



**Monitoring and Evaluation Report  
Land Between The Lakes  
National Recreation Area  
Fiscal Year 2013**



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All program areas were consulted in the development of this report.

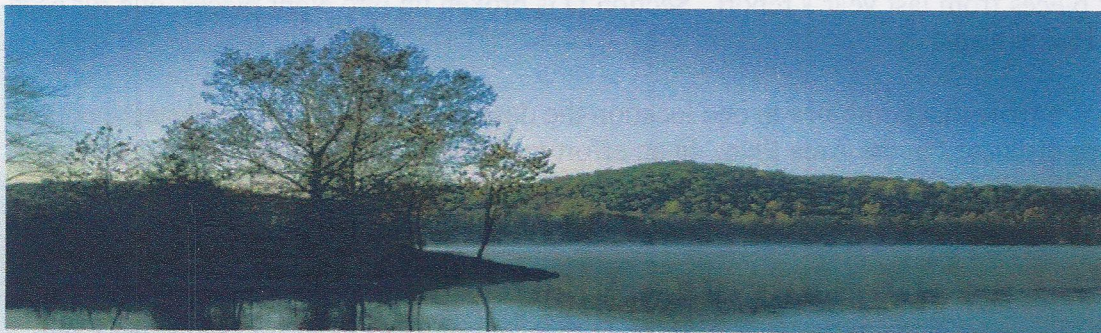
## A. Forest Supervisor's Certification

I joined Land Between The Lakes in June, 2013 to continue the implementation of the 2004 Land and Resource Management Plan (Area Plan). Staff completed most of the FY2013 activities described in this Monitoring and Evaluation Report prior to my arrival. After reviewing the report, I endorse the results and find the Area Plan sufficient to guide land and resource management of LBL for the foreseeable future.



TINA R. TILLEY  
Area Supervisor

7/11/14  
Date



*Land Between The Lakes undeveloped shoreline.*



## B. Introduction

This Monitoring and Evaluation (M&E) report provides a comprehensive report of the last fiscal year's efforts implementing the Area Plan. The Area Plan guides the management of LBL and can be found on the internet at [www.lbl.org/LRMPPlanning.html](http://www.lbl.org/LRMPPlanning.html). We include accomplishments and trends at the U.S. Forest Service (FS) Land Between The Lakes (LBL) National Recreation Area (NRA) in FY13.

The report emphasizes the findings and conclusions compiled from various monitoring activities and data sources available on the unit. As stated in Section 2 of the Area Plan, the monitoring and evaluation program serves as an important link between Plan implementation and on-the-ground accomplishments. Evaluations in this report serve as a springboard to any needed changes within the Area Plan or its implementation. The M&E program determines and informs the Area Supervisor on whether:

- ❖ Goals and Objectives are being achieved;
- ❖ Design Criteria are being followed;
- ❖ Implementation effects are occurring as predicted;
- ❖ Emerging or unanticipated issues are arising.

No comments were received about last year's report. For continuity, we continued discussion of the relevant pieces from last year's report. Section D is broken up into eight pieces, one for each of the Area Plan's goals.

Each goal has a table that combines in one location the desired condition and trend statements, and relevance discussed in the Area Plan. In an effort to make this a meaningful and usable document while still being a manageable size, we have attempted to summarize only the key conclusions within the body of a "monitoring results and evaluations narrative" following each goal's table.

The heart of the report is the narrative in Section D focusing on the significant items that have driven the conclusions presented.

LBL continued to accomplish activities to strive toward the desired condition in the Area Plan. The remainder of this report discusses these activities. Actual tracking values for many of these accomplishments are listed in the table under Goal 8.

Citizens have a stake in understanding management effects and effectiveness at LBL. Only by hearing from our stakeholders and owners of the public land, can we know whether we are providing the information and program benefits desired. Comments about LBL can always be provided by mail to the Area Supervisor, 100 Van Morgan Drive, Golden Pond, KY, 42211; by electronic mail to [comments-southern-land-between-lakes@fs.fed.us](mailto:comments-southern-land-between-lakes@fs.fed.us); or by phone to Barbara Wysock, Area Planner, at 270-924-2131. We welcome thoughts and comments about this report or any aspect of LBL management at any time.



## C. Executive Summary

This year we worked with the USDA Office of Communications and completed a video to commemorate the 50<sup>th</sup> Anniversary of Land Between The Lakes. The video captures the history of Land Between The Lakes management and activities since 1963. Gift shops operated by *Friends of LBL* offer this video for sale to the public.

Tina Tilley joined Land Between The Lakes National Recreation Area as the Area Supervisor in June 2013, replacing Bill Lisowsky who retired in December 2012. Tina continued leading the implementation of the 2004 Area Plan.

This report is a comprehensive annual M&E report where we review the progress made toward achievement of the goals and objectives of the Area Plan implementation. Each section contains highlights of FY13 trends and evaluations. M&E reports for FY2005-FY2012 are available on the LBL website at <http://www.lbl.org/LRMPPlanning.html>.

Some highlights of the FY2013 M&E report include:

- Commemorated the 50<sup>th</sup> Anniversary of LBL
- Provided educational and recreational opportunities for over 1.4 million visitors
- Completed the Devil's Backbone Environmental Assessment to restore shortleaf pine and shortleaf pine-oak forest on 3,402 acres, including the Tennessee Devil's Backbone Tennessee State Natural Area
- Amended Goal 5, Objective 5f of the Area Plan to increase the amount of acres of shortleaf pine we expect to restore
- Reduced fuels and managed vegetation for wildlife and dispersed recreation through prescribed fire on 5,052 acres
- Continued to implement the realignment of dispersed opportunities in the backcountry, lake access, and day use areas
- Performed heritage work for prescribed fire, timber, openlands, road improvement, and trails projects
- Continued to strengthen the relationship with our partners for the Heritage Programmatic Agreement (PA) in 2013
- Designed and implemented educational programs for visitors, including schools, to apply what they learn at LBL to their homes and communities
- Improved the condition of eight watersheds through a variety of projects listed in the Goal 4 section of this document
- Began restoration of giant river cane in the median of Highway 68/80 near the Old Golden Pond and Elbow Creek area
- Decreased deferred maintenance costs for Piney Campground by replacing bathhouses and for Brandon Spring Group Camp with upgrades
- Implemented trail improvements throughout LBL to improve the sustainability of resources

## D. Monitoring Results and Evaluations

|  |  |
|--|--|
| <b>Goal 1:</b>                                       | <b>Prioritize projects to provide the greatest recreation, Environmental Education (EE), and resource stewardship benefits.</b>  |
| <b>Sub-element NFS Generic Desired Condition</b>     | <p>“LBL will play a pivotal role in supplying and supporting the recreational and EE experiences people seek.”</p> <p>“All vegetation management activities will be designed to sustain or improve wildlife habitats, forest health, recreation opportunities, or EE experiences.”</p> <p>[Area Plan, Vision]</p>  |
| <b>Example Area Plan Desired Condition Statement</b> | <p>“The responsibility for meeting this (recreational and environmental education) increasing demand will fall to those areas and entities capable of providing outdoor recreational opportunities while sustaining natural environments.”</p> <p>“Vegetation management activities will incorporate environmental education messages, themes, and information in programs and projects as much as practical.” [Area Plan, Vision]</p> |
| <b>Desired Trend Statement</b>                       | “Eighty percent of all special projects will have identified and demonstrated benefits to recreation, EE, and resource stewardship.” [Objective 1a]  |
| <b>Monitoring Questions</b>                          | <p>1. Has the Forest Service (FS) made progress toward providing satisfactory recreational and EE experiences to visitors while providing for resource stewardship?</p> <p>2. Have resource management projects been integrated?</p>   |
| <b>Area Plan Performance Measures</b>                | <p>1. Trends in segmented visitation in comparison to numbers of related resource stewardship projects completed</p> <p>2. Number of integrated projects being completed</p>   |
| <b>Data Sources Utilized</b>                         | <p>--Summary of visitor satisfaction surveys or personal letters and notes received; visitation; and focused area accomplishments</p> <p>--Objective accomplishments, summary of integrated projects completed</p>   |
| <b>Importance</b>                                    | This goal contains key emphases of the LBL Protection Act and reinforces the key purposes described for LBL when created in 1963. Optimizing efficiency and integration of resources are also primary objectives of both LBL and the agency.   |
| <b>What It Tells Us</b>                              | The results related to this goal will provide key information about whether LBL is meeting its legislated objectives and tiering to national strategic goals.  |

### Goal 1, Monitoring and Evaluation Narrative

The end of fiscal year 2013 completes the eighth full year of moving toward the desired conditions in the Area Plan. This section of the M&E report highlights the integrated projects found in the remaining sections of this report. Recreation, environmental education, and resource stewardship continue to be the priority for the work we accomplish.

The Devils Backbone interdisciplinary team completed the environmental assessment for 3,402 acres in the Tennessee portion of LBL. This is a project we envisioned in the Area Plan and are very proud to start implementation during FY14. The project area includes the only known native shortleaf pine community in Land Between the Lakes. Key components of the actions the

decision authorizes include to amend the Area Plan to increase to 600 acres combined shortleaf pine and shortleaf pine-oak forest in the vicinity of the Devil's Backbone State Natural Area; to use prescribed fire for vegetation management on 3,377 acres; to develop a combination of 250 acres shortleaf pine and shortleaf pine-oak regenerating forest conditions, 450 mature shortleaf pine, shortleaf pine-oak woodland and open forest conditions, and 500 acres of open mature shortleaf pine-oak forest conditions; to treat non-native invasive species with herbicide on no more than 500 acres per year in the project area; to re-route 0.8 miles, decommission 2.25 miles, and to create a parking area in the Fort Henry trail system; to manage roads in the project area; and to use the project to partner with a local school district to enhance science based field trips.

We implemented projects during FY13 to improve watershed conditions in eight watersheds while completing routine maintenance on facilities, trails and roads across LBL. The fire militia reduced fuels and managed vegetation for wildlife and dispersed recreation through prescribed fire on 5,052 acres in the general forest, openlands, and facilities. We completed open land management on 9,116 acres to enhance wildlife habitat diversity. Silvicultural treatments continue to support a diversity of plant and animal communities enabling sustainable levels of habitat and wildlife populations that support recreation activities for our visitors. LBL continued to implement the realignment of dispersed opportunities in the backcountry, lake access, and day use areas across LBL. Dispersed Environmental Education (EE) programs incorporate all of these projects through offerings at our EE facilities, campgrounds, and off-site. For example, programs for Eagle Tours and Nature Watch Tours we regularly sponsor from the Nature Station highlight the benefits to wildlife from responsible, science based natural resource management.

## **Heritage**

Heritage staff recorded or identified approximately 200 sites while conducting nineteen compliance projects in 2013 as part of the integrated project workload (see table 1.a). Heritage staff performed work for ten prescribed fire projects, four timber projects, and two road improvement projects. Recreation projects included fifty-eight miles of survey in preparation for improvements along the Wranglers equestrian trails. Heritage staff also completed 102 acres of open lands surveys.

The priority among the integrated workload was to survey the remaining 4,430 acres for the upcoming Pisgah EA. The project will provide improvements to wildlife and recreation opportunities within the Pisgah watershed. With help from our partners at the Great Onyx Job Corps, we completed 1,397 shovel test pits as part of the survey and discovered four previously unidentified heritage sites. We still have approximately eighty-six sites to formally record in order to complete the project by the third quarter of 2014.

We completed a survey of fifty-eight miles along the Wranglers equestrian trail system in preparation of trail improvements. That survey resulted in two previously unidentified sites.

This year LBL completed 5,052 acres of prescribed burns. We provided protection measures for eight cemeteries and forty-two historic sites during fire implementation. Post-burn surveys following those prescribed burns resulted in the formal recording of 106 historic sites after fire effects reduced vegetation and improved visibility of site features for proper documentation.



With three active timber contracts ongoing throughout the year, as well as the Communication Upgrade projects, we monitored the condition of eleven heritage sites designated as exclusion zones to be protected from adverse impacts.

| <b>Project</b>  |   |   |
|---|---|---|
| <b>Prescribed Burns</b>   |   |   |
| <b><i>Postburn Surveys</i></b>                                    | <b><i>Monitored</i></b>   | <b><i>Recorded</i></b>  |
| Crossroads: Lady Block D  | 5 site locations, 1 cemetery  | 17 sites  |
| Crossroads: Lady Block B1   | 0 site locations, 1 cemetery  | 4 sites   |
| Crossroads: Lady Block B  | 9 site locations, 1 cemeteries  | 9 sites   |
| Crossroads: Hildreth NE Block A                                   | 13 site location, 1 cemetery  | 32 sites  |
| Crossroads: Hildreth SE Block C                                   | 11 site locations, 0 cemeteries   | 28 sites  |
| Demumbers: Block B  | 0 site locations, 0 cemeteries  | 0 sites   |
| Demumbers: Block C  | 0 site locations, 1 cemetery  | 2 sites   |
| Demumbers: Block D  | 4 site locations, 1 cemetery  | 11 sites  |
| Demumbers: Block E  | 0 site locations, 0 cemeteries  | 0 sites   |
| Demumbers: Block F  | 0 site locations, 2 cemeteries  | 3 sites   |
|   |   |   |
| <b>Timber</b>   | <b>Survey</b>   | <b>Sites Recorded and Excluded</b>  |
| Pisgah EA (fieldwork in progress)                                 | 4,430 acres complete<br>102 acres of open lands<br>1,397 Shovel Test Pits | 0 sites recorded of<br>86 identified during background research<br>4 new sites identified in field survey |
| <b><i>Timber Sale Monitoring</i></b>                              | <b><i>Previously Recorded</i></b>   | <b><i>Protection</i></b>  |
| Demumbers Creek   | 1 site  | 1 exclusion zone monitored  |
| Willow Creek  | 2 sites   | 2 exclusion zones monitored   |
| Prior West  | 4 sites   | 4 exclusion zones monitored   |
|   |   |   |
| <b>Engineering</b>  | <b>Survey</b>   | <b>Monitoring</b>   |
| Rd 214 Culvert Replacement Monitoring                             | ~0.1 mile (spot location)   | 1 site  |
| Rd 237 Improvement Monitoring                                     | 0.75 miles  | 1 site  |
|   |   |   |
| <b>Recreation</b>   | <b>Survey</b>   | <b>Sites Recorded</b>   |
| Wranglers Trails CMLG   | 58 miles  | 2 sites recorded  |
|   |   |   |
| <b>Communications</b>   |   | <b>Sites Recorded/Monitored</b>   |
| Communication Upgrade 2:Hillman (report and monitoring completed) |   | 2 sites recorded:<br>2 sites excluded   |
|   |   |   |
| 2013 Open Lands Survey  | 102 acres completed   |   |
|   |   |   |

Table 1.a. Summary of 2013 Integrated Resource Management Projects.

|  |   |
|--|---|
| <b>Goal 2:</b>                                       | <b>Emphasize partnerships and cooperation with citizen groups, community businesses, private corporations, tourism organizations, and government agencies.</b>  |
| <b>Sub-element NFS Generic Desired Condition</b>     | “LBL will continue to be a destination point for visitors throughout the region and nation, thereby contributing to the local and regional economy.” [Area Plan, Vision]  |
| <b>Example Area Plan Desired Condition Statement</b> | “Maintaining and developing partnerships will be important to keeping LBL positioned as a premiere recreation/EE destination.”<br>“The public will continue to play an important role in project-level actions and decisions.” [Area Plan, Vision]  |
| <b>Desired Trend Statement</b>                       | “Establish at least one local partnership for tourism, economic development, or EE; and at least one new cooperative with a regional, state, and federal agency or organization annually in support of the LBL mission.” [Objective 2a]<br>“Increase visitation to more than 2 million visitors per year by the end of 2015 to support local and regional economies. [Objective 2b] |
| <b>Monitoring Questions</b>                          | 3. Has the Forest Service (FS) made progress toward supporting vitality of gateway communities and maintaining/enhancing relationships with its neighbors and regional organizations?   |
| <b>Area Plan Performance Measures</b>                | 3. Trends in visitation, levels of community participation  |
| <b>Data Sources Utilized</b>                         | --Summary of visitation results, community participation in meetings, programs provided, grants sponsored, cooperative gateway projects, feedback from elected officials and business leaders, and visitation<br>--Number of Memorandum of Understandings (MOUs), partnership agreements, and challenge cost share agreements with local, regional, and state agencies              |
| <b>Importance</b>                                    | This goal contains important strategies for the collaborative delivery of goods and services at LBL. It also reinforces several of the key purposes described for LBL when created in 1963, namely to work cooperatively with the gateway communities in support of their strategic direction.  |
| <b>What It Tells Us</b>                              | The results related to this goal will provide key information about whether LBL is meeting its stated objectives to work closely with partners and communities and developing strong relationships with local, state, and regional organizations and the public.  |

## Goal 2, Monitoring and Evaluation Narrative

### Partnerships and Community Participation

Land Between The Lakes continues to serve as the keystone in Western Kentucky and Tennessee tourism industry through partnerships and community engagement. Land Between The Lakes helps to generate over \$650 million in tourism dollars as the center piece for the region and working with citizen groups, community businesses, private corporations, non-profit groups,

tourism organizations, and other government agencies. We found from a recent NVUM survey LBL visitors spend \$85 million in the surrounding region each year.

