatory costs.

Other Important Facts

In 1983, the TVA Board adopted as policy Code XII, "Identification and Protection of Areas or Features of Natural and Scenic Significance."

About 20 well attended public events are scheduled on Natural Areas annually (e.g., wildflower hikes). Stakeholder groups such as the Tennessee Citizens for Wilderness Planning and the Shoals Environmental Alliance routinely partner with TVA on Natural Areas at on-site workdays and in monitoring public use.

NATURAL AREAS

Ancient cedar trees line the overlook at Lady's Bluff TVA Small Wild Area on Kentucky Reservoir. This vantage point provides a view of Tennessee National Wildlife Refuge on the opposite shore. Lady's Bluff provides excellent bird watching opportunities. A pair of Bald Eagles has nested nearby for several years and can often be observed from here.

NATURAL AREAS

Top left: Gray Bats are federal endangered mammals. In the summer, female Gray Bats form maternity colonies in caves on TVA Habitat Protection Areas. These caves are unique in terms of their temperature, size, and structure. Summer maternity caves are nearly always located near rivers or reservoirs over which the bats feed.

Bottom Right: Tellico Bluffs Ecological Study Area contains the largest population of Green Anoles in Tennessee. This location is unique in that it is near the northern margin of this reptile's range. University of Tennessee herpetologists have conducted extensive research at this location.

HALL BEND HABITAT PROTECTION AREA AND TRAIL

General Information

"TVA will be a leader in natural resource management through the implementation of sustainable practices in dispersed recreation while balancing the protection of cultural, heritage, and ecological resources." – TVA Environmental Policy

TVA's Habitat Protection Areas (HPA) are established to protect rare plants, animals or exemplary biological communities or unique geological features. Hall Bend HPA was designated during the Tellico Reservoir Land Management Plan in 1999. This area is approximately 30 acres and was set aside for the protection of a limestone bluff with a well-developed barrens plant community.

Barrens are grass- and herb- dominated sites which have shallow soil over limestone bedrock. Common plant species include Little Bluestem Grass, Side-oat Gramma Grass, Orange Coneflower, Asters, and Yucca with scattered Eastern Red Cedar trees of considerable size. This plant community type is similar in many ways to the barrens and glades of middle Tennessee and north Alabama and is becoming increasingly uncommon in the Ridge and Valley Physiographic Province.

In 2002, the Little Tennessee Watershed Team (LTWT) partnered with local Boys Scouts of America (BSA) troop to develop a 5-mile hiking trail that runs through the HPA – traveling along the steep limestone bluffs. In 2008, the LTWT coordinated an Eagle Scout project to erect several benches along the trail. The BSA continues to perform trail maintenance and clean-up in the area in coordination with the LTWT.

Several scenic vistas along the trail overlook Tellico Reservoir. The trail offers opportunities for wildlife observation and photography. Waterbirds such as loons, grebes, and ducks can be viewed from several vantage points along the way. Diverse upland habitats are comprised of oak, hickory, and pine woodlands. These woodlands provide habitat for a variety of woodpeckers and offer roosting habitat for Bald Eagles and Osprey. White-tailed Deer and Wild Turkeys are often seen in open fields near the trailhead

Access to the site is accommodated by a paved parking area located off of Tellico Parkway. A kiosk containing trail maps and user information is located at the access point.

Project Challenges and Successes

Project challenges include balancing public use with the protection of the sensitive barren and controlling invasive exotic plants. Common invasive exotic plants include Sericia Lespedeza, Privet, and Honeysuckle. These plants have been controlled by periodic application of selective herbicides. The trail and HPA receive substantial public use, especially by local residents.

Other Important Facts

This trail project would likely not have been accomplished without the partnership with the BSA. The trail also provides access for bank fishing.

HALL BEND HABITAT PROTECTION AREA AND TRAIL

Bench constructed by BSA Troop 354 Eagle Scout placed at scenic overlook portion on the Hall Bend HPA.