Memberships included:

- Chamber of Commerce (10)
  - Hopkinsville-Christian County, KY
  - Cadiz-Trigg County, KY
  - Grand Rivers, KY
  - Lake Barkley-Lyon County, KY
  - Marshall County, KY
  - Murray-Calloway County, KY
  - Paducah Area, KY
  - Paris-Henry County, TN
  - Stewart County, TN
  - Clarksville Area, TN
- Tourism Organizations (5)
  - Kentucky Western Waterlands (KWW) ([www.kentuckylakebarkley.org](http://www.kentuckylakebarkley.org))
  - Kentucky Federal Agency Tourism Council (KFATC) (<http://federal.tourism.ky.gov/>)
  - Kentucky Travel Industry Association (KTIA) ([www.KTIA.com](http://www.KTIA.com))
  - LBL Lakes Region Tourism Coalition ([www.visitlbl.com](http://www.visitlbl.com))
  - Middle Tennessee Tourism ([www.middletennesseetourism.com](http://www.middletennesseetourism.com))

Conference exhibits included:

- Travel South Showcase with the LBL Lakes Region Tourism Coalition in January reached out to tour bus operators bringing tourist to Land Between The Lakes as a destination or stop along the way to another area.
- The National Wild Turkey Federation Convention and Sports Show was held in February in Nashville where we focused on environmental education opportunities along with hunting and fishing.

Other participation included:

- 50<sup>th</sup> Anniversary of Land Between The Lakes 1963-2013. To celebrate 50 years of Land Between The Lakes National Recreation Area, we worked with various groups to help promote our mission.
- We gathered historical and current artifacts that the Museums of Hopkinsville [www.museumsofhopkinsville.org/](http://www.museumsofhopkinsville.org/) showcased in a display dedicated to our 50<sup>th</sup> celebration for the month of April 2013.
- We invited former and current employers to a reunion in August at Brandon Spring Group Center. It served as a time for bonding among friends, coworkers, and family.
- We invited influential government, state, and local leaders to celebrate with us over the June 14, 2013 weekend that kicked off our yearlong celebration. We conducted a familiarization tour for approximately 50 guests that included information on our environmental education, land management, and recreation programs with a Forest Service emphasis.



- We invited former residents, media, and other community residents to the inaugural viewing of our 50<sup>th</sup> Anniversary video produced by USDA media. We also served cake from Brandon Spring Group Center after the viewing.
- We continued our FAM Tours throughout the year. One tour included Rob Hankins from Senator Whitfield's Washington DC office. He built a display for us in their suite lobby that visitors could peruse while waiting. Figure 2.1



**Figure 2.1 Display in Senator Whitfield's Office**

In February of 2013, Land Between The Lakes hosted the third annual *Sustainable Business Seminar* for local citizens interested in learning about small business development. We partnered with Murray State University, Tennessee Department of Tourism Development, and Regional Tourism. The seminar was well attended and we received positive feedback from the participants.

We continued to strengthen our relationship with Ft Campbell this year through multiple efforts:

- With the Friends of Land Between The Lakes, we promoted recreation activities at Land Between The Lakes to military families at the June *Ft. Campbell Passport to Safety* event.
- We honored the newly implemented Military Pass for free entry to some of our day-use attractions.
- Two Operation Warfighter participants worked at Hillman Ferry and Piney Campgrounds in campground management and compliance. The Operation Warfighter program assists military personnel with their transition to civilian life while still undergoing medical evaluation from the military.

We continued our partnerships with the Great Onyx Job Corps Center; with Central Hardwoods Joint Venture in restoring grassland bird habitat; and with local counties in demonstrating biomass heating for Lyon County School and Trigg County Hospital.

Smokey Bear attended community events and festivals in FY13, often riding in our fire engine during parades.

## **Friends of LBL and Environmental Education (EE) Partnerships**

Environmental Education (EE) staff continued to work with partners for planning and delivering environmental education at Land Between The Lakes throughout the year.

**Friends of LBL** serve as our primary partner for implementing the EE Master Plan. Our friends group also maintains working relationships with other government agencies and non-government organizations in our EE mission.

Thanks to the efforts of Ross Workman, our Planetarium Manager, the Golden Pond Planetarium is now NASA's official Educational Resource Center for all of Kentucky. We are currently transferring responsibilities from MSU to the Planetarium.

**Soccer Kids in the Woods:** This Challenge Cost Share Agreement from the 2011 More Kids in the Woods Partnership Project continues to reach students and get them out into the woods. In 2013, 316 students and 13 teachers came on special field trips for a Wildlife and Water presentation at the Nature Station. 40, four and five year olds attended a program on Kentucky Wildlife at their day care center with Nature Station staff. Another 40 younger children were also able to view the animals. Fifteen soccer players and their parents came to Brandon Spring over the Memorial Day week-end for recreation and learning about nature. They went on a stream stroll with camp staff. Futskilz Soccer Training staff communicated the foundations of "Get Outdoors and Play" to 300 children and families at two "Fight Against Childhood Obesity" events. Players and families transport plastic water bottles from outdoor soccer facilities' collection receptacles to recycling facilities.

We reinvigorated the Challenge Cost Share Agreement with **Stewart County School System** (Dover, TN) to bring students into the woods to study science and monitor a short leaf pine project (Devil's Backbone). Staff met with teachers and then conducted part of a STEM Workshop (Science, Technology, Engineering, and Math) for the county demonstrating project based learning opportunities at Panther Creek and the Short Leaf Trail.



**Figure 2.2** Volunteer Paul Remmer (retired private forester), shows teachers how to core a tree.



**Figure 2.3** A volunteer (retired forester) shows teachers how to measure the height of a tree.



**Figure 2.4** Stewart County teachers take water samples from Panther creek.



**Figure 2.5** Timber Apprentice shows teachers a core sample.



We continue to work with many organizations, including 4 state parks, 15 conservation organizations, 6 universities and colleges, 7 federal and state agencies, 10 local organizations, 7 children's organizations, and 5 professional organizations. Appendix 2 contains a list of the organizations.

One new program this year at the Golden Pond Visitor Center was "Choosing and Using a Telescope". The Western Kentucky Amateur Astronomers and the Friends of Land Between The Lakes Observatory sponsored and partnered this program with the Forest Service. Nine astronomers participated and over 47 people took advantage of this offering. The last visitor left at 9pm.

**Figure 2.6 One employee took the message of Fire Prevention Week to Illinois, speaking to 35 third graders about wildland fire safety and his job as a firefighter (October, 2012).**



## **Partnerships, Agreements and Memoranda of Understanding (MOU)**

Partnerships, agreements, and MOUs provide critical resources that augment facilities and services provided for recreation, natural resource management, and environmental education at Land Between The Lakes. While partnerships have always been a part of how LBL operates, the Area Plan places added emphasis on the value they bring to LBL and the surrounding region.

The cooperative partnership between the Forest Service and Friends of Land Between The Lakes ([www.friendsoflbl.org](http://www.friendsoflbl.org)) continues to provide critical support for us to accomplish the LBL mission. The FY13 Friends of LBL major accomplishments include:

- Managed over 300 volunteers to engage them in projects which produced more than 11,000 hours of service to LBL. Projects included trail work, shoreline cleanup, assistance at special events, and Elk-Bison Prairie monitoring. Groups of college students, scout troops, and individuals from the region and across the United States participated. Combining these hours with those of campground hosts, apprentices and interns; totaled over 111,000 hours of service, valued at more than 2.3 million dollars.
- Represented LBL and Friends of LBL at three consumer shows and regional special events, at numerous meetings of chambers of commerce and tourism promotion organizations, and gave presentations to several civic organizations. Friends of LBL Executive Director served as officer and director in two of the regional tourism promotion organizations.
- Employed interpretive staff for the Woodlands Nature Station, seven people; The Homeplace, seven people; the Brandon Spring Group Camp food service and housekeeping, nine people; and the Golden Pond Planetarium and Observatory, three people.
- Delivered educational programs to over 35,000 visitors each at the Woodlands Nature Station and The Homeplace. Program participation at the Golden Pond Planetarium and Observatory exceeded 24,000.
- Staffed five visitor information centers at Land Between The Lakes. These 13 information clerks interacted with as many as 1.4 million visitors during the year.
- Solicited in-kind and cash contributions from businesses and individuals to enhance visitor experiences at seven special events.

## **Partnering with the National Wild Turkey Federation**

Land Between The Lakes for a fifth year accomplished work through Special Use Permits (SUPs) and a 10-year Challenge Cost Share Stewardship Agreement with the National Wild Turkey Federation (NWTF). Under the SUPs and this agreement, habitat was restored, enhanced, and maintained for the benefit of wildlife species, recreation opportunities, and environmental education. During this year the NWTF managed approximately 5,500 acres of wildlife openings, croplands, hayfields, and native warm season grasslands on Land Between The Lakes. The local NWTF Longspurs Chapter of Cadiz provided \$16,000 of in-kind habitat improvement work. The partnership with NWTF helps provide for wildlife habitat diversity, hunting, and wildlife viewing opportunities at a minimal cost.

National Wild Turkey Federation also completed biomass utilization and wildlife stand improvement with revenue generated from timber salvage operations.

## **Heritage**

We continued to gain momentum during consultation for the Heritage Programmatic Agreement (PA) in 2013. The six consulting parties with signatory responsibilities have agreed on all conditions within the document. We sent the final draft out to the remaining ten consulting parties for review and posted it to the LBL website for public access. The consultation process of the PA continues to strengthen the relationship with our partners.

We had the pleasure of working with students from Eastern Illinois and University of Illinois once again this year. The students learned responsible resource management and the importance of heritage resources while gaining hands on experience with our staff. They helped bring our interpretation to life at the Loves Eve Church, Golden Pond School, and Fenton landscape. We installed our church and school marker posts and planted daffodils at Loves Eve Church and the Golden Pond School. Later in the year another group from Eastern Illinois worked with us to design mosaic stones to mark the locations of historic structures at Fenton. They also contributed to our efforts of working with the public to assist with cemetery clean-up efforts. The students removed brush and carried out debris while our certified sawyers cleared downed trees at Vickers cemetery. Heritage staff removed downed trees from three additional cemeteries throughout the year.

Our relationship with the Great Onyx Job Corps continues to grow stronger. This year we partnered with Great Onyx students to complete over 900 shovel tests during one of our weeklong surveys (see figure 2.7).





**Figure 2.7 Great Onyx Job Corps students and heritage staff.**

We also continue to strengthen our relationship with Murray State University. This year we developed a curriculum to mentor a student and allow them to earn course credit from the university. The student benefits from gaining practical experience while accompanying our staff. The arrangement enables us to offer an agency perspective to a deserving student interested in public resource management.

## **Natural Resource Management**

Two “wood to energy” biomass boilers in Lyon and Trigg Counties utilized fuel in the form of wood chips during FY13. Land Between The Lakes used funding from the America Recovery and Reinvestment Act to provide this fuel. LBL worked with a local company to demonstrate the use of wood pellets in the boilers during FY14.

The forest management staff continued to engage members of the forestry community at the local, state, and national level. Forest staff also served on the Kentucky Prescribed Fire Council, which included state, federal, non-profit, and private sector partners. These numerous resource management partnerships help Land Between The Lakes share expertise, information, and resources to manage natural resources as effectively and efficiently as possible while also sharing and learning with others.

We completed habitat improvement and species monitoring as described under Goal 5 in partnership with non-profit groups, governmental organizations, and local universities, including:

- National Wild Turkey Federation (NWTF)

- Kentucky Department of Fish and Wildlife (KDFWR)
- Tennessee Wildlife Resources Agency (TWRA)
- Friends of Land Between The Lakes
- Austin Peay State University (APSU)
- Murray State University (MSU)

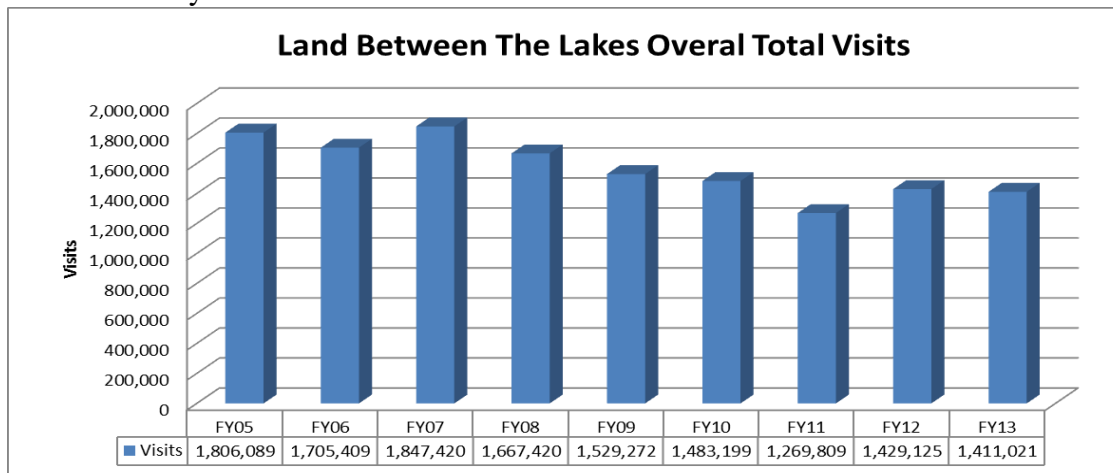
### **Murray State University Regional Agreement**

MSU and LBL share a common mission and vision with regard to education and economic development. Murray State University and the U.S. Forest Service signed a memorandum of understanding in September, 2013 to continue 50 years of successful collaboration with regard to education and economic development, including recreation management, natural resource research, and heritage resource artifact curation.

## 2013 Land Between The Lakes (LBL) Visitation

Land Between The Lakes still hosted a significant number of “regional events” and weekend programs (<http://www.lbl.org/CALGate.html>) that contributed greatly to area visitation. Visitation to these events and programs continued to grow and contribute economically to the local area.

Overall visitation was down by 1.3% in FY13 compared to FY12 (Figure 2.8 and Table 2.a). With such a small variance in visitation, overall impacts on what may have affected visitation are hard to identify.



**Figure 2.8 Land Between The Lakes Visitation**

While some progress has been made, it is too costly and difficult to quantify any significant market segment visitation trends in comparison to numbers of related resource stewardship projects completed. Early signs indicate initial efforts are being met with reasonable success. In targeted LBL recreational facilities where Environmental Education is deeply rooted, as in the case of the day-use facilities, The Homeplace and Woodlands Nature Station, participation has decreased slightly or stayed steady each fiscal year since our Area Plan-inspired focus (Table 2.a). Brandon Springs Group Center continues to struggle with outside variances that have a dramatic effect on visitation such as; school budgets and policies, rise in transportation cost, and other similar factors.

**Table 2.a Visitation at Day-Use Facilities**

|  | % Change from Previous Year |            |            |            |            |            |            |            |
|--|-----------------------------|------------|------------|------------|------------|------------|------------|------------|
|  | FY06                        | FY07       | FY08       | FY09       | FY10       | FY11       | FY12       | FY13       |
| Participation/Visitation               | (% change)                  | (% change) | (% change) | (% change) | (% change) | (% change) | (% change) | (% change) |
| The Homeplace (Admissions)             | 7                           | 9          | -2         | 4          | -3         | -8         | 9.5        | -5.6       |
| Woodlands Nature Station (Admissions)  | 8                           | 10         | 0          | 10         | 2          | -7         | 7          | -1         |
| Brandon Spring Group Camp (Overnights) | 9                           | 2          | -6         | -4         | -9         | 6          | 0          | -6         |

<sup>1</sup> Visitation for The Homeplace and Nature Station are based on the point-of-sale or retail management system. Brandon Spring Group Center visitation is provided by the Center’s housing reports.