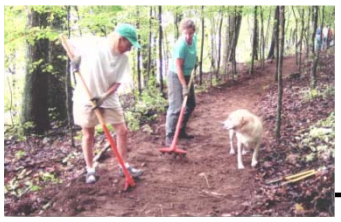
HALL BEND HABITAT PROTECTION AREA AND TRAIL

Top picture: View of Tellico Reservoir from the bluff portion of the Hall Bend HPA and trail.
Bottom picture: View from Hall Bend Trailhead area of Tellico Reservoir showing portion of Saddle Dam.

HALL BEND HABITAT PROTECTION AREA AND TRAIL

Top: Information kiosk at Hall Bend Trailhead on Tellico Dam Reservation.

Right: View of portion of Hall Bend trail crossing a Portion of the Hall Bend HPA showing old eastern Red cedars and naitve grass and forb plants Common to this habitat type.



EAST LAKE SHORE TRAIL PARTNERSHIP

General Information

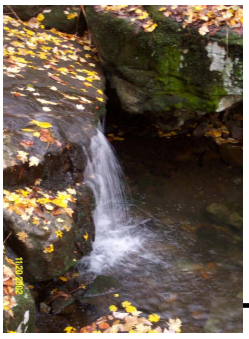
In 2003, TVA's Little Tennessee Watershed Team (LTWT) established a contract with the Watershed Association of Tellico Reservoir (WATeR) to partner on the development of a foot trail located along the eastern side of Tellico Reservoir. The concept for the trail was first suggested during the scoping for the Tellico Land Use Plan, which was approved by the TVA Board of Directors in 2000. Since 2003, volunteers from WATeR have constructed 16 miles of trail, built several bridges, steps, stiles, benches and kiosks. Most of the materials for projects were donated by local businesses. WATeR has also completed shoreline stabilization projects to protect completed portions of the trail. In 2008, TVA was awarded a $50,000 matching grant from the Tennessee Department of Environment and Conservation through the Recreational Trails program. The grant will be applied toward the construction of a bridge to link two sections of the trail. Ultimately, the trail will stretch from just south of Tennessee State Highway 411 to the Tellico Dam Reservation, some 34 miles.

Project Challenges and Successes

Building the trail to national construction standards is sometimes challenging due to terrain and the location of TVA property. Construction of bridges often requires that materials be carried for a long distance. In some cases, neighbors that own property adjoining the TVA property are very supportive of the trail development donating time or volunteering to do maintenance on a section of the trail. Unfortunately, that is not always the case, and some adjoining land owners oppose construction of the trail. The short-term challenge will be to complete the trail; the long term challenge will be to insure proper trail maintenance.

List of Contributions by each Partner

Partners including WATeR have provided all of the labor for actual construction of the trail tread and blazing the trail with paint. Most of the materials, except gravel for the parking areas, have been donated by local businesses. However, some of the parking areas have been constructed by Loudoun county. Partners have also had input on trail layout in conjunction with TVA.



LAND CONDITIONS ASSESSMENT

General Information

"Actively manage TVA lands to meet desired conditions for their purpose as defined in Reservoir Management Plans." – TVA Environmental Policy

In FY09, TVA biologists and foresters developed an on-the-ground Land Conditions Assessment (LCA) methodology to determine whether individual parcels of land meet desired conditions. The purposes of the LCA are to: 1) determine the "health" of TVA lands and 2) identify stewardship needs for maintaining or improving the conditions of a parcel.

Two person teams of natural resource professionals conduct the field assessments. The team evaluates thirteen specific conditions that fall under four resource management categories. After the field assessment is completed an overall parcel rating is determined as "Good," "Fair," or "Poor." These parcel ratings are then reported monthly through TVA's Land Health Indicator. The specific parcel conditions assessed are as follows:

Public Safety and Use
Access, Boundary, and Signage
Dispersed Recreational Impacts
Public Safety
Unauthorized Use(s)

Resources Protection
Sensitive Resources
Species Protection

Soil and Water
Access Road Best Management Practices
Shoreline Conditions
Watershed Protection Benefits

Vegetation and Wildlife
Invasive Exotic Plants
Nuisance or Exotic Animals
Vegetation Impacts
Wildlife Habitat

Assessments are conducted during the leaf-off season, when vegetation is dormant, to minimize field assessment time. Lands are selected for LCAs via a desktop exercise where parcels are systematically evaluated by Watershed Teams to determine which lands have the greatest public use and which lands support the most critical resources. Parcels are assessed by vehicle, boat, and/or foot. Complete assessment is made of the boundary lines, shorelines, hiking trails, all-terrain vehicle routes, roads, and other identified undeveloped public use areas. Identified stewardship needs are prioritized in multi-year plans for improving land conditions.

Project Challenges and Successes

Project challenges include the overall size of the TVA-managed land base and balancing field personnel logistically across the Valley. Several project successes have been realized. Development of the LCA methodology with associated internal peer review was a key milestone. The LCA supports measuring the "health" of TVA lands, while identifying programmatic stewardship needs. Other federal agencies are interested in similar assessments on their lands but have not been able to move forward as they are focus on detailed ecological analyses.

Other Important Facts

In FY09, the methodology was developed, internally peer-reviewed, field tested, and refined by assessing 500 acres (16 parcels). Of those acres, 73% of the lands met desired conditions. At the start of FY10 assessments began on Tellico, Norris, Melton Hill, and Guntersville Reservoirs.

JACKSON BEND
AGRICULTURAL LICENSE

General Information

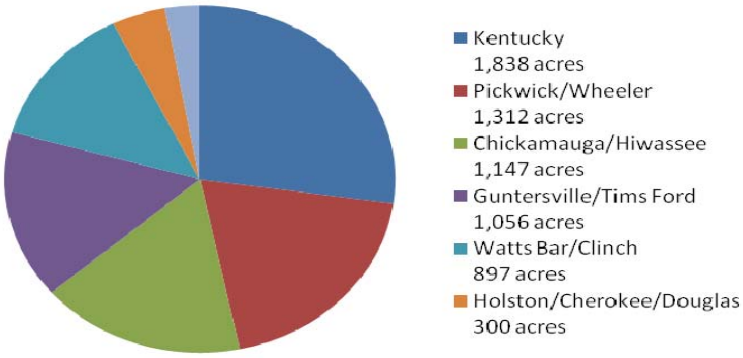
TVA agricultural licenses, fee-owned reservoir and non-reservoir (Power) properties, are considered to maintain ground cover, provide early, open successional wildlife habitat, enhance local agribusiness, and provide cost savings to many TVA organizations. Each agricultural tract is managed to ensure that acceptable land use and soil management practices are implemented while compiling with specific specifications to prevent shoreline erosion and water quality degradation. Acceptable land use includes agricultural best management practices, restoration of natural vegetative buffers, leaving portions of crops in the field for wildlife consumption, implementing effective soil management practices, and converting some past pasturelands to native warm-season grasses. To offset the effects of habitat loss from row crop and "clean" pasture fanning on nearby private land, special provisions (i.e. native vegetative buffers along row crop fields) are often included in the TVA agricultural licenses to “enhance the TVA land" for a wide variety of game and non-game wildlife.

The Jackson Bend area consists of two hay fields under license to a single individual. TVA in partnership with the Knoxville based Bobwhite Chapter of Quail Unlimited Inc is converting one field to native warm season grasses. The other hay field remains in pasture. This property has a livestock exclusion fence along a shoreline buffer and a stock watering lane, which were installed at the expense of the license holder.

Project Challenges and Successes

TVA’s agricultural program faces several challenges, invasive exotic species control, undesirable impacts by the public and a decreasing population of farmers in some areas. TVA has been successful in conjunction with partners, at converting several hundred acres across the valley to native warm season grasses.