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| <b>Goal 3:</b>                                       | <b>Utilize a variety of methods and opportunities to provide an Environmental Education message to every visitor.</b>   |
| <b>Sub-element NFS Generic Desired Condition</b>     | “EE messages, information and principles will be incorporated into all projects on LBL through diverse cooperative, interdisciplinary efforts designed to potentially reach every visitor to LBL.” [Area Plan, Vision]  |
| <b>Example Area Plan Desired Condition Statement</b> | <p>“EE will emphasize more non-facility-based messages, programs, and projects. The current EE facilities will remain hubs for expansion of the reach and effect of the EE programs and projects. EE programs will be integrated with recreation activities and will provide messages and information to recreational visitors that make them more aware of the importance of sustaining their environmental surroundings while participating in their desired activity.”</p> <p>“Self-guided loop trails, road pull-offs, viewing blinds, and EE messages in these areas (Nature Watch Demonstration Areas) will engage visitors with the natural environment. “EE will be an integral component of activities in the Oak Grassland Demonstration Areas. Visitors will be able to watch and learn about the application of various vegetation management practices used to restore native ecological communities.” [Area Plan, Vision]</p> |
| <b>Desired Trend Statement</b>                       | <p>“Ensure that 80% of LBL communications, programs, and activities have an interwoven EE message.” [Objective 3a]</p> <p>“An average of one to two user impact challenges will be addressed annually through EE.” [Objective 3b]</p>   |
| <b>Monitoring Questions</b>                          | 4. Has the FS made progress toward successfully changing behaviors as a result of EE experiences to visitors?   |
| <b>Area Plan Performance Measures</b>                | 4. Trends in on-site visitor behaviors and visitor comment surveys.   |
| <b>Data Sources Utilized</b>                         | --Summary of visitor information surveys or personal letters and notes received, project accomplishments, annual monitoring results, programs, and communication products completed   |
| <b>Importance</b>                                    | This goal contains one of the key emphases of the LBL Protection Act and reinforces the key purposes described for LBL when created in 1963. Effective delivery of conservation education messages is also a primary objective of both LBL and the agency.  |
| <b>What It Tells Us</b>                              | The results related to this goal will provide key information about whether LBL is meeting its legislated objectives.   |

### Goal 3, Monitoring and Evaluation Narrative

Over the past five years, visitors are making behavioral changes. The overarching program or banner for encouraging ethical behavior is “Respect the Resource”. We use this as our conservation messaging venue and recognizable reminder for many behaviors we encourage. As a result, campers recycle; visitors to our day use facilities recycle; visitors carry re-usable water containers instead of disposable water bottles; people recycle fishing line instead of trashing and endangering wildlife; and, most OHV riders respect trail boundaries in support of site restoration and a designated trail system in Turkey Bay.



Other environmental education programs continue to encourage people to plant native plants at home, consider organic gardening, build bluebird and bat roosting boxes, and turn their yards into backyard habitat for monarch butterflies, birds, bats and other wildlife. We partnered with a small local nursery to grow native plants from seed or cuttings taken from the native gardens at Nature Station and sold them at several educational events this year. Staff design educational programs so visitors can apply what they learn at LBL to their homes and communities. Eagle scouts, along with Nature Station staff, installed several more bat roosting boxes. This provides roosting habitat for several bat species and at the same time encourages more natural insect control in several recreation areas.

Boy Scouts frequently find ways to put their skills to use at Land Between The Lakes. They installed eight bat boxes at Hillman Ferry Campground (Daniel DeNeve, from Boy Scout Troop 200 in Paducah, volunteered one fall weekend to earn his Eagle Scout badge); and eight at Piney Campground (Boy Scout Troop 22 from Paris, TN contributed their efforts on Oct. 13). These projects benefit visitors and the natural resources as bats are our most significant predator of night insects like mosquitoes. One single little brown bat eats up to 1000 mosquitoes per night! These links have photos, etc.: <http://flic.kr/p/dY4cij> and <http://flic.kr/p/dY4bb3>

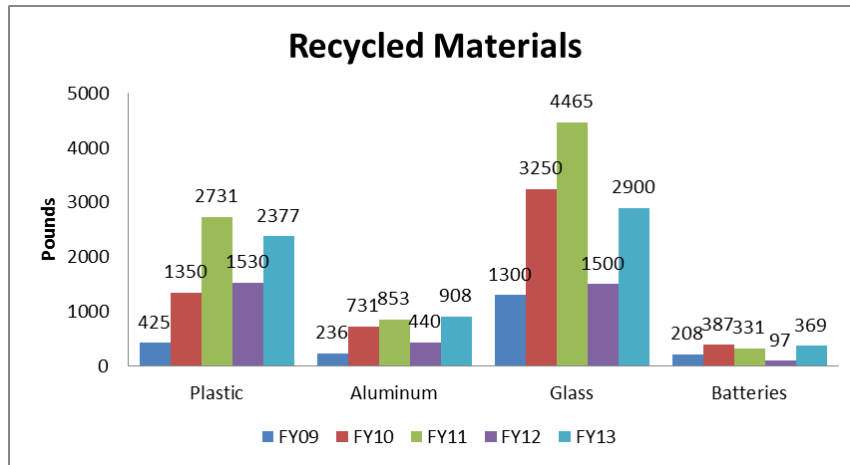


**Figure 3.1 Scout and Hematite Bat Box**

### **Respect the Resource and Volunteers**

Under the banner of “Respect the Resource”, LBL continued to recycle and increase the opportunities to keep recyclables out of trash headed for landfills in 2013. Over two tons scrap metal and twelve pounds fishing line were recycled in addition to the materials shown in the graph below.





**Figure 3.2 Recycled Materials**

In April, three LBL staff members participated in the Trigg County “Day of Play” hosted by the Trigg County Health Department (Figures 3.3 and 3.4). The goal of the event succeeded to encourage families to get outside and participate in a series of activities that required everyone to be active. LBL staff set up an activity area where families competed in a “recycling relay”, running items to a sorting pile which required them to decide if an item could be recycled or not. This combination of activity and taking home a conservation message provided awareness about recycling opportunities in Trigg County and LBL. The event attracted over 125 participants. We plan to participate again in 2014.



**Figure 1.3 Trigg County Day of Play**



**Figure 3.4 Trigg County Day of Play**

During the summer, LBL hosted an intern from Murray State University to help with various aspects of the recycling program. Now that a majority of the infrastructure is in place to deal with collecting recyclable material, we focused on awareness of the program and educational opportunities to increase participation in recycling. He facilitated numerous recycling activities at Hillman Ferry and Piney campgrounds. Programs took place every weekend from mid-May through mid-August. He developed fun activities that taught campers about recycling and encouraged campers to use recyclable materials in arts and crafts. He created incentives that led to campers to sort through their trash and bring their recyclables to be measured and placed in the bins. He also coordinated an electronics recycling pickup resulting in 3,372 pounds of e-scrap being diverted from the landfill.

## **Volunteers**

Our volunteer program provides another form of education through public participation. In FY 2013, volunteers contributed 112,447 hours collecting trash, building and installing bat houses, improving many miles of trails, building benches, working on heritage restoration projects, working at campgrounds or day use facilities, and helping out at special events for Environmental Education. See Table 3.a.



| <b>Year</b> | <b>Volunteer Hours</b> |
|-------------|------------------------|
| 2013        | 112,447                |
| 2012        | 108,346                |
| 2011        | 103,189                |
| 2010        | 123,579                |
| 2009        | 106,824                |
| 2008        | 112,827                |
| 2007        | 92,014                 |
| 2006        | 93,047                 |
| 2005        | 104,686                |

**Table 3.a Volunteer Hours**

This year we hosted multiple Homeplace workdays to allow volunteers to help on our 1850's farm to get ready for spring and prepare for winter. Volunteers were also fed an authentic 1850's meal for their efforts.

**Figure 3.5 Virginia Commonwealth University students volunteer during spring break, 2013 maintaining the Central Hardwoods Scenic Trail.**



## Environmental Education

The experiences visitors receive and how they incorporate these outdoor recreation and environmental education experiences into their lives serves as our main mission. Over 205,700 people visited our EE facilities in FY 2013 (See Table 3.b).

**Table 3.b Participation in EE Programs at Facilities**

| Facility and Contacts                                      | FY 09  | FY 10  | FY 11  | FY 12  | FY 13  |
|--|--------|--------|--------|--------|--------|
| <b><u>Brandon Spring Group Center</u></b>                  |        |        |        |        |        |
| # attended   | 6,820  | 6,644  | 6,958  | 7,157  | 6,450  |
| Groups   | 104    | 87     | 108    | 109    | 106    |
| Programs   | 474    | 482    | 461    | 585    | 570    |
| <b><u>Woodlands Nature Station</u></b>                     |        |        |        |        |        |
| # attended   | 37,622 | 40,135 | 41,526 | 44,764 | 37,537 |
| # at off site  | 1,117  | 3,491  | 1,278  | 511    | 128    |
| Students   | 5,160  | 5,312  | 6,294  | 6,561  | 5,568  |
| <b><u>Golden Pond Planetarium &amp; Visitor Center</u></b> |        |        |        |        |        |
| Visitors   | 84,586 | 78,415 | 94,381 | 71,258 | 70,098 |
| # attended shows   | 19,388 | 15,545 | 9,127  | 19,034 | 20,321 |
| Students   | 2,904  | 2,640  | 2,695  | 2,909  | 3,487  |
| <b><u>Homeplace 1850 Farm</u></b>                          |        |        |        |        |        |
| # attended   | 35,537 | 34,645 | 34,436 | 37,791 | 30,999 |
| # at off site  | 845    | 425    | 400    | 782    | 120    |
| Students   | 4,507  | 4,015  | 5,354  | 5,901  | 4,863  |
| <b><u>Elk &amp; Bison Prairie</u></b>                      |        |        |        |        |        |
| # visitors   | 93,750 | 80,798 | 63,839 | 84,415 | 83,115 |

Land Between The Lakes offers an amazing variety and number of educational special programs and events at the Homeplace 1850 Farm, Woodlands Nature Station and Golden Pond Planetarium throughout the year, including:

**Homeplace 1850 Farm:** Snap Apple Night; Christmas in 1850; Civil War comes to The Homeplace; Fort Henry Anniversary Walk; Country Wedding; Quilt Show; Sheep Shearing; Old-Time Music Festival; Children's Day; Independence Day Celebration; Storytelling Festival & Trades Fair.

**Nature Station:** Nature Arts Day; Wolf Week; Howl-O-Ween; Cub Scout Day; Fall Frolic; Kids' Spring Break Programs; Jr. Forest Ranger Day; Earth Day Celebration/Spring Wildflower Weekend; Homeschoolers' Day; Birding Bonanza; River Days; Cool & Crawly Critters Day; Hummingbird Festival; Summer Finale; Elk & Bison Prairie Celebration.

**Golden Pond Planetarium:** National Astronomy Day; Elk & Bison Prairie Celebration; Star Parties during summer Friday nights; special seasonal shows, and daily shows on the hour.

These special programs are in addition to the daily talks and demonstrations and account for the large numbers of visitors at those facilities.



**Figure 3.5 Employees staff booths during the Elk & Bison Prairie Celebration**



**Figures 3.6 Bison at the Elk & Bison Prairie**

Land Between The Lakes participated in the National Fee Free Days through our day use facilities. We also supported our local active military families through the Military Pass. (Table 3.c) The total dollar value for these free visits equates to \$39,664 based on \$5 per adult and \$3 per child. Military passes account for \$9,775 of this total. This chart shows how many people took advantage of those days and passes.



**Table 3.c Free Day and Military Pass Participants**

| Free Admittance   | Nature Station | Homeplace | Totals |
|-------------------|----------------|-----------|--------|
| Adults            | 1,549          | 1,346     | 2,895  |
| Children          | 3,241          | 1,897     | 5,138  |
| Military Adults   | 592            | 940       | 1,532  |
| Military Children | 327            | 378       | 705    |
| TOTAL             |                |           | 10,270 |

**Figure 3.6 Homeplace visitors peek into the blacksmith shop on a cool, fall afternoon.**



Soccer Kids in the Woods project continued into 2013 as year **three** of the Challenge Cost Share Agreement. Three second grade classes (316 students) came on special field trips for a Wildlife and Water presentation at the Woodlands Nature Station. Nature Station staff presented a program on Kentucky Wildlife to 40, four and five year old children at their day care center. These children and 40 toddlers viewed some native wildlife up close. Fifteen people from Soccer Kids in the Woods came overnight to Brandon Spring for recreation and learning about nature. They enjoyed a stream stroll with camp staff during their stay.

Campground interpretive programs reached 292 children of camping families at Piney and Hillman Ferry Campgrounds with messages about nature, recycling and taking care of public lands.

Our field trip grant program encourages new schools and classes to bring students on single and multi-day trips to LBL. We allocated money to fully fund schools who applied for the 2013/2014 school year. These monies included FY13 funds plus funds from the previous year that were not used by a few schools. Two groups declined the grant this year which created \$849 for next year's (2014/2015) cycle. Table 3.d shows the numbers and dollars for the program.

| Fiscal Year | # of Schools/Groups | # of Students | \$ from LBL | \$ from other FS | \$ from grants and donations | Total \$ allocated |
|-------------|---------------------|---------------|-------------|------------------|------------------------------|--------------------|
| 2006        | 16/19               | 1,249         |             |                  | 12,000+                      | 13,078             |
| 2007        | 17/21               | 1,444         |             | 10,000           | 3,000                        | 13,078             |
| 2008        | 21/32               | 2,493         | 5,000       | 5,000            | 12,000                       | 12,580             |
| 2009        | 20/25               | 1,983         |             |                  | 16,000                       | 16,123             |
| 2010        | 22/24               | 1,771         |             |                  | 17,271                       | 17,271             |
| 2011        | 22/24               | 2,121         |             |                  | 7,900                        | 18,124             |
| 2012        | 26/29               | 2,380         | 5,750       | 0                | 14,096                       | 19,846             |
| 2013        | 15/15               | 1388          | 0           | 0                | 16,124                       | 16,124             |

**Table 3.d Field Trip Grant Program**



**Figure 3.8 Students staying at Brandon Springs Group Center paddle on Bard's Lake**

## **Heritage Education**

This year we continued to work with our volunteers to promote heritage education. Waynette Westerfield, a LBL volunteer, continues her efforts to improve the availability of educational material through the LBL website. She made significant progress this year in organizing the material needed to create an interactive map to provide access to oral histories, photos, and background information on former communities, schools, and church locations.

In one of our favorite annual events, we conducted another successful outreach program about Native Americans. Heritage staff offered participants of all ages the opportunity at Piney Campers Fair to learn about Native American games and make their own crafts from scratch.

We provided two presentations about the LBL heritage program at the 2012 Southeastern Archaeological Conference held in Baton Rouge, Louisiana. One of the presentations highlighted our public education and interpretation programs. The second presentation focused on how we use non-invasive geophysical methods at cemeteries as a means to strengthen the relationship with local residents and partnering agencies.