Valleywide Estimate of TVA-managed Lands in Agricultural Licenses



JACKSON BEND: WILDLIFE MANAGEMENT PARTNERSHIP

General Information

In 1996, TVA's Little Tennessee Watershed Team (LTWT) established a contract with the Knoxville based Bobwhite Chapter of Quail Unlimited, Inc. (QU) to partner on habitat enhancement projects for select parcels of public land on Tellico Reservoir. From then to present, approximately 150 acres of enhanced early succession/grassland habitat has been established on five different parcels of reservoir property through this cooperative partnership. In 2008, QU contacted the LTWT Wildlife Biologist expressing an interest in expanding the ongoing partnership work in the Jackson Bend area. This parcel had been in a traditional agricultural license for hay production since Tellico Reservoir was created in 1979. In 2008, the agricultural licensee contacted the LTWT and informed them that he was no longer interested in maintaining this license agreement. This action made the parcel available for more intensive wildlife management actions.

Project Challenges and Successes

The primary challenge associated with this 12 acre parcel was that the area was dominated by tall fescue grass cover. Tall fescue is a non-native grass that has been widely used for both livestock pasture and hay crops for many years. While it only provides moderate forage quality for livestock, it provides limited if any habitat for wildlife including ground nesting/grassland birds and small mammal species. The goal of this partnership project was to convert the fescue grass to a more native grass and legume ground cover that would provide more open ground and clump type habitat that species such as northern bobwhite quail, grasshopper sparrows, Eastern meadowlarks and cottontail rabbits prefer. Step one was to kill the existing fescue sod cover with a glyphosate based herbicide. Next, a tractor towed disk was used to plant a 50-foot buffer area around the field. Approximately twenty five feet of this buffer was planted to a long, linear food plot with annual species such as millet, sorghum, lespedeza and sunflowers. Outside the food plot, a 25 foot strip of native warm season grasses was planted to create ideal habitat for ground nesting birds. The remainder of the field will be managed by mowing and periodic disking to keep the area in native forb cover.

List of Contributions by each Partner and Other Important Facts

Our QU partners provided most all of the equipment and materials for this project including food plot seed and herbicides. Approximately five club members worked over sixteen hours on this project to date.

A pair of northern bobwhites was observed on this parcel during the nesting season this spring raising hopes for future population expansion of this species in this area.

JACKSON BEND: WILDLIFE MANAGEMENT PARTNERSHIP

Bobwhite Chapter of Quail Unlimited Habitat Chairman Greg McDaniel lightly tills ground to prepare a seedbed for sowing native warm season grasses and legumes. End result is a mature field of native grasses and legumes that provide excellent nesting, foraging and escape cover for northern bobwhite quail and numerous other grassland bird and small mammal species.

10-2009

JACKSON BEND: WILDLIFE MANAGEMENT PARTNERSHIP

Member of Bobwhite Chapter of Quail Unlimited sowing native grasses and legumes with specialized planters and equipment owned by the Chapter. Result of habitat enhancement work showing native grass field with a clump of native plums that provide escape cover for northern bobwhite quail and other wildlife species.

10-2009

JACKSON BEND: WILDLIFE MANAGEMENT PARTNERSHIP

Native warm season grass and forbs/legume fields established in partnership with Bobwhite Chapter of Quail Unlimited. Native grasses include big and little bluestem, Indian grass and switchgrass with legumes including partridge pea and Illinois bundleflower.

RESERVOIR LAND MANAGEMENT PLANS

General Information

TVA develops reservoir land management plans to facilitate management of 293,000 acres of public land around its reservoirs. A reservoir land management plan guides decisions on requests for use of TVA-managed land by providing a clear vision of how TVA will manage public land and identifying land for specific uses. Reservoir Land Management Plans include an environmental review conducted in accordance with the National Environmental Policy Act (NEPA). The level of environmental review for a reservoir land plan is typically an Environmental Impact Statement (EIS).

The Land Planning Process

The reservoir land planning process is a systematic method of identifying and evaluating the most suitable use of public lands under TVA stewardship. It uses resource data, computer analysis, and public input to allocate land uses to the following land management zones:

- Non-TVA Shore Land (Flowage Easement)
- Sensitive Resource Management
- Industrial
- Shoreline Access
- TVA Project Operations
- Natural Resource Conservation
- Recreation

The Reservoir Land Planning Process will not change the existing access rights of adjacent property owners for the use of TVA Land.