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| <b>Goal 4:</b>   | <b>Manage natural and physical resources, and authorized FS activities, to reduce erosion or deterioration of riparian areas and watershed conditions.</b>  |
| <b>Sub-element<br/>NFS Generic<br/>Desired<br/>Condition</b>     | “Restoration of riparian area functioning and improvements of priority watersheds will be another focus of the resource improvements.” [Area Plan, Vision]  |
| <b>Example Area<br/>Plan Desired<br/>Condition<br/>Statement</b> | <p>“Damage to natural resources caused by unmanaged recreation activities will be reduced...”</p> <p>“Roads will continue to be integral to many activities at LBL, but will be kept to the minimum number needed to meet the needs of multiple use management. The road system and its road segment maintenance levels will continue to be evaluated and modified, as appropriate. Evaluations will result in reconstruction or decommissioning of roads, when necessary, to improve watershed condition, facility and activity access, and wildlife habitat.” [Area Plan, Vision]</p> |
| <b>Desired Trend<br/>Statement</b>                               | <p>“Within a 10- year period, improve two watersheds by one condition class.” [Objective 4a]</p> <p>“The 10-year trend will be to reconstruct 10 to 15 miles of trail annually.” [Objective 4b]</p> <p>“Unneeded roads will be decommissioned to improve watershed condition and wildlife habitat. The 10-year trend will be one to three miles per year.” [Objective 4c]</p> <p>“Maintain to objective maintenance level, 75% of system roads and 75% of trails annually.” [Objective 4d]</p>  |
| <b>Monitoring<br/>Questions</b>                                  | <p>5. Has the FS made progress in reducing erosion and improving watershed conditions and how was this accomplished?</p> <p>6. Has the FS established baseline data for channel classification of its major intermittent and perennial streams?</p>   |
| <b>Area Plan<br/>Performance<br/>Measures</b>                    | <p>5. Sediment transport, stream bank stability, water quality parameters, properly functioning riparian areas, watershed condition class.</p> <p>6. Completion of stream classification and determination of channel function process.</p>   |
| <b>Data Sources<br/>Utilized</b>                                 | <p>Watershed Watch program, stream and riparian surveys, number of improved or relocated roads and trails, summary of watershed improvement projects; sample projects during program reviews to determine and document where riparian values, and soil and water resource considerations were implemented through BMPs and design criteria.</p> <p>--Stream inventory of substrate, Level II Rosgen channel type, average water flow (discharge), and stream bank vegetation.</p>   |
| <b>Importance</b>  | This goal emphasizes LBL legislated multiple use mission and the need to direct resources and policies to sustain critical soil and water resources.  |
| <b>What It<br/>Tells Us</b>                                      | The results related to this goal will provide key information about whether LBL is meeting its legislated objectives and tiering to national strategic goals.   |

## Goal 4, Monitoring and Evaluation Narrative

LBL addresses watershed improvement through a variety of programs. We list the work contributing to Goal 4 in Table 4.1 below; and, the description of the work can be found under the sections for Goals 5 and 7. This work resulted in improved stream channels, stream bank stability, aquatic friendly passages, and riparian area functions. These watershed improvements will also reduce soil erosion, sedimentation and improve water quality. The 2011 watershed analysis identified two watersheds most in need of improvement: Dry Creek/Cumberland River (Prior Creek Project Area) and Ledbetter Creek/Kentucky Lake (Turkey Bay OHV Area).

**Table 4.1 2013 Watershed Improvement Activities**

| <b>Sixth Level Watershed</b>               | <b>Activity and Area Plan Goal</b>   |
|--|--|
| Dry Creek/Cumberland River Watershed       | <ul style="list-style-type: none"> <li>• Trails staff improved 6.5 miles of shared-use roads/trails and 12 miles of equestrian trails. (Goal 7)</li> <li>• Fire militia conducted prescribe burns named Three Ponds and Homeplace Fields. (Goal 5)</li> <li>• Created 309 acres of oak woodland and mature oak forest using timber harvest.</li> </ul>                                     |
| Ledbetter Creek/Kentucky Lake Watershed    | <ul style="list-style-type: none"> <li>• NWTf and forest service staff planted 34 acres of shortleaf pine in the Turkey Bay OHV area. (Goal 5)</li> <li>• Trails staff maintained 95 miles of trails and managed the shortleaf pine planting in the Turkey Bay OHV Area. (Goal 7)</li> </ul>   |
| Demumbers Creek/Cumberland River Watershed | <ul style="list-style-type: none"> <li>• Staff implemented 192 acres of timber stand improvement using herbicides. (Goal 5)</li> <li>• Currently managing implementation to create mature oak woodland, and open oak forest and oak and shortleaf pine regenerating forest. (Goal 5)</li> <li>• Fire militia conducted prescribe burns named Crossroads and Demumbers. (Goal 5)</li> </ul> |
| Bards Lake/ Cumberland River               | <ul style="list-style-type: none"> <li>• The Federal Highway Administration reconstructed to standard one mile of road, several new culverts and one bridge. (Goal 4)</li> <li>• Fire militia conducted prescribe burns named Neville Creek and Homeplace Fields. (Goal 5)</li> </ul>  |
| Panther Creek/Kentucky Lake                | <ul style="list-style-type: none"> <li>• Murray State University Hancock Biological Station monitored water quality in the pristine Panther Creek. (Goal 4)</li> <li>• Volunteers worked with Trails staff to close and obliterate Walker Line Trail. (Goal 7)</li> </ul>  |
| Long Creek/Cumberland River                | <ul style="list-style-type: none"> <li>• Fire militia conducted prescribe burn named Nature Station. (Goal 5)</li> </ul>   |
| Crooked Creek/Cumberland River             | <ul style="list-style-type: none"> <li>• NWTf and forest service staff planted 20 acres of shortleaf pine in the Elk and Bison Prairie.</li> </ul>   |



|                               |   |
|-------------------------------|---|
|                               | (Goal 5) <ul style="list-style-type: none"> <li>• Fire militia conducted prescribe burn named Elk and Bison Prairie. (Goal 5)</li> <li>• Murray State University Biology Department monitored water quality in Long Creek Wildlife Refuge and stated the water quality for Long Creek is good. These results are unpublished. (Goal 4)</li> </ul>   |
| McNabb Creek/Cumberland River | <ul style="list-style-type: none"> <li>• Fire militia conducted prescribe burns named Crossroads. (Goal 5)</li> </ul>   |
| Area Wide                     | <ul style="list-style-type: none"> <li>• Trails staff maintained to standard 86 miles of trails. (Goal 7)</li> <li>• Roads staff maintained to standard 140 miles of system roads or 41 percent of roads. This fell short of our annual goal of 75 percent due to budget restraints. (Goal 4)</li> <li>• Forestry staff and wildlife staff treated 762 acres of non-native invasive species (NNIS) in open lands. (Goal 5)</li> </ul> |

LBL monitored and evaluated Best Management Practices on two projects following the protocols of the National Core BMP Monitoring Program. We completed evaluations for Ground-based Skidding and Harvesting in the Willow Creek timber sale (42 acres) by assessing erosion control, vegetation treatment, timing of BMP establishment, and location of skid roads, skid trails and temporary roads.

We used the Chemical Use Near Waterbodies protocol to evaluate a 42 acre Timber Stand Improvement project using stem injection (hack and squirt) herbicide treatment. Staff reviewed distance to a waterbody, chemical type, timing of application, chemical spills or leaks, chemical runoff into waterbodies and effectiveness.

A 200 foot Aquatic Management Zone (AMZ) was left undisturbed for both projects, exceeding the design criteria for riparian corridors in the Area Plan. This 200 foot zone provides additional protection to water resources by providing a rain runoff filter and shoreline erosion protection.

Both sites received excellent ratings when the collected BMP information was entered into the National BMP Monitoring Database. Numerical ratings from the National Core BMP Monitoring Program will be generated nationally after March 2014.



**Figure 4.1 Willow Creek skid trail evaluated using Ground-based Skidding and Harvesting protocol. Note the annual Ryegrass**

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| <b>Goal 5:</b>   | <b>Use a collaborative approach to maintain and restore: 1) a diversity of plant and animal communities that support viability of associated plants, fish, and wildlife; and 2) sustainable levels of habitat and wildlife populations to support public demand for wildlife-related recreation.</b>   |
| <b>Sub-element<br/>NFS Generic<br/>Desired<br/>Condition</b>         | “Visitors to LBL will see active management of forests and other vegetation designed to support ecological needs for forest health and wildlife habitat, in addition to supporting recreational and EE goals.” [Area Plan, Vision]   |
| <b>Example<br/>Area Plan<br/>Desired<br/>Condition<br/>Statement</b> | <p>“Much of the vegetation management program will be aimed at restoring ecological conditions to those best suited for sustaining native wildlife species. Vegetation management will target restoration and maintenance of oak woodlands and open oak forests, native short-leaf pine forests, canebrakes, and diverse structures characteristic of old growth forests.”</p> <p>“Sustainable open land management will be demonstrated through ecological restoration of native grasslands, maintenance of hayfields, and rights-of-way, and continued agricultural practices. Open lands management is directed at providing habitat for wildlife, especially those species in demand for hunting and viewing. Open lands located on sites incompatible with sustaining other resources (such as in riparian corridors) will be allowed to revert to forest, or will be maintained in native grassland or canebrake.”</p> <p>“Active management techniques will include the increased use of prescribed fire, which is documented to sustain native ecological communities and improve habitat for many wildlife species.”</p> <p>“Habitats will be provided for native and desired non-native plants, fish, and wildlife. All vegetation management activities will be designed to sustain or improve wildlife habitats, forest health, recreation opportunities, or EE experiences. The public will continue to play an important role in project-level actions and decisions.” [Area Plan, Vision]</p> |
| <b>Desired<br/>Trend<br/>Statement</b>                               | <p>“In mature oak forests, provide open forest structure on approximately 19,000 acres by the end of the first decade with a long-term objective of 31,000 acres.” [Objective 5a]</p> <p>“In mature oak forests, provide woodland structure on approximately 6,000 acres by the end of the first decade with a long-term objective of 30,000 acres.” [Objective 5b]</p> <p>“Provide a sustained supply of regenerating forest habitats totaling approximately 5,400 acres at any point in time. Regenerating forest will be treated predominantly within oak forests although other forest types and natural disturbances will be included.” [Objective 5c]</p> <p>“Increase the abundance of mature forest habitats toward achieving the long-term objective of approximately 123,000 acres of mature forest, of which 52,000 acres will meet old growth criteria.” [Objective 5d]</p> <p>“In mature forests on moist sites, provide canopy gaps on a minimum of 1,600 acres by the end of the first decade with a long-term objective of a minimum of 9,000 acres.” [Objective 5e]</p> <p>“Create and maintain at least 250 acres of short-leaf pine forests by developing desired mature open forest and woodland structural conditions over the first decade with a long-term objective of 450 total acres of shortleaf</p>  |

|                                       |   |
|---------------------------------------|---|
|                                       | <p>pine forest.” [Objective 5f]</p> <p>“Restore 50 acres of canebrake over the first 10 years of Area Plan implementation, with a long-term objective of 240 total acres of canebrake.” [Objective 5g]</p> <p>“In addition to the approximately 600 acres of open lands currently in native grasses, restore native grasses and forbs to another 750 acres of current open lands within the first 10 years of Area Plan implementation, with a long-term (50-year) objective of 2,600 total acres of native grassland.” [Objective 5h]</p> <p>“Maintain approximately 10,600 acres in open lands-cultivated and grassland cover types to support game species, early successional species, and watchable wildlife. Approximately 1,100 acres of this 10,600 will be converted from cultivated field to grassland within riparian corridors over a 10-year period to improve riparian functions.” [Objective 5i]</p> <p>“Restore and maintain fire regimes and fire return intervals in fire dependent communities by prescribed burning an average of approximately 10,000 acres per year by the end of the first decade, with a long-term objective of 21,000 acres per year on average. Some acres will incur repeat fire application during the planning period.” [Objective 5j]</p> |
| <b>Monitoring Questions</b>           | <p>7. How well are species of viability concern being maintained on LBL?</p> <p>8. How is management of LBL affecting recovery of threatened and endangered species? (Duplicate questions for Measures 9-10)</p> <p>11. How is management of LBL affecting demand for wildlife-related recreation? (Duplicate questions for Measures 12-14)</p> <p>15. How is management of LBL affecting special habitats and major biological communities? (Duplicate questions for Measures 15-25)</p> <p>26. Is the forest less likely to be affected by insects, disease, and wildfire? (Duplicate questions for Measures 26-28)</p> <p>29. Has the FS made progress towards identifying old growth stands on the ground?</p>  |
| <b>Area Plan Performance Measures</b> | <p>7. Trends in key habitats and/or populations of viability concern species.</p> <p>8. Trends in highest risk species.</p> <p>9. Trends in Price’s potato bean populations in relationship to Threatened &amp; Endangered (T&amp;E) Recovery.</p> <p>10. Trends in bald eagle populations in relationship to T&amp;E Recovery.</p> <p>11. Trends in Eastern bluebird populations as a Non-game Demand species.</p> <p>12. Trends in white-tailed deer populations as a Demand Game species.</p> <p>13. Trends in Eastern wild turkey populations as a Demand Game species.</p> <p>14. Trends in Northern bobwhite quail populations as a Demand Game species.</p> <p>15. Trends in pileated woodpecker populations in relationship to Snags in Forested Situations.</p> <p>16. Trends in Eastern bluebird populations in relationship to Snags in Open Forested Situations.</p> <p>17. Trends in Acadian flycatcher populations in relationship to Mature Riparian Forests.</p> <p>18. Trends in Northern bobwhite quail populations in relationship to Grasslands.</p> <p>19. Trends in prairie warbler populations in relationship to Oak Woodlands.</p>   |

|                              |  |
|------------------------------|--|
|                              | <p>20. Trends in Great-crested Flycatcher populations in relationship to Mature Open Oak Forest.</p> <p>21. Trends in wood thrush populations in relationship to Mesophytic and Riparian Forests with Canopy Gaps and Mature Forest Interior.</p> <p>22. Trends in Eastern meadowlark populations in relationship to Grassland.</p> <p>23. Trends in Yellow-breasted chat populations in relationship to All Forest Type Regeneration.</p> <p>24. Trends in composition of aquatic communities dependent on clear water and stable channels.</p> <p>25. Trends in bat population levels.</p> <p>26. Trends in early, mid-, and late-successional forests by prescription group.</p> <p>27. Trends in species diversity, structural diversity, age class, and stocking levels.</p> <p>28. Trends in native insect and disease effects.</p> <p>29. Completed inventory of old growth stands.</p>   |
| <b>Data Sources Utilized</b> | <p>--Habitat trends for key factor indicators used in the species viability analysis assessed through ongoing inventory of vegetation cover and structure types; population status for selected species inventoried and monitored as appropriate for species or species group; species selected based on priorities identified and modified throughout plan implementation using improving information about threats and risks, and in cooperative efforts with conservation partners</p> <p>--Periodic survey and assessment of highest risk species occurrences; project level survey information and accomplishments</p> <p>--Periodic assessment of status of known occurrences; new occurrence inventory</p> <p>--Breeding Bird Survey/Point counts occurrence trends for the bird communities</p> <p>--Summary of data received in deer surveys, harvest statistics; summary of comments related to recreational uses of white-tailed deer</p> <p>--Summary of data received in Breeding Bird Surveys/Point counts, harvest data, and poult summaries; summary of comments related to recreational uses of Eastern Wild Turkey</p> <p>--Surveys similar to those done by the CATT</p> <p>--Collection and analysis of area bat survey data-map and update changes through routine inventories; monitor acres by successional stage and trend; fuel monitoring following regional protocol and condition classes</p> <p>--Acres of hazardous fuels treated through wildland fire use, prescribed fire, and mechanical treatments</p> <p>--Sample for specific insects or disease as evidence of infestations occurs following established protocols for the organisms of concern; track forest health monitoring results to identify emerging concerns</p> <p>--Collection and analysis of old growth characteristics data, locations, and patch size</p> |
| <b>Importance</b>            | <p>This goal contains key emphases of the LBL Protection Act and reinforces the key purposes described for LBL when created in 1963, as well as those legislated for the FS in 1998. Managing LBL under a multiple use plan should lead to many on the ground accomplishments and support primary objectives of both LBL and the agency.</p>   |
| <b>What it Tells Us</b>      | <p>The results related to this goal will provide key information about whether LBL is meeting its legislated objectives, managing ecosystems in a healthy and sustainable way, and are tiering to national strategic goals.</p>  |



## Goal 5, Monitoring and Evaluation Narrative

### Prescribed Fire

Prescribed fire is used as a tool for habitat improvement and hazardous fuels reduction. In 2013, Forest Service staff burned 5,052 acres on LBL. We focused on the Crossroads and Demumbers areas for habitat improvement and fuels reduction treatments in 2013, with additional acres treated on the Elk and Bison Prairie, at Neville Creek, and within facility boundaries.