TVA invites comments from the public on reservoir land management plans. First, the public is invited to comment through the public scoping process. The purpose of public scoping is to gather information from a diversity of agencies, organizations, and individuals who are users of public land and water. This information helps the planning team identify key planning and environmental issues and concerns to be considered during planning. Next, TVA would prepare a draft NEPA document to assess the potential effects to the environment from several different strategies for managing TVA public lands. Most often, the public could comment on the draft NEPA document via mail, e-mail or an interactive web-based comment form. TVA would use the input gathered from the public to assist in the decision to select one of the alternatives as the Reservoir Land Management Plan. The preferred alternative will be presented to the TVA Board, and with the Board's approval, the alternative will be implemented.

Reservoirs with Land Management Plans

Apalachia, Big Bear Creek, Blue Ridge, Boone, Cedar Creek, Chatuge, Cherokee, Chickamauga, Fontana, Guntersville, Hiwassee, Kentucky, Little Bear Creek, Nickajack, Norris, Nottely, Melton Hill, Ocoee 1, Ocoee 2, Ocoee 3, Pickwick, Tellico, Tims Ford, Upper Bear Creek, Watts Bar, and Wheeler reservoirs have reservoir land management plans.

A draft reservoir land management plan is available for public comment for Beaver Creek, Clear Creek, Boone, Fort Patrick Henry, South Holston, Watauga, and Wilbur reservoirs.

Currently, Beech River, Fort Loudoun, Great Falls, Normandy and Wilson reservoirs do not have reservoir land management plans.

WATER RESOURCES

General Information

TVA exerts a positive influence on water resource management by cooperating and partnering with the federal, state, and local agencies; industries; and others Valley stakeholders interested in enhancing water quality. TVA collects, evaluates, and publishes up-to-date information on water quality and ecological trends; assesses the causes of-and remedies for-stream and reservoir pollution; and implements a number of water quality improvement projects.

Shoreline stabilization is one example of water resource protection. TVA is charged with the management and stewardship of some 11,000 miles of reservoir shoreline. Many of these reservoir shoreline areas are classified as sensitive resource areas, as they contain a wealth of cultural and archeological resources. There are also sites being impacted by soil erosion that have other resource values such as recreational areas that have been extensively developed and are heavily use by the public.

Stabilization helps control critical shoreline erosion; helps protect significant cultural resources and improvements; protects or improves water quality; enhances aquatic and wildlife habitat; improves visuals; and basically, keeps the land in place. Treatment of these sites may include innovative techniques for stabilization such as soil bioengineering as well as the improvement of traditional methods such as the use of geotextiles in the application of rock riprap.

The Baker Creek stabilization project on Tellico Reservoir was completed in March of 2002. The project involved the use of biostabilization techniques in conjunction with hard armoring on approximately 800 feet of critically eroding reservoir shoreline. Specifically, rock rip rap was placed on a prepared slope from a keyway to elevation 812-foot mean sea level (msl). Soil bioengineering techniques were used to stabilize the bank above elevation 812-foot msl.

Project Challenges and Successes

Soil bioengineering relies on a combination of structural components and plant material to produce a dense stand of vegetation that serves as a “living system” to protect the shoreline. A challenge in the use of biostabilization is protecting the bank until the vegetation becomes established. This is reason for the use of some traditional hard armoring on the Baker Creek Project.

WATER RESOURCES

The top photograph was a critically eroded shoreline that contained archaeological deposits. The bottom photograph shows the same area with riprap stabilization to protect the shoreline and archaeological deposits.

WATER RESOURCES

This series of photographs show the steps of a shoreline stabilization project on Chatuge Reservoir. The project included three types of shoreline stabilization. First, hard armoring or riprap was installed. Next, bioengineered stabilization with coconut fiber rolls was installed above the riprap. Last, native vegetation was planted behind the coconut fiber rolls.

The bottom left photograph captures the project's success.