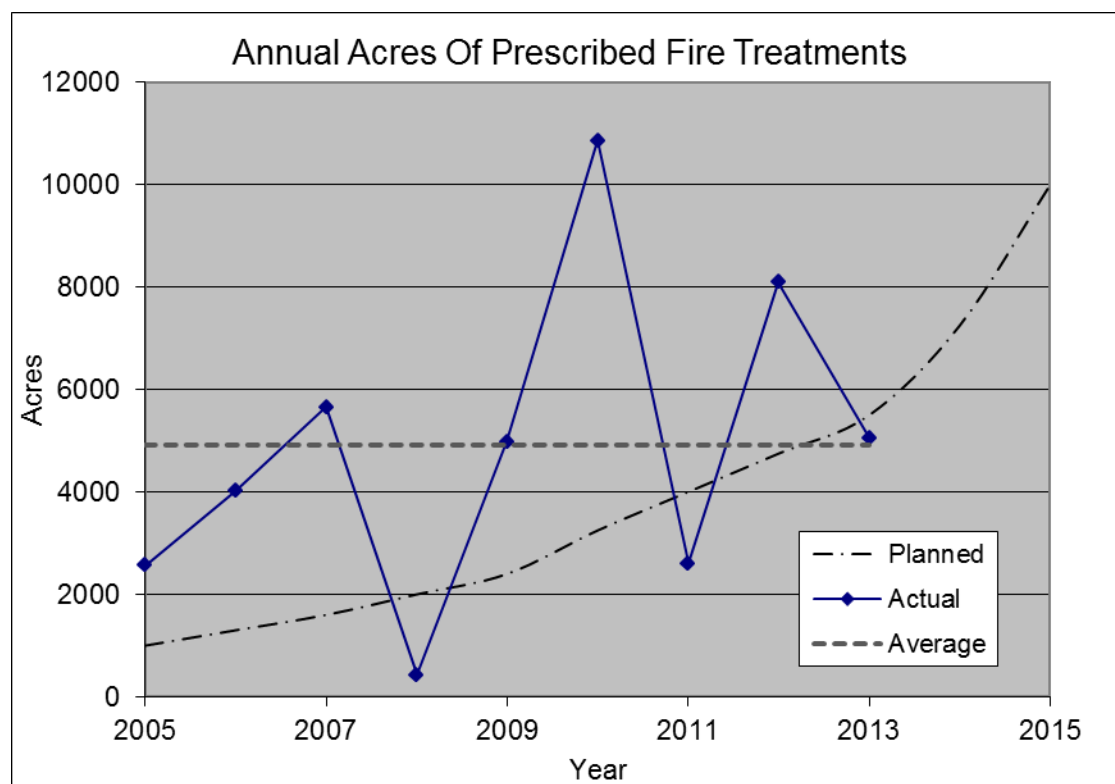


Figure 5.1 Annual Acres of Prescribed Fire Treatments

Staff collected fuels data for the Demumbers project area using photo plots and a modification of Brown's Protocol in the summer of 2011 before prescribe burning and the summer 2013 after prescribe burning. The findings are summarized below. A comparison of the 2011 and 2013 fuel data shows the prescribed fire was of low intensity and overall fuel volume remained relatively unchanged. There was only a slight reduction in the amount of fuel volume found within the fine fuel class ( $< 0.25''$ ). The remaining fuel classes and average duff layer increased slightly. The average fuel depth decreased slightly. Another change in fuel composition is a decrease of the diameter size of the woody debris greater than 3". See Table 5.a below. An example photo plot is shown in Figure 5.2 and 5.3.

Table 5.a Fuels survey data taken before & after 2013 prescribe burn.

| Year | Avg. duff depth (inches) | Avg. fuel depth (inches) | Avg. woody debris >3" diameter, sound (inches) | Avg. woody debris >3" diameter, rotten (inches) |
|------|--------------------------|--------------------------|--|---|
| 2011 | .6                       | .8                       | 5.7  | 6.2   |
| 2013 | 1.1                      | .6                       | 6.6  | 7.1   |



Figure 5.2 Demumbers Pre Rx Plot 7 East Aspect



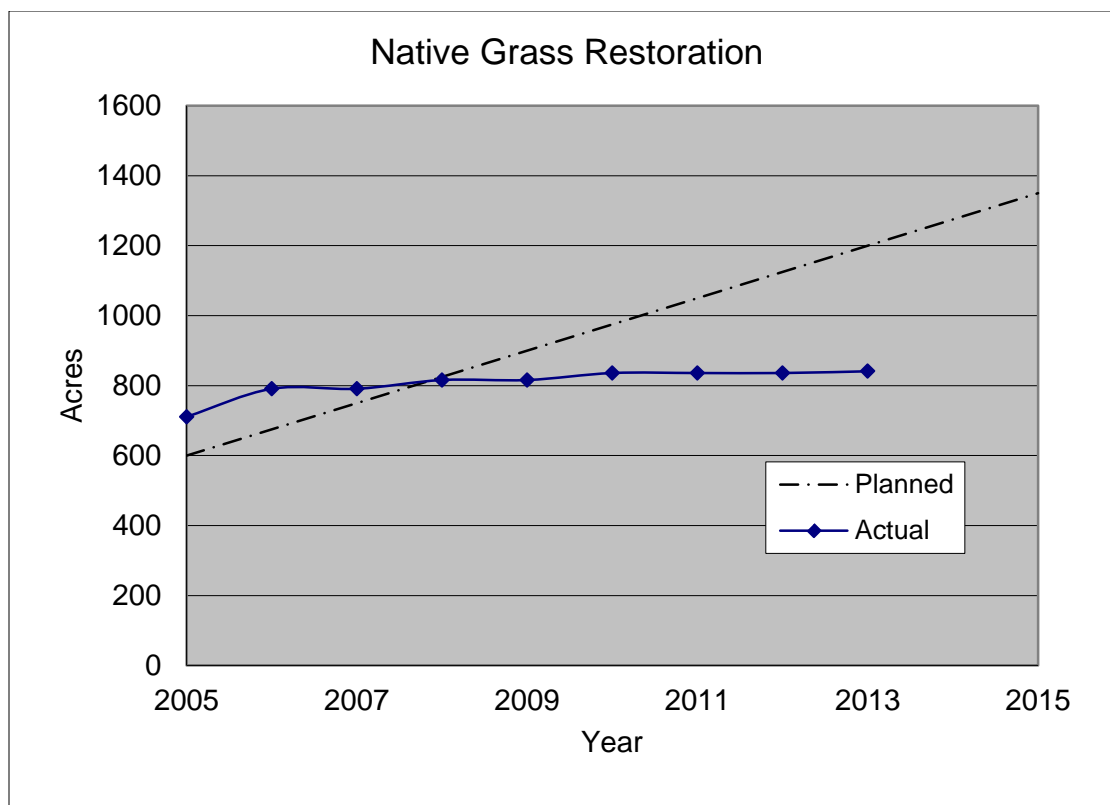
Figure 5.3 Demumbers Post Rx Plot 7 East Aspect

## Wildfires

In addition to prescribed fire operations, LBL had five wildfires (22.5 total acres) ranging from 0.1 to 19 acres. The largest fire, called Tharpe (19 acres) was located across from South Welcome along the Trace and the Fort Henry Road. The second largest fire was called Smokin Jay (3 acres) and was located near Hughes Bay between FS 225 and FS 391-A.

## Open Lands

We completed open land management on a total of 9,116 acres to enhance wildlife habitat diversity. ( <http://www.lbl.org/pdf1/2013-14LBLHabitatMapFullSize.pdf> ) The extreme weather conditions, persistent weeds such as Johnson grass, and budget challenges during the past few years made it challenging to make great strides toward conversion of open lands to native grasses and forbs. Figure 5.4 below illustrates since we began implementing the Area Plan, we restored approximately 241 acres of native warm season grasses on LBL.



**Figure 5.4**

We continued preparing another 32 acres of cool season grass (fescue) hayfield in the Rayburn Hollow area (Tennessee) for conversion to native warm season hayfields. These acres continued receiving treatments to control Johnson grass and fescue growth in 2013. We plan to establish warm season grass on this site in 2014-2015.

#### Rivercane:

In 2013 we planted giant river cane, a native warm season grass and rare community type in LBL on five acres; in the median of Highway 68/80 near the Old Golden Pond and Elbow Creek area. Volunteers (Figure 5.5) and contract staff harvested rhizomes (underground roots) from a small river cane thicket at the edge of the field to transplant them to 6 separate areas in the field. We expect the rhizomes to spread naturally from those 6 areas. We plan to restore another 14 acres of giant river cane in other fields within the median area in early spring of 2014. Restoration of river cane in these previously cultivated fields will reduce soil erosion, and stream sedimentation, and improve soil health. Water quality within the area should improve due to the increased uptake of nutrients and filtering effect river cane possesses.





**Figure 5.5** Volunteers hand planting Giant Rivercane.

**Figure 5.2. Native Grass Restoration**

### **Non-Native Invasive Species**

Non-native invasive species (NNIS) are one of the Forest Service's Four Threats to the health of our forests' ecosystems. In 2013, we treated 762 acres within open land areas to reduce and control NNIS vegetation competition with a combination of fire, mowing, and approved herbicides. The overall success rate for the control of NNIS varied from 25-100% across the areas treated. Primary NNIS species targeted included:

- autumn olive (*Elaeagnus umbellata*)
- loblolly pine (*Pinus taeda*)
- sericea lespedeza (*Lespedeza cuneata*)
- fescue (*Schedonorus phoenix*)
- Johnson grass (*Sorghum halepense*)
- pigweed (*Amaranthus hybridus*)
- cocklebur (*Xanthium sp.*) and
- foxtail (*Setaria sp.*).

We completed an additional 23 acres of silviculture hack and squirt herbicide weed/release treatments in the Demumbers Creek project area. The purpose of this treatment was to thin the undesirable trees and NNIS and to improve stand health and vegetation diversity. The herbicide application included the treatment of NNIS tree and shrub species such as:

- Illinois mimosa (*Albizia julibrissin*)
- Princess tree (*Paulownia tomentosa*)
- Tree of Heaven (*Ailanthus altissima*) and
- Privet species (*Ligustrum japonicum* and *L. sinense*)
- Autumn Olive.

### **Species of Concern:**

#### **Price's Potato Bean**

In 2013 we observed cooler than usual temperatures and more rain throughout the growing season compared to the previous 3-5 years. The previous years' monitoring information is contained in corresponding M&E reports. Compared to last year's drought and vegetation growth being about two weeks to a month earlier, this year vegetation growth was delayed by about the same length of time. We expected to complete the surveys in July but rain events caused delay; therefore we surveyed all sites during August for vine, flower, and bean pod growth. Despite the survey delay, sufficient vine growth was still evident at most of the sites. For all sites combined, we counted a total of 103 vines, 155 flowers, and several bean pods. The US Fish and Wildlife Service collected a total of 119 bean pods to be used toward propagation on existing sites and research by the Missouri Botanical Garden.

For 2014 we plan to do some shrub tree canopy removal on one Kentucky site. We plan to do some downed tree bucking and clearance on the Tennessee site during the summer. Permanent vegetation macroplots will be set up during the summer to assess vegetation response as a result of canopy removal and tree girdling on the Tennessee site in 2012.

Monitoring of populations and habitat conditions will continue for all sites with implementation of the Price's Potato Bean Recovery Plan and in coordination with the USFWS, KSNPC and TDEC. The recovery plan for the LBL Price's potato bean populations will be revised as needed in cooperation with our partners and based on results obtained through management, monitoring, and research.

#### **Bald Eagle**

We continue to monitor winter occurrence, nesting sites, and nesting success for the bald eagle. We monitor in partnership with the Kentucky Department of Fish and Wildlife Resources (KDFWR), Tennessee Wildlife Resources Agency (TWRA), U.S. Fish and Wildlife Services plus their partners, and volunteers through Friends of Land Between The Lakes.

Within the LBL and surrounding lake areas; during the January 2013 midwinter survey, we counted 103 bald eagles along the Kentucky and Tennessee shorelines of Kentucky Lake and Lake Barkley (86 adults and 17 immature). Of the 103 eagles observed, 48 eagles were on the LBL shoreline (38 adults, 10 immature eagles; with 35 of them on KY portion and 13 on TN portions of LBL). In the June 21, 2013, Midwinter Eagle Survey Report, KDFWR avian



biologist stated that winter weather conditions in early 2013 in the Great Lakes region and in Kentucky likely led to a moderate count of wintering eagles in the Commonwealth in comparison to counts in recent years. Mild weather conditions were reported during the survey with no ice in Kentucky. If smaller bodies of water in Kentucky and farther north are not frozen over, eagles may not need to move farther south or congregate around large bodies of water like Lake Barkley and Kentucky Lake surrounding LBL. Table 5.b provides the counts on the LBL shoreline for the past six years.

| <b>Table 5.b. LBL Midwinter Eagle Counts and number of eagles sighted during 2008 through 2013 aerial surveys on LBL shoreline.</b> |             |             |             |             |             |
|---|-------------|-------------|-------------|-------------|-------------|
| <b>2008</b>   | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> |
| 87  | 77          | 118         | 27          | 28          | 48          |

Bald eagle fledging success in LBL has been monitored since 1984 when the first successful nesting of bald eagles occurred in Tennessee (Table 5.c). Over the past ten years, the number of eaglets fledged from LBL nests has remained fairly constant with a slight increase in total eaglets fledged beginning in 2007 when the bald eagle was delisted. During 2013 we observed the largest number of eaglets fledged (28) for the history of monitoring bald eagle fledging success on LBL.

| <b>Table 5.c Eaglets Fledged at LBL through the 2012-nesting season; Monitoring began in Kentucky in 1989 and in Tennessee in 1984</b>  |               |              |               |                                   |               |
|---|---------------|--------------|---------------|-----------------------------------|---------------|
| <b>Year</b>   | <b>Totals</b> | <b>Year</b>  | <b>Totals</b> | <b>Year</b>                       | <b>Totals</b> |
| <b>1984</b>   | 1             | <b>1994</b>  | 6             | <b>2004</b>                       | 14            |
| <b>1985</b>   | 1             | <b>1995</b>  | 4             | <b>2005</b>                       | 16            |
| <b>1986</b>   | 0             | <b>1996</b>  | 6             | <b>2006</b>                       | 12            |
| <b>1987</b>   | 2             | <b>1997</b>  | 4             | <b>2007</b><br>(Species Delisted) | 22            |
| <b>1988</b>   | 2             | <b>1998</b>  | 5             | <b>2008</b>                       | 21            |
| <b>1989</b>   | 4             | <b>1999</b>  | 14            | <b>2009**</b>                     | Unknown       |
| <b>1990</b>   | 4             | <b>2000</b>  | 18            | <b>2010**</b>                     | 8             |
| <b>1991</b>   | 4             | <b>2001*</b> | 7             | <b>2011***</b>                    | 16            |
| <b>1992</b>   | 2             | <b>2002</b>  | 15            | <b>2012</b>                       | 19            |
| <b>1993</b>   | 4             | <b>2003</b>  | 20            | <b>2013</b>                       | 28            |
| <b>Total Eaglets Fledged:</b>   |               |              |               |                                   |               |
| * 2001, insufficient staff to monitor nests due to LBL transfer to Forest Service<br>** 2009 and 2010, weather related events diminished ability to monitor nest sites and assess fledging success<br>*** LBL TN nests were not monitored for fledgling success except for one nest site. |               |              |               |                                   |               |

## **Bats**

Following three years of baseline mist net surveys from 1993-1995, LBL-wide surveys for bats have occurred every five years. The 2010 M&E report contains a summary of the most recent studies. We have also conducted project-specific surveys, which covered relatively small areas at LBL. We have captured ten different bat species in surveys on LBL:

- gray
- red
- eastern pipistrelle
- evening
- little brown
- northern long-eared
- big brown
- hoary
- silverhaired
- Seminole

Gray bats are the only endangered species that we have confirmed on LBL. Indiana bats (E), Rafinesque's big-eared bats (RFS), and southeastern myotis (RFS) have not been captured on LBL.

In response to white nose syndrome moving southward in the Eastern U.S. and into the midwest, we completed three years of mobile transect acoustical surveys in 2009-2011. We used Anabat™ acoustical recording systems. Also, we conducted stationary acoustical surveys in 2010 as part of our five-year monitoring program. Currently researchers at Austin Peay State University are analyzing LBL acoustical data files with the latest software release. Results are pending. The next five-year bat surveys are scheduled to be done in 2015.

## **Management Indicator Species**

During the development of the 2004 LBL Area Plan, the planning team selected Management indicator species (MIS) to indicate changes to specific ecosystems that occur at LBL. (Table 5.d) MIS species are monitored at LBL through annual surveys. The results of breeding bird point counts and deer and turkey harvest data are summarized below.

Breeding bird point counts have been conducted every spring since 2000 when Tennessee Valley Authority transferred management of LBL to the US Forest Service. Monitoring occurs at 231 points selected to canvas each of the major habitat types on LBL. Inferences about ecological conditions and the status of other species within a community are general in this report as many different factors can affect populations of each species within a community, and each species' ecological niche within a community is unique.

A vegetation assessment of the existing breeding bird survey points was done in 2005 and we are considering vegetation assessment on at least half of the transects during 2014. Natural succession, vegetation management, and weather-related events that have occurred within these areas during the past nine years has caused changed bird species associations. In assessing the

habitat conditions for the existing points, new breeding bird survey locations may be necessary to represent habitat conditions and population trends for bird species on LBL in the future.

Glen Thomas, contractor for Southern National Forests' Migratory and Resident Landbird Conservation Strategy (R8Bird) data entry, compiled a report 5 April 2013. In the report, Glen assessed LBL bird transects data for Years 2008-2012. The results of this report are used in combination with data shown in the figures in the FY09 M&E Report to make trend evaluations for LBL MIS over the past 12 years. By design, the bird surveys primarily measure trends in songbird populations; therefore, survey counts of other birds such as wild turkeys may not accurately reflect populations of this species.

We also collect wild turkey information with turkey brood surveys; however this data has been highly variable from year to year; due at least in part to variation in survey effort by staff. LBL deer population trends are monitored primarily through harvest data. In 2009, infra-red deer surveys were begun in Tennessee followed by Kentucky in 2010. Summer infrared surveys are used to assess population sex ratios, and winter surveys for population estimates. Additional data collection and analyses will be needed in order to establish the reliability of this data.

| <b>Table 5.d Management Indicator Species selected to help indicate effects of management by resource issue</b> |  |                                      |
|---|--|--------------------------------------|
| <b>Common Name</b>  | <b>Resource Issue</b>  | <b>Wildlife Report Section</b>       |
| Price's potato bean   | Recovery of this endangered species  | Species of Concern                   |
| Pileated woodpecker   | Providing snags within forests   | Forest Habitat Associations - MIS    |
| Acadian flycatcher  | Provision of mature forest within riparian areas   | Forest Habitat Associations - MIS    |
| Great-crested flycatcher  | Providing mature oak forest in open structural conditions  | Forest Habitat Associations - MIS    |
| Wood thrush   | Providing complex canopy structure within mesophytic and riparian forests and providing mature forest interior habitat | Forest Habitat Associations - MIS    |
| Yellow-breasted chat  | Providing regenerating forest habitat  | Forest Habitat Associations - MIS    |
| Eastern wild turkey   | Meeting demand for hunting   | Demand Game - MIS                    |
| Prairie warbler   | Restoring oak woodlands  | Grassland Habitat Associations - MIS |

|                         |  |  |
|-------------------------|--|--|
| Eastern bluebird        | Providing snags in open habitats, and meeting demand for non-game wildlife viewing | Grassland Habitat Associations - MIS                       |
| Eastern meadowlark      | Providing grassland habitat  | Grassland Habitat Associations - MIS                       |
| Northern bobwhite quail | Meeting demand for hunting and providing quality native grasslands                 | Grassland Habitat Associations – MIS and Demand Game - MIS |
| White-tail deer         | Meeting demand for hunting   | Demand Game - MIS  |

### **Forest Habitat Associations-MIS**

#### Pileated Woodpecker

The pileated woodpecker requires large snags for nesting and feeding. The occurrence of this species may be correlated with forested habitats with abundant large dead trees and fallen logs which are used by other woodpeckers, owls, numerous other birds, mammals, and amphibians. Potential habitat for the pileated woodpecker is expected to increase in the first decade of implementing the Area Plan (Area Plan FEIS, Table 3.2.7B). The survey data indicate that pileated woodpecker populations fluctuate from year to year, however overall the trend for this species on LBL is relatively stable (Thomas 2013).

#### Acadian Flycatcher

The Acadian flycatcher favors rich deciduous forest with moderate understory and along streams; and was chosen as an MIS to represent these conditions within mature riparian forest. Little change is expected to occur in the population trend for this species within ten years of implementing the Area Plan (Area Plan FEIS Table 3.2.4U). On LBL, during the past 12 years this species appears to have increased overall (Thomas 2013). This increase may be as a result of increased canopy closure conditions in areas that this species is monitored annually during breeding bird surveys and that timber management activities during those years have been primarily on dry-mesic, dry, and xeric site types. This species is primarily associated with alluvial and mesic site types.

#### Great-crested Flycatcher

The great-crested flycatcher is an MIS of mature open oak forest conditions of oak forest types. Key breeding requirements of this species includes somewhat open forests with a suitable tree cavity for a nest. Within the first ten years of implementing the Area Plan, the population trend for the great-crested flycatcher is expected to increase (Area Plan FEIS Table 3.2.4K). Survey data indicate that across LBL, this species showed some slight decline during 2000 to 2006; however overall the great crested flycatcher population trend appears stable 2000 to 2012 (Thomas 2013).

### Wood Thrush

Wood thrush is an MIS chosen to assess the effectiveness of management for canopy gaps and complex structure in mesic forests; the effects of management on the structure of riparian forest; and the effects of management on forest interior birds due to the sensitivity to cowbird parasitism. The population trend for this MIS is expected to increase within the first ten years of Area Plan implementation (Area Plan FEIS Tables 3.2.4P and 3.2.4V). The survey data indicate that wood thrush populations have fluctuated over the past 12 years, however overall the trend for this species on LBL appears to be stable (Thomas 2013).

### Yellow-breasted Chat

Yellow-breasted chat was chosen as an MIS of forest regeneration. Within ten years of Area Plan implementation, this species population trend is expected to have a large increase (Area Plan FEIS Table 3.2.7F). Survey data on LBL indicate that chats have remained relatively stable over the past 12 years (Thomas 2013).

## **Grassland Habitat Associations-MIS**

Because of the current limited amount and distribution of grasslands on LBL, grassland habitat associates are poorly represented in breeding bird point counts.

### Prairie Warbler

The prairie warbler is an MIS of oak woodlands and a species of conservation priority due to population declines range-wide and in the physiographic region (Interior-Low Plateau). Habitat restoration efforts on LBL are an important contribution to increasing populations within this region. Within ten years of implementing the Area Plan, it is predicted that small increases in habitat may correspond to small increases in populations for this species (Area Plan FEIS Table 3.2.4I).

Since 2005 some habitat for this species has been created within the north and south Oak Grassland Demonstration Areas by prescribed fire and forest thinning projects. The distribution of the prairie warbler on LBL increased slightly from 2008-2012 (Thomas 2013). Habitat management for this species has merely just begun, so population trend increases are not evident.

### Eastern Bluebird

The Eastern bluebird was chosen as an MIS to represent open forest situations and is a watchable wildlife demand species. Eastern bluebirds increase in abundance proportionately to the amount of old growth available in open forested conditions.

In LBL, the survey data indicate the eastern bluebird populations fluctuated somewhat between 2000 and 2008 and decline slightly from 2008 to 2012 in areas surveyed using bird transect point data (Thomas 2013). The reason for this trend is unknown; however suitable habitat was poorly represented over most of the transects sampled. In addition to the transect point data, fledging success rates from 2005 to 2013 averaged 82.4 percent (Table 5.e) per surveys done for Eastern bluebird nest boxes across LBL. Modifications of the breeding bird survey locations may be necessary to adequately represent natural cavity nesting locations in LBL.



| <b>Table 5.e Project Save Our Salvia Bluebird Nest Box Survey Results 2005-2013</b> |             |             |             |             |             |             |             |             |             |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Year</b>   | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> |
| Total Number of Nest  | 164         | 165         | 165         | 165         | 165         | 170         | 170         | 170         | 170         |
| Total Eggs Laid   | 1,161       | 1,297       | 1,331       | 1,205       | 1,429       | 1,416       | 1,637       | 1,749       | 1,652       |
| Total Bluebirds Fledged   | 976         | 1,092       | 1,050       | 991         | 1,184       | 1,195       | 1,399       | 1,348       | 1,377       |
| Fledging Success Rate   | 84%         | 84.2%       | 78.8%       | 82.2%       | 82.8%       | 84.3%       | 85.4%       | 77%         | 83.3%       |

#### Eastern Meadowlark

The Eastern meadowlark prefers short to medium height grasses of the grassland community and favors somewhat taller grasses for nesting rather than foraging.

Since 2005, a limited amount of woodland habitat has been created for the Eastern meadowlark within the Oak Grassland Demonstration Areas, and grassland habitat has been managed on approximately 3,400 acres. The limited distribution and low frequency of occurrence of the Eastern meadowlark and its habitat on LBL have resulted in inadequate representation on LBL in the breeding bird survey results. This species has only been observed on LBL in 1994 and 1995. After we assess the habitat conditions for the existing points, new survey locations may be necessary to represent habitat conditions and population trends for this species on LBL. As we increase habitat for this species over time, Eastern meadowlark populations may increase.

### **Grassland Habitat Associations and Demand Game Species-MIS**

#### Northern Bobwhite

The Northern bobwhite was chosen as an MIS to represent habitat conditions in the grassland and cultivated community types that include brushy areas and thickets, tall herbs, grasses, and saplings (e.g. old field and hedgerows bordering cropland and woodlands). This species was also selected as a Demand MIS and is a Bird of Conservation Concern. The population trend for this species is expected to increase within ten years of implementing the Area Plan (Area Plan FEIS, Table 3.2.5F). This species has not been detected on LBL point counts since 1998. This is likely due to habitat changes for the survey locations no longer being favorable for Northern bobwhite and possibly the time of the year that the surveys are conducted. By mid-May when the breeding bird surveys are done, fewer males may be calling and/or not be present at survey points. Reported sightings of Northern bobwhite are infrequent almost anywhere in LBL. This species is in decline within the Interior-Low Plateau and management efforts on LBL will increase habitat for Northern bobwhite.

#### Eastern Wild Turkey

The Eastern wild turkey was selected as an indicator of the effects of management actions on hunting and bird-watching opportunities. This species is adapted to a variety of habitat conditions, and generally requires a combination of conditions to prosper.

Since implementation of the Revised Environmental Assessment for the Continued Maintenance of Open Lands in 2007, habitat for this species has changed with the conversion of approximately 900 acres of cultivated field types to grassland and forest types. The representation of this species during breeding bird surveys is less likely as these surveys are done in mid- May to the end of June, which is after the period that males have initiated courtship calling, have completed nest egg clutch production and generally remain close to the nest. According to harvest data, turkey populations remained relatively stable on LBL since 2000. (Figure 5.6) Harvest data during quota hunts presented in Goal 7 provide another estimate of turkey populations on LBL. The annual brood surveys conducted by LBL staff give an indication of spring breeding success. During calendar year 2013, we spotted an average 45 percent of hens with poults, averaging 3.6 poults per hen. These figures are higher than 2012 and somewhat similar to the 20-year average.

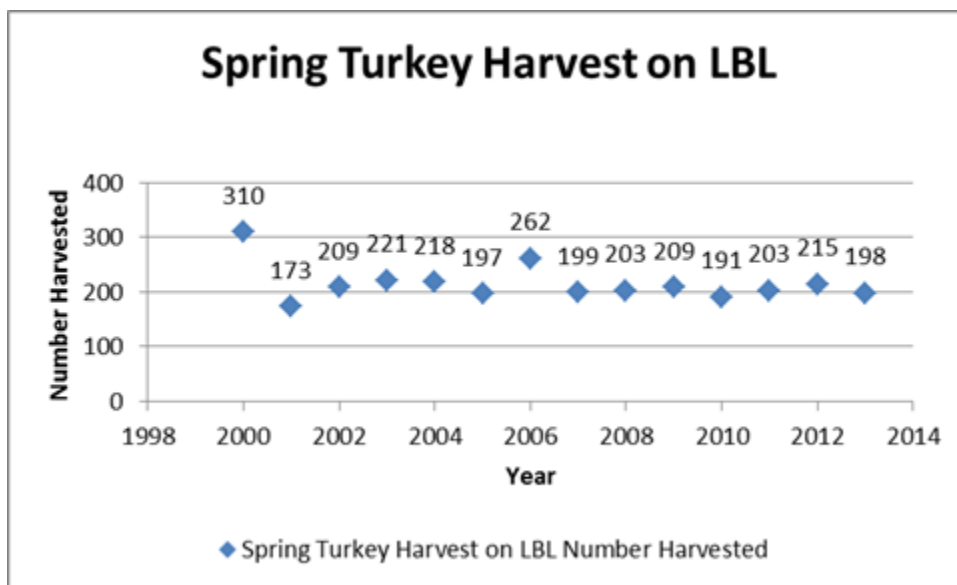
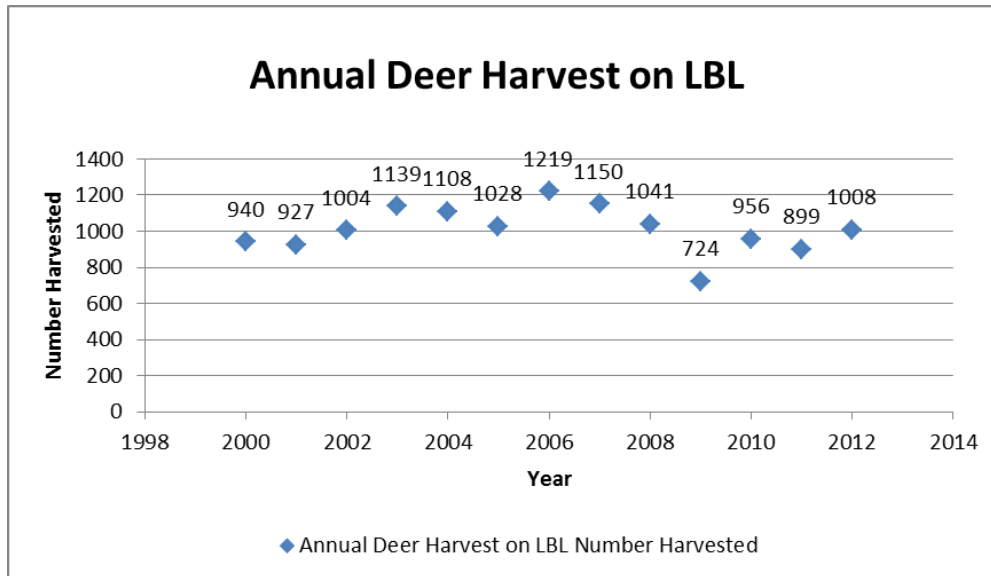


Figure 5.6 Turkey harvested on LBL annually in spring since 2000

### White-tailed deer

The white-tailed deer was selected as an indicator of the effects of management actions on hunting and wildlife viewing opportunities. White-tailed deer populations are well-established on LBL. Baseline information about deer food and habitat requirements are explained in detail in the 2004 Area Plan Final Environmental Impact Statement. White-tailed deer populations monitored primarily through harvest data indicate deer populations remained relatively stable on LBL since 2000. (Figure 5.7).



**Figure 5.7 Deer harvested on LBL during fall hunts (archery and gun) since 2000**

## Forestry

### Forest Inventory

The forest management program at LBL inventoried approximately 3,361 acres in the Craven's Creek Area (compartment 35) and 900 acres in the Rushing Creek Area (compartment 63) and 3,781 acres in the Ginger Bay Area (compartment 65) to meet the Goals and Objectives of the 2004 Area Plan (Table 5.f). We will use this data to develop integrated vegetative management treatments to meet the desired conditions in the Area Plan for mature forest with canopy gaps, mature oak woodland, shortleaf pine, mid-aged and regenerating forest types.

| Prescription Area  | Acres Inventoried |
|--------------------|-------------------|
| General Forest     | 8,042             |
| Core Areas         | 0                 |
| <b>Total Acres</b> | <b>8,042</b>      |

**Table 5.f Forest Inventory data collection accomplished during FY13**

### Treatment

The forest management program continues to expand with multiple treatment activities throughout LBL directed to meet the objectives in the Area Plan for forest structure. In an effort to diversify treatments, meet multiple resource needs, and capitalize on LBL's unique demonstration authority, forest management program accomplished the first planting of shortleaf pine (54 acres total) on LBL under Forest Service management. We planted twenty acres of shortleaf pine in the Elk and Bison Prairie (EBP) along with 34 acres within the Turkey Bay OHV recreation area. The areas in EBP that needed to be reforested were a result of the 2009 ice storm that destroyed several Virginia Pine stands. These planting will provide a new cover type for the animals and should thrive with the periodic prescribe fire used to help maintain the prairie. The Turkey Bay plantings were a test to find a tree species that can persist on restoration

areas that have received decades of highly erosive and soil damaging recreational activity. Many hardwoods planted in these areas resulted in little success. However, shortleaf pine was selected because it is native to LBL, and persists on some of the thinnest and poorest soils found within the Devil's Backbone trail area. NWTF obtained a grant to purchase the seedlings. Using the stewardship agreement with the NWTF, we planted approximately 1,200 seedlings per acre for a total of 99,000 seedlings. Staff planted the seedlings at this density, although it is considered high, because many seedlings will not survive due to animal damage (Elk, Bison, and small mammals), and the harsh soil conditions described previously.