MORGANTON / DISPERSED RECREATION ASSESSMENT

General Information

TVA defines dispersed recreation as opportunities that are passive and unconfined occurring on TVA managed lands not associated with developed recreation facilities. TVA manages approximately 229,000 acres of public lands for sensitive resource and natural resource management. Dispersed recreation can also occur on these lands. Some popular dispersed recreation activities that occur on TVA lands are hunting, bank fishing, primitive camping, geo-caching, bird watching, wildlife observation, walking, picnicking, hiking, mountain biking, caving, and blue-ways. As more people move into the Tennessee River Valley, the demand for lands to facilitate these activities grows. As these lands receive more use, the impact on TVA managed public lands becomes greater, and a sound management policy concerning these impacts is essential. A goal of the Natural Resource Plan is to provide management options for recreation, natural resource management, reservoir lands planning and water resources.

Project Challenges and Successes

TVA has collected data on dispersed recreation impacts on 762 sites, and has estimated that this number is a small fraction of what exists on TVA managed public lands. As an effort to reduce user impacts on public lands, TVA has become an agency partner with Leave No Trace Center for Outdoor Ethics (LNT). LNT principles strive to educate the public on how to recreate in a more sustainable manner and reduce their overall impact to public lands. In addition, TVA is developing a web site to facilitate the LNT message, communicate the locations of TVA managed public lands, and to educate the public on the rules and regulations of use. TVA has also taken active management action on 2 heavily impacted dispersed recreation areas in an effort to reduce further impacts and enhance the dispersed recreation experience. Some of these actions include: hardening of sites, re-vegetation, establishment of fire rings in appropriate places, lantern hangers, informational and LNT signage.

Other Important Facts

TVA is actively seeking partners to assist with spreading the LNT message as well as other management oversight on heavily used dispersed areas.

MORGANTON / DISPERSED RECREATION ASSESSMENT

The top photograph is an example of a heavily used dispersed recreation site. The bottom photograph is an example of a mitigated dispersed recreation site.

FORT LOUDOUN STATE PARK

Information taken from Tennessee State Parks: http://www.tennessee.gov/environment/parks/FortLoudoun/

Tellico Blockhouse

The Tellico Blockhouse was a United States fortification used officially from 1794 through 1807. The site functioned in some smaller capacity through December 1811. The Tellico Blockhouse served as a check against white encroachment as those of European decent were required to have written passes from the commander of the Blockhouse before entering deeper into Cherokee land. This site was also home to the Tellico Factory, part of Henry Knox's civilizing policy and its aim of teaching modern methods of agriculture and industry to the American Indian.

As a trading post, the Tellico Blockhouse offered trade items for hides. Furs and hides were the primary currency that the Cherokee could barter with. Through years of such trade, the fur-bearing animals of the region were decimated. This trade had an economic and environmental impact on the area. The Tellico Factory offered a solution when spinning wheels, cotton seed, looms, and training were brought to the Cherokee at the Tellico Blockhouse. Much of the Little Tennessee River Valley was planted in cotton. This new commodity took some of the stress off of fur bearing animals and provided the Cherokee with a valued item of trade.

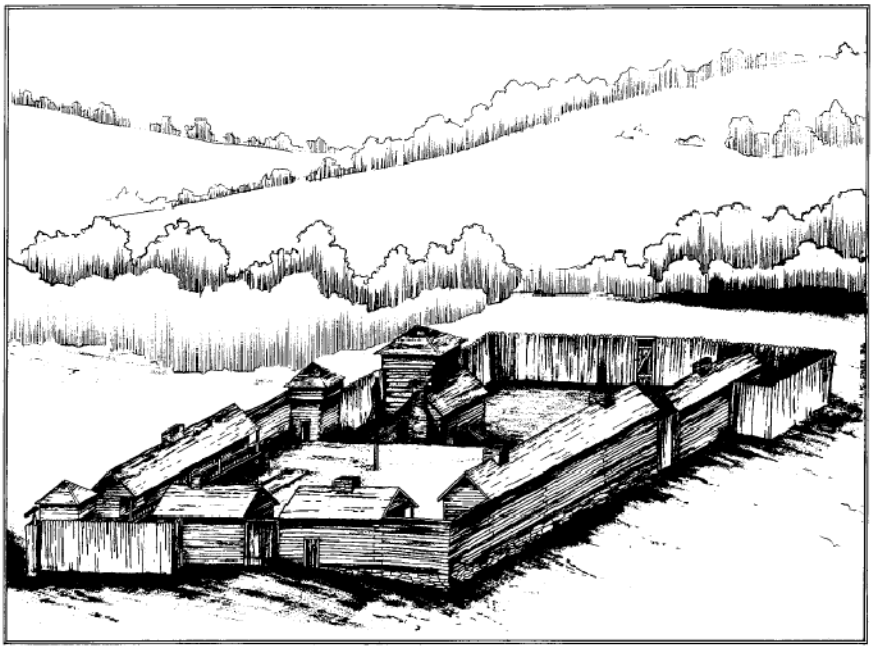
The Tellico Blockhouse was in use during a time when the future of the United States was uncertain. Spain controlled the Mississippi River, the port city of New Orleans, and had built a fort where Memphis now stands. At times, Spain and the United States seemed close to war. The young U.S. Army had suffered devastating losses at the hands of American Indian confederations. The United States could not face both American Indian and Spanish forces. Through establishments such as the Tellico Blockhouse better relations were fostered between the U.S. and many American Indian cultures. The Cherokee people and the U.S. citizens could remember recent atrocities. This garrison of American soldiers was a symbol of military power but also of the government's intent to keep order. No longer would roaming militias and bands of Cherokee repay violence for violence. Negotiations would take the place of violence. Much of what is now known as Tennessee was signed over by the Cherokee at the Blockhouse.

By 1807, few Cherokee remained in the Little Tennessee River Valley. The Blockhouse was no longer a convenient place for them to meet. The garrison was relocated down along the Hiwassee where many of the Cherokee had moved. A few soldiers did remain at the Blockhouse through December 1811 but official functions were taking place elsewhere.

Today the Tellico Blockhouse is in a state of stabilized ruin. Visitors can walk the ground once walked by the Cherokee, soldiers, and agents of government. The site is part of Fort Loudoun State Historic Area and is a day use area. This establishment, spurred by the governor of the Territory Southwest of the River Ohio, is now overseen by the State of Tennessee.

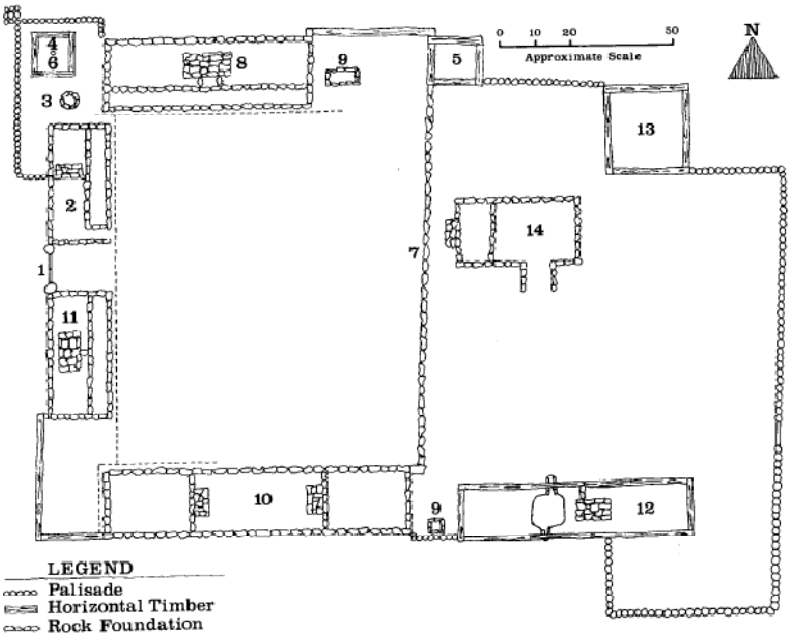
FORT LOUDOUN STATE PARK

THE TELLICO BLOCKHOUSE



The sketch, based upon existing records, depicts the Tellico Blockhouse as it might have appeared in 1779.