LBL managed six timber sale contracts during the fiscal year of which two finished cutting and removing timber. Two sales are now closed, the Willow Creek sale and the WYP sale. Willow Creek timber sale contributed 42 acres to the regenerating forest structure type found in the Demumbers Creek project area. The next treatment scheduled for the Willow Creek sale area is to plant shortleaf pine in this former loblolly pine stand. The 309 acres WYP sale (Prior Creek project area) in the south oak-grassland demonstration area improved the structure type consistent with the tree densities found in oak woodlands and open mature oak forest types described in the Area Plan (Figure 5.8). We plan to include this sale area in a larger prescribe fire project expected to cover approximately 2,000 acres in the spring of 2014. The periodic use of a low intensity prescribe fire will improve the herbaceous layer development found on the forest floor while maintaining the open canopy conditions created through the timber sale activity.



**Figure 5.8 Large healthy mature oak trees are left standing after timber sale activity closes on the WYP timber sale. The primary purpose of this thinning is to create a mature oak-grassland habitat**



The two timber sales, listed in the table below (Table 5.g), were awarded to local logging companies during FY13.

| <b>Sale Name/Silvicultural Treatment</b> | <b>Acres Treated</b> |
|--|----------------------|
| Willow Creek                             | 42                   |
| Grace Creek                              | 174                  |
| Herbicide Use (Hack and Squirt)          | 192                  |
| Shortleaf Pine Plantings                 | 54                   |
| <b>Total Acres</b>                       | <b>408</b>           |

**Table 5.g FY13 Forest thinning and silvicultural treatments accomplished**

The Grace Creek salvage sale resulted from a major wind event that crossed our region in April of 2011. We awarded this sale in FY13 through a public bidding process. This sale will accomplish several goals in the Area Plan. We will restore shortleaf pine in the Demumbers Creek project area using the second sale, Willow Creek. These two sales encompass just under 200 acres and will generate over 3,000 CCF of volume for local forest products production.



**Figure 5.9 Stem injection herbicide treatment within the Demumbers Creek project area**

Forest management also continued to implement herbicide silvicultural treatments on forest vegetation at LBL. The herbicide treatment conducted this fiscal year is part of an integrated treatment to increase and develop site conditions favorable for the establishment of shortleaf pine and oak regeneration. We treated approximately 192 acres of forest within the Demumber's Creek project area via stem injection (hack and squirt) herbicide treatment (Figure 5.9). This project improved site conditions for the development of natural oak regeneration on 150 acres

and shortleaf pine artificial (planting) regeneration on 42 acres. We continue to integrate biomass harvesting in our timber sale projects to provide a fuel source for the newly constructed biomass boiler demonstration systems at Trigg County Hospital and Lyon County High School.

We completed the environmental assessment (EA) for the Devil's Backbone Project. Implementation will create approximately 450 acres shortleaf pine-oak woodland, 500 acres open mature shortleaf pine-oak forest, and about 250 acres of regenerating shortleaf pine forest types over the next decade. We continued planning for the treatment of forest vegetation in the Pisgah and Cravens Creek project areas. These projects were selected due to locations and impacts to recreation facilities, wildlife habitat improvement needs, and forest health. These projects will treat up to 7,000 acres and remove over 35,000 CCF of timber in meeting LBL's objectives of promoting sustainable scientific based forest management as described in the Area Plan and working with local small businesses in the forest industry. We project the completion of the data collection, planning, and NEPA portion of the Pisgah project to be completed in FY14.

### Forest Health

Sporadic weather events are not the only concerns for forest health at LBL. Oak decline along with other forest pests and pathogens can have an effect on LBL's predominantly oak-hickory forest. Susceptibility to oak decline is of great relevance due to ice storm damage of 2009, multiple wind events in 2011, and drought conditions in 2012. Storm damage to more than a third of the crown will reduce photosynthetic capability to a point where root function is compromised. These factors can incite and contribute to forest health concerns with respect to resilience and successional development. It can also leave oaks more predisposed to *armillaria* (root rot), *hypoxylon* (canker), and various insects including the two-lined chestnut and red oak borers.

We found no overt signs of an oak decline breakout in FY13, although the continued observation and inventory data collection reaffirms the trend of increased mortality of older trees throughout LBL, especially among tree species within the red oak family.

LBL foresters placed 27 gypsy moth traps across the forest, and did not find any moths. A new exotic insect of concern is the Emerald Ash Borer (EAB). We also placed EAB traps throughout LBL, with a focus on high use recreational areas as infestation can possibly develop from firewood brought in from outside of LBL. EAB was not detected in LBL. Though no insects were found, we continue to use insect traps on LBL to determine the presence or absence of Gypsy Moth and/or Emerald Ash Borer on LBL. Due to drought conditions in 2012 LBL partnered with another USDA agency, Animal and Plant Health Inspection Services (APHIS), to place traps and monitor for native oak borers insect activity. The results of these borer trap surveys suggested that insect populations are within the normal range based on previous survey years.

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| <b>Goal 6:</b>                                       | <b>Demonstrate and widely export innovative, efficient, and effective management techniques that can benefit others.</b>   |
| <b>Sub-element NFS Generic Desired Condition</b>     | “Through the Demonstration Project role, the FS will continually seek to sharpen its management policies and techniques with an eye toward exporting these innovative and beneficial approaches to others locally, regionally, and nationally.” [Area Plan, Vision]                                |
| <b>Example Area Plan Desired Condition Statement</b> | “In its demonstration role, LBL will develop and test the programs, methods, and systems by which recreation, EE, and vegetation are managed, with the intention of promoting those elements that would provide benefits to other public and private land managers and units.” [Area Plan, Vision] |
| <b>Desired Trend Statement</b>                       | “Each year, export three to five demonstration products.” [Objective 6a]   |
| <b>Monitoring Questions</b>                          | 30. Has LBL produced measurable results from demonstration projects that have lead to positive changes on other units?<br>31. How many demonstration products have been exported?  |
| <b>Area Plan Performance Measures</b>                | 30. Trends and annual summary of accomplishments and results<br>31. Trends and annual summary of accomplishments and results   |
| <b>Data Sources Utilized</b>                         | --Annual summary of units supported, accomplishment reports, feedback, policies changed, results; tracking, by documenting the assistance provided, support to specific organizations and agencies<br>--Track annual accomplishments with standard tracking system                                 |
| <b>Importance</b>                                    | This goal contains one of the key emphases of the LBL Protection Act and reinforces the key purposes described for LBL when created in 1963. Effective delivery of conservation education messages is also a primary objective of both LBL and the agency.   |
| <b>What It Tells Us</b>                              | The results related to this goal will provide key information about whether LBL is meeting its legislated objectives.  |

## Goal 6, Monitoring and Evaluation Narrative

### Land Between The Lakes Demonstration Lab

We continued to develop biomass harvesting operations into our timber sale and stewardship projects to provide a fuel source for the biomass boiler demonstration projects completed in 2011 at the Lyon County High School and 2012 at the Trigg County Hospital. Per the five-year agreement, LBL continued to provide wood chips to benefit LBL by reducing hazardous fuels levels and to provide heat for the facilities. The wood chips are composed of a mixture of hardwood and softwood material that originated from storm damaged trees and would otherwise have little to no economic value. Trigg County Hospital purchased a

Figure 6.1 Chipping Wood



second “walking floor” trailer to facilitate the transportation and storage of wood chips. This was the first heating season that this piece of equipment was available to use. The funding source for the purchase of this trailer was through the grant which funded the biomass boiler projects. We partnered with a local company to demonstrate the use of wood pellets for fuel in the cold months of FY14 and will share the results in the next M&E report.

In FY13, the Demonstration Lab continued to focus on internal projects and two new projects.

**Spring Mountains National Recreation Area** - In February of 2013, Tom O. Christensen, CIO Facilities Project Manager, Old Hickory, TN and former Land Between The Lakes employee, contacted us about helping Spring Mountains National Recreation Area, otherwise known as Mt. Charleston, [www.gomtcharleston.com/](http://www.gomtcharleston.com/). Spring Mountain is located 30 minutes from downtown Las Vegas, Nevada and encompasses more than 316,000 acres. Recent area improvements and new infrastructure came to the Recreation Area as the beneficiary of area land sales by Bureau of Land Management. The purpose for this connection centered on the desire for an improved self-sustaining operation. Michael Reiland connected with Scott Turner our Business Operations Department Manager regarding contracts and agreements, and for recreation issues Carol Hotchkiss counseled our Recreation Program Manager, Gary Hawkins. Brian Beisel served as our lead and Randy Swick for Spring Mountain.

Documents shared included our business and marketing plans, Friends Group agreement, advisory board bylaws, our budget reduction report of findings, and other miscellaneous documents. We mostly served in advisory roles.

**Valles Caldera National Preserve** - In mid-August of 2013, four members of Valles Caldera National Preserve <http://www.vallescaldera.gov/> conducted a site visit at Land Between The Lakes. The 89,000 acre property is remotely located in the Jemez Mountains in northern New Mexico. Valles Caldera visitors included: Dennis Trujillo - Executive Director, Tim Haarmann - Program Director of Operations, Marie Rodriguez - Program Director of Natural Resources and Environmental Planning, and Ernie Garcia - Program Director of Administration. Since our exchange, Dennis Trujillo retired and Ernie Garcia accepted another position.

The purpose of this visit focused on business practices, friends group, and planning. Follow up included sharing documents, agreements and a visit to Valles Caldera by John Rufli, Director of Friends of Land Between The Lakes. Our marketing plan and social media strategies were shared with Terry McDermott, Public Affairs Specialist. A future exchange may include a detail of Valles Caldera’s landscape architect to Land Between The Lakes.

### **Short History of Land Between The Lakes Demonstration Lab**

During the first few years of management by the Forest Service an informal process was used to guide the operation of the Demonstration Lab and the role needed clarification. In 2005, an oversight group was commissioned to review and formalize its role, including development of a formal charter and coordinated process for project submittals, oversight, and approval. Nine members serve on the Board of Directors, representing each level and facet of the Forest Service organization. One of the first recommendations of this board was to open up the solicitation of demonstration project proposals to the entire country.

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| <b>Goal 7:</b>                                       | <b>Enhance dispersed recreational and EE opportunities throughout LBL.</b>   |
| <b>Sub-element NFS Generic Desired Condition</b>     | <p>“...management will also promote and increase support for dispersed day-use and extended-stay activities in anticipation of increased demand in dispersed recreational and educational activities and experiences.</p> <p>“Hunting and fishing will continue to be important dispersed recreation opportunities at LBL.” [Area Plan, Vision]</p>  |
| <b>Example Area Plan Desired Condition Statement</b> | <p>“Dispersed activities and opportunities will become an extension of the developed Rec/EE facilities and sites that currently exist.”</p> <p>“Program and project efforts will be directed toward improving and developing self-guided trail systems for nature viewing, hiking, biking, and horseback riding. Scenic lake vistas will be opened up, and the road system will support scenic driving, access to cemeteries, and access to dispersed recreational opportunities.”</p> <p>[Area Plan, Vision]</p>  |
| <b>Desired Trend Statement</b>                       | <p>“Rehabilitate one to two areas contributing to dispersed recreation opportunities (e.g. backcountry, lake access, etc.) annually as determined by the realignment process, based on meeting present and anticipated user needs, providing resource protection, reducing maintenance costs, and reducing infrastructure.” [Objective 7a]</p> <p>“An average of one to two miles of trail will be constructed annually.” [Objective 7b]</p> <p>“Complete an average of one interpretive project annually within the Nature Watch Demonstration Areas and Oak-Grassland Demonstration Areas.” [Objective 7c]</p> |
| <b>Monitoring Questions</b>                          | <p>32. Have dispersed recreational and EE opportunities at LBL been enhanced?<br/>(Duplicate question for Measures 32-35)</p>  |
| <b>Area Plan Performance Measures</b>                | <p>32. Trends and annual summary of accomplishments and results</p> <p>33. Backlog of facility and trail maintenance needs and trends</p> <p>34. Results and trends in user satisfaction ratings</p> <p>35. Trends in financial resources needed and available to provide recreation opportunities</p>   |
| <b>Data Sources Utilized</b>                         | <p>--Objective accomplishments, percentage of visitation utilizing dispersed Rec/EE opportunities</p> <p>--Analysis of Infra Deferred Maintenance Report and reporting of percent change in backlog</p> <p>--Summary of visitor satisfaction surveys or personal letters and notes received; objective accomplishments, integrated projects completed</p> <p>--Analysis of incoming funds-traditional budgets and fee collections-and costs of operations, in view of needs; reports using standard tracking systems</p>   |
| <b>Importance</b>                                    | <p>This goal contains one of the key program changes displayed in the LBL Area Plan and responds to concerns voiced by the visiting public during the planning process that LBL was not meeting changing customer demands through existing services.</p>   |
| <b>What It Tells Us</b>                              | <p>The results related to this goal will provide key information about whether LBL is meeting its stated objectives in the Plan and is responding to the feedback of the public.</p>   |



## Goal 7, Monitoring and Evaluation Narrative

### 2013 Recreation Program

The 2013 recreation program of work continued in conjunction with visitation and use of recreation facilities across LBL, despite an unusually wet and cold spring and most recreation areas closed three weeks due to high lake levels.

LBL continued to implement the 32 point alternative for realignment of dispersed opportunities in the backcountry, lake access, and day use areas across LBL. We closed Rushing Creek and Jones Creek Campgrounds (Figure 7.1). We discontinued maintenance on Shaw Branch and Kuttawa Landing Backcountry Areas and converted these areas to general forest areas. These closures reduce the number of LBL Developed Campgrounds from 29 in 2004 to 25 in 2013. We are on track to reach the desired condition of the Area Plan by closing one more developed campground by 2019.



**Figure 7.1 Sign Indicating Closure of Rushing Creek and Jones Creek Campgrounds**

Fords Bay Boat Launching Area was opened in 2013 (Gravel Ramp). We ceased maintenance on Shaw Branch and Kuttawa Landing Boat Ramps in 2013. We had 28 maintained Ramps in 2004. We now have 26 maintained Ramps at the end of 2013. Our Plan goal is 25 maintained ramps by 2019.

As part of budget reductions recommendations in facilities and maintenance developed with the public in 2012, we implemented the proposed fee increases in camping fees to offset loss of appropriated funding in order to maintain customer service in the recreation facilities. We also lowered maintenance costs by closing the water system at Birmingham Ferry Campground and

converting it and Smith Bay Campground to backcountry camping areas. We implemented an electrical service fee to the Seasonal Camping Program to offset costs. This fee is based upon electrical use in the campground. We will realize savings over the next five years.

In 2013, we reviewed the scope of the work on the maintenance contract by identifying changes to reduce costs while maintaining customer service. The new contract that was developed from these changes will be awarded in early 2014.

### **Deferred Maintenance**

We addressed the deferred maintenance backlog by replacing the 1980 bath houses in Piney Campground with accessible bathhouses in Black Oak, Sweet Gum, Persimmon, and Loblolly loops. Deferred maintenance costs for the Piney bathhouses decreased from \$1,335,091 to \$45,514, saving over \$1.2 million. We also made significant reductions in deferred maintenance at Brandon Spring Group Camp with ADA upgrades, siding and air conditioner replacement.

**Figure 7.2 Constructing Bathhouse in Piney Campground**



**Figure 7.3 New Accessible Bathhouse in Piney Campground**



## Trails

A complex bridge inspector from Cherokee National Forest evaluated and documented the condition of 34 complex trail bridges on LBL. The inspector did not identify any necessary major repairs and we implemented the minor deferred maintenance repairs. This completed the bridge conditions surveys until we redo them in five years. The Washington Office collected information about trails through a nationwide random sample. Trails staff completed eight trail conditions surveys at LBL for this sampling.

Trails staff repaired a low, poorly drained section of Hematite Trail (figure 7.4 below). This repair included installation of one large arch culvert, one small arch culvert, five layers of envirogrid geo-cell material, and backfill dirt/stone.

**Figure 7.4 Hematite Trail Repairs**



Trails staff and an Alternative Spring Break group revamped the approaches for one fiberglass bridge at Honker Trail by replacing dirt approaches with envirogrid mats and stone backfill to hold material and protect the resources from major flood and users' impacts.

Trails Staff and Alternative Spring Break group installed grassy pavers (TurfBlock) to an outer bank of the Central Hardwoods Scenic Trail. This portion of the CHST needed restoration of significant bank sloughing and settling that occurred within one year of trail construction. The pavers support longterm stabilization and revegetation of the site.

The trails program focused Legacy Roads and Trails (CMLG) work in hunt areas eight and ten, primarily in the Dry Creek watershed. The work improved to standard a total of 6.5 miles of shared-use roads/trails and 2 miles of equestrian-only trails were improved to standard. FS Road 356 (shared with Wranglers Trail #8) was brought back to standard (figure 7.5) from a state of neglect and regular misuse by visitors. Tasks to repair 356/#8 included re-establishing and/or installing proper drainages, surface grading, material placement, and stabilizing heavily impacted drainage crossings.



**Figure 7.5 FS Rd 356/Wrangler's Trail #8**

We used CMLG funds to address needs along FS Road 342 (shared with Wrangler's Trail #6) (Figure 7.6). Tasks performed to repair the route included removing all non-functioning culverts, re-establishing and/or constructing proper drainages, and establishing low-water crossings.



**Figure 7.6 FS Rd 342/Wrangler's Trail #6**

LBL installed 12 large and 8 medium arch culverts on Wrangler's Trail #1 (Figure 7.7) to replace non-functioning or non-existent culverts. The arch culverts provide aquatic passage and allow twice the amount of streamflow compared to round culverts.



**Figure 7.7 Wrangler's Trail #1 Culvert Replacement**

Regional Office representatives visited LBL for a five year review of Legacy Roads and Trails work. This review resulted in LBL being selected to represent Region 8 for a national case study to demonstrate work completed with CMLG dollars.



Two trails staff completed ten day details with Trails Unlimited, a Forest Service Enterprise team, to help construct and develop an OHV park in Fort Dodge, Iowa. LBL staff brought their experience of OHV trail management to the new trail construction for the Gypsum City OHV park.

Trails staff tested a new technique to address emerging ground water problems on some portions of the Central Hardwoods Scenic Trail (Figure 7.8). Ground water problems emerged on some portions of the trail and a new technique of raising the trails tread was used. Installation of gabion mattresses (welded wire baskets) of varying depths allows ground water passage under the trail tread. Note the picture on the right showing the water traveling under the trails surface while preserving tread surface integrity.

**Figure 7.8 Central Hardwoods Scenic Trail gabion mattresses**



Trails Unlimited supplied materials for the LBL Trails staff to test a new trench drain product. Staff installed two trench drains on the Central Hardwoods Scenic Trail in a portion of the trail where regular erosion was occurring. (Figure 7.9) Performance of this type of trench drain will be reported to Trails Unlimited for possible use on other projects.

**Figure 7.9 Central Hardwoods Scenic Trail trench drain**





More than 40 volunteers completed 340 hours of work at the Turkey Bay. Volunteers re-painted area boundary markers on trees, installed trail route markers and numbers, performed maintenance on Turkey Trot trail, and collected litter along trails. (Figure 7.10)

**Figure 7.10 Volunteer Day at Turkey Bay**



NWTF, a contracted tree-planting crew, and IRA's planted 44,000 shortleaf pine trees on approximately 34 acres of previously restored OHV trails in Turkey Bay.

Turkey Bay's soil moisture/weather station received two new upgrades, in partnership with the Bureau of Reclamation and Missoula Dimas Research and Technology Development Center. The station now sends daily pictures of the trail that is being monitored (Figure 7.11) and tracks the number of passes that section of trail receives on a daily basis. The station has alarms set for 0.4 inches of rain in one hour or 0.6 inches of rain in a 3 hour period. Once an alarm is triggered, the station sends an email with a photo and rainfall measurements to trail managers for evaluation. To view current data, two websites have been set up, one a Forest Service site (<http://ohv.fleetanalytics.net/>) and the other a Bureau of Reclamation site (<http://kentuckyohv.metridyne.com/>).

**Figure 7.11 Sample picture sent from the soil moisture monitoring station**



We closed and obliterated the Walker Line Trail by removing all signs and dropping trees to block vehicle access, resulting in four miles being removed from the National Forest Service system. This trail was used by Rushing Creek campers and was no longer needed after we closed Rushing Creek Campground.

We hosted the Southern Illinois University summer class/camp to study recreation and resource management at LBL.

## **Special Events**

We continued to serve as a preferred location for many special events organized by our communities and enjoyed by over 3,100 recreationists during FY13:

- The LBL Challenge
- Race to the Canal
- White Lightning
- 12 hours of the Canal
- LBL 200
- Jeep Jamboree
- West Kentucky Runners Marathon
- Various motorized and non-motorized military trainings
- ASI ATV trainings
- Kentucky Drag Boat Races
- Carporee Bow Fishing Tournament
- Several Raccoon and Squirrel Dog Trials
- LBL Primitive Rodeo
- Piney's Camper Fair

## **Hunting**

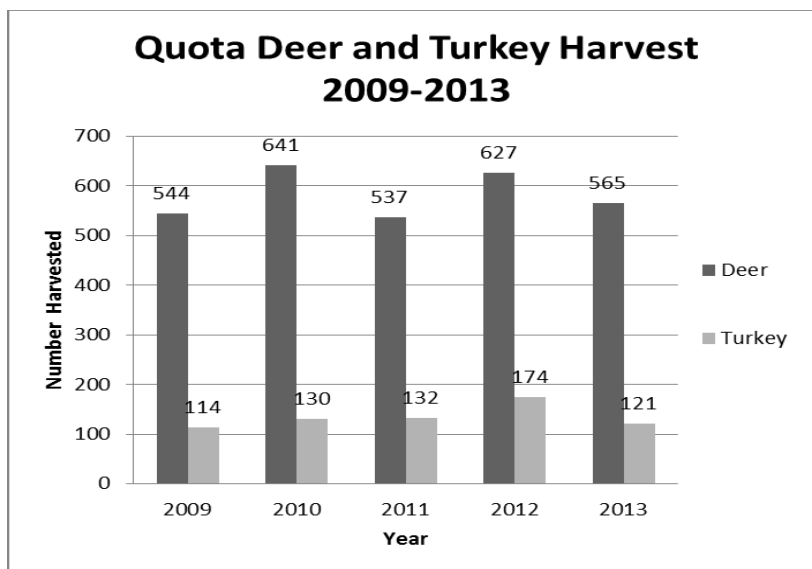
An online quota hunt application process is used by LBL. Many hunters appreciate the online quota hunt application system and it saves staff time and money when compared to other more laborious methods. Staff continues to respond to hunters' issues during the application process.

Thousands of hunters continue to apply for deer and turkey quota hunts on LBL. See Table 7.a. Deer quota hunt harvests were 8 percent lower in fall of 2013 than during the previous 5-year average (See Figure 7.12.) Turkey quota hunt harvest numbers were down slightly, approximately 9 percent lower than the previous 5-year average. The number of hunters that applied for quota hunts during 2013 was down slightly, approximately 1 percent below last year's numbers, with turkey applications actually increasing 6.5 percent while deer applications decreased 6.5 percent.

| Species And Year | Quota Hunt Applications | Number Harvested During Quota Hunts |
|------------------|-------------------------|-------------------------------------|
| <b>Deer</b>      |                         |                                     |
| 2006             | 12,312                  | 843                                 |
| 2007             | 12,414                  | 731                                 |
| 2008             | 11,965                  | 796                                 |
| 2009             | 10,166                  | 544                                 |
| 2010             | 9,307                   | 641                                 |
| 2011             | 9,032                   | 537                                 |
| 2012             | 8,779                   | 627                                 |
| 2013             | 8,575                   | 565                                 |
| <b>Turkey</b>    |                         |                                     |
| 2006             | 2,724                   | 164                                 |
| 2007             | 2,583                   | 117                                 |
| 2008             | 2,629                   | 113                                 |
| 2009             | 2,292                   | 114                                 |
| 2010             | 2,407                   | 130                                 |
| 2011             | 2,232                   | 132                                 |
| 2012             | 2,261                   | 174                                 |
| 2013             | 2,322                   | 121                                 |

**Table 7.a Quota Hunt Results**

In 2013 we implemented a new program providing turkey and deer hunting opportunities for hunters who were confined to a wheelchair. This program was conducted in partnership with the National Wild Turkey Federation (NWTf). NWTf set up hunting blinds in an area that was scouted by members of the NWTf prior to the hunt.



**Figure 7.12 Quota Hunt Results**

## **Environmental Education Program**

Dispersed Environmental Education (EE) includes programs presented off-site, away from our EE facilities. In fiscal 2013, 394 visitors enjoyed **Eagle Tours** via van or boat. They enjoyed seeing eagles in the wild and learning their history and successful re-establishment at LBL.

118 people participated in **Nature Watch Series tours** in 2013, exploring out of the way places as they saw pelicans, eagles, and other birds.

**Woodlands Nature Watch** progressed in FY 2013 with a soft opening of the Empire and Bobcat Point sections in November 2012. Explanatory panels were installed at each location. Large boulders keep vehicles in the parking area. Visitors enjoy access to these areas all year, as they can now stroll down to the lake and enjoy the plethora of wildlife in these newly opened areas.

Off-site programs included **outreach in the nearby communities** at library events, senior citizens gatherings, other agency camps, and state parks. In 2013, interpreters reached 1,676 people with natural history programs.

## **Heritage Program**

We continue to focus on our development of the theme “Gone but not Forgotten: All About Discovery” in the continuation of developing recreational and educational elements of the heritage program. Our goal remains to provide opportunities for the discovery of the human history of LBL throughout the landscape. We are proud of the progress made in our heritage discovery projects this year.

Church and School Markers: The church and school marker post discovery project is over 50 % complete. Last year we purchased 91 church and school marker posts to be installed throughout LBL. Thanks to our partnership with Between the Rivers, Inc., an organization of former residents, 25 marker posts have been installed in Lyon County (see Figure 7.13). Heritage staff installed an additional 27 posts throughout in Trigg County KY and Stewart County TN. During FY13, BTR volunteers and heritage staff identified for the visitors a total of 52 former church and schools in all 3 counties within LBL.

Woodlands Trace Wildlife Gardens: Footprints of the Past: In this expanding project we delineate the footprints of buildings within the former Model community by planting native species flowers. In FY13 we monitored results of our plantings at the Model Baptist Church (see figure 7.14). We have been so excited to find pollinators and butterflies buzzing around our plantings throughout the year. Our visitors may notice the black plastic we laid out to prepare the Model Post Office for next year’s plantings.



Hikers see the results of heritage interpretation along the Central Hardwoods Scenic Trail as described below:

Golden Pond Overlook: We made excellent progress on the Golden Pond Overlook this year by completing the concrete pad. The design contains a depiction of a map of Golden Pond carved into the concrete pad surface. Six interpretive panels designed in consultation with former residents of the Area surround the concrete pad. (see Figure 7.15) We moved two mounting blocks, historically used for riders to mount horses, as part of the interpretation. The mounting blocks originated in Golden Pond.

Fenton Site: As part of our discovery project at Fenton volunteer students helped us design mosaic markers to identify the historic cabin locations surrounding the Fisherman's One Stop (see Figure 7.16). Individuals of all ages will enjoy hunting for these little concrete markers and learn to identify other clues to our history revealed in the landscape.

Loves Evangelical Church: Another group of volunteers worked with us to clear vegetation and delineate the footprint of the Loves Evangelical Church building (see Figure 7.17). We then stacked a line of bricks and planted daffodils along the footprint. Visitors can now venture off of the Central Hardwoods Scenic Trail to discover the footprint of the former church.



**Figure 7.13** Members of Between the Rivers, Inc., after installing the marker post for Mt. Pleasant Baptist Church





**Figure 7.14 Native flowers growing within the footprint of the Model Baptist Church**



**Figure 7.15 Golden Pond Overlook with interpretive panels and mounting blocks**





**Figure 7.16 Eastern Illinois volunteers helped design and build mosaic stone markers to identify historic cabin locations at Fenton**



**Figure 7.17 University of Illinois students pose in front of the Loves Evangelical Church after delineating the building footprint with brick and planted daffodils**

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| <b>Goal 8:</b>                                       | <b>The LBL Area Plan will remain effective and usable and lead to accomplishments that support National Strategic Goals.</b>  |
| <b>Sub-element NFS Generic Desired Condition</b>     | “...as a unit of the FS, LBL will actively fulfill its role in support of the FS’s National Strategic Goals.” [Area Plan, Mission]  |
| <b>Example Area Plan Desired Condition Statement</b> | “The programs and methods used at LBL will be in a constant state of evaluation for improvement and refinement, assuring that LBL will maintain a cutting-edge management focus in all disciplines.” [Area Plan, Vision]  |
| <b>Desired Trend Statement</b>                       | “A user-friendly and informative Area Plan monitoring and evaluation report will be produced annually and include comparison of LBL accomplishments and National Strategic Goals.” [Objective 8a]   |
| <b>Monitoring Questions</b>                          | 36. Are the goals of the LBL Plan leading to accomplishments that support national objectives? (Duplicate question for Measures 36-39)  |
| <b>Area Plan Performance Measures</b>                | 36. Trends and annual summary of accomplishments and results.<br>37. Determine whether standards, guidelines, and management requirements are being met and are effective in achieving expected results.<br>38. Determine if planning information or physical conditions have changed and provisions remain scientifically valid.<br>39. Comparison of estimated and actual costs of plan implementation.   |
| <b>Data Sources Utilized</b>                         | --Comparison of projects and recent accomplishments to the National Strategic Plan goals and objectives; public comments; standard tracking systems<br>--Interdisciplinary review; sample projects to observe effectiveness of implemented standards<br>--Interdisciplinary review of Area Plan for needed changes as new information becomes available and/or significant changes in conditions are observed<br>--Compare trends in operating budgets to the estimated costs of implementing the Area Plan |
| <b>Importance</b>                                    | Ensures that the Plan stays usable and is working to support not only LBL goals, but those of the agency. Aids in communication with stakeholders.  |
| <b>What It Tells Us</b>                              | By reviewing the accomplishments, we are able to find trends that indicate if the Plan is moving towards desired conditions, and should emerging issues begin to occupy more time and resources than the objectives in the Plan, indications for a “need for change” can be identified.   |

## Goal 8, Monitoring and Evaluation Narrative

The 2004 Area Plan remains aligned with the goals of the Forest Service and Region 8. The planning information, assumptions, and provisions of the Area Plan remain scientifically valid. During FY13, the objective for shortleaf pine under Goal 5 was increased through a plan amendment as part of the Devil’s Backbone environmental assessment. The amendment coincides with the Region’s shortleaf pine initiative. The amended Objective 5f in the Area Plan is:

Create and maintain a sustained supply of at least 600 acres of combined shortleaf pine and shortleaf pine-oak forest in the vicinity of the Devil's Backbone Area of LBL over the first decade. In addition, provide up to 1,000 acres of combined shortleaf pine or shortleaf pine-oak regenerating forest conditions throughout LBL over the first decade, with a long-term objective (over 50 years) of 1,600 acres of mature shortleaf pine and shortleaf pine-oak forest throughout LBL.

LBL contributes to the achievement of the National Forest Service strategic goals by completing the assigned Performance Attainment Reporting (PAR) targets. Table 8.a displays key accomplishments for the last five full fiscal years of the 2004 Area Plan implementation. The target for heritage changed from managing priority assets to managing seven components of the heritage program. The Forest Service began tracking the heritage program, as a whole, in FY13. The large increases between FY11 and FY12/13 in the number of acres of natural resource improvements (inland lake habitat enhanced, soil and water resource acres improved, T&E and non-T&E habitat enhanced) came from a change in reporting to use of integrated accomplishments. The actual acres treated are approximately the same numbers as FY11 and earlier. The value for timber volume sold in the table below does not reflect the actual FY13 volume of over 7,000 ccf. We achieved the target for timber volume sold in FY13 but due to reporting issues we did not capture all of this in the FY13 PAR system. Approximately 3,800 ccf from FY13 will be reflected in FY14 in addition to the FY14 volume target.

**Table 8.a LBL Key Accomplishments**

| <b>Specific National Objective (Target)</b>                                | <b>Unit of Measure</b> | <b>FY09 Accomp.</b> | <b>FY10 Accomp.</b> | <b>FY11 Accomp.</b> | <b>FY12 Accomp.</b> | <b>FY13 Accomp.</b> |
|--|------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>Miles of high clearance system roads receiving maintenance</b>          | <b>Mile</b>            | <b>0</b>            | <b>0</b>            | <b>14</b>           | <b>0</b>            | <b>25</b>           |
| <b>Miles of passenger car system roads receiving maintenance</b>           | <b>Mile</b>            | <b>293</b>          | <b>0</b>            | <b>147</b>          | <b>108</b>          | <b>234</b>          |
| <b>Miles of road decommissioned</b>  | <b>Mile</b>            | <b>2.3</b>          | <b>0.5</b>          | <b>0</b>            | <b>0</b>            | <b>0</b>            |
| <b>Total trail system miles