THE TELLICO BLOCKHOUSE
Drawing of Ruins Restoration



Sketches of Tellico Blockhouse. Information taken from Tennessee State Parks: http://www.tennessee.gov/environment/parks/FortLoudoun/.

FORT LOUDOUN STATE PARK

Aerial view of Fort Loudoun State Park (top) and Tellico Blockhouse (bottom).

Tellico Blockhouse (40MR50): The site consists of an extensive Federal Period military and trade complex underlain by evidence of aboriginal occupation during the Mississippian, Woodland, and Archaic periods. The Tellico Blockhouse was established by William Blount in 1794. Three seasons of excavations sponsored by TVA through UT have resulted in the near total excavation of the site.

Chota (40MR2)and Tanasi (40MR62): Are Cherokee Overhill villages that were listed on the National Register in 1973. The sites are located 7 miles above the confluence of the Tellico and Little Tennessee Rivers.

CHOTA WILDLIFE MANAGEMENT

General Information

Soon after Tellico Reservoir was inundated in November 1979, the Tennessee Wildlife Resources Agency (TWRA) expressed interest in developing a Wildlife Management Area (WMA) and Waterfowl Refuge on portions of the TVA retained lands and water area on the upper reaches of the reservoir. Following negotiations with TVA Lands Management and Wildlife Resources Staff, approximately 5,000 acres of land and water area was placed under a license agreement with TWRA. This license agreement allowed for the development and State proclamation of the Tellico Lake Wildlife Management Area and Chota Waterfowl Refuge in 1985. The Chota area had been recognized by TWRA and TVA waterfowl biologists as having great potential for the development of a waterfowl refuge that would enhance habitat for migratory waterfowl in the East Tennessee Region. The Chota area is locally known as Mayfield Bottoms.

Project Challenges and Successes

While the low-lying croplands in the Mayfield Bottoms area had always attracted some migratory waterfowl, this use was inconsistent due to a lack of flooded food crops that waterfowl prefer for feeding. This led TWRA and TVA biologists to begin exploring funding and additional partnership opportunities for the development of a levee and water control system. These types of structures would allow for seasonal inundation on low lying areas with planted food crops and natural moist soil plants that provide high quality food resources for waterfowl. Ducks Unlimited, Inc., (DU) an organization dedicated to the development of waterfowl habitat across the United States and Canada, was contacted about the Chota Refuge Area potential habitat development project. In 1986, TWRA, TVA and DU developed a three way work agreement that allowed for the construction of a levee and water control structure. This project resulted in back flooding during the winter months of a an approximate 100 acre sub impoundment creating ideal foraging habitat for waterfowl. During the first over-wintering period of operation, approximately 5,000 migratory ducks and geese utilized the Chota Refuge Unit as protected and secure foraging and roosting habitat.

Contributions by each Partner

The three way partnership among TVA, TWRA and DU, with the support of local sportsmen and wildlife enthusiasts, was critical to the creation of the Chota Refuge Unit. TWRA continues to operate the Refuge and the remainder of the Tellico Lake Wildlife Management Area with annual funding coming primarily through the sale of hunting licenses and permits. Over the years, TVA has contributed biologist staff time and materials, as available, on partnership projects with TWRA and Quail Unlimited to enhance habitat for other wildlife guilds on the WMA.

CHOTA WILDLIFE MANAGEMENT

View of flooded portion of Chota Refuge which provides habitat for migratory and wintering waterfowl

CHOTA WILDLIFE MANAGEMENT

Views of flooded portions of Chota Refuge which provides foraging and loafing habitat for numerous waterbird species including ducks, geese, herons, egrets and shorebirds.

CHOTA WILDLIFE MANAGEMENT

Upper photo: Flooded portion of Chota Refuge
Bottom photo: Tanasi Memorial

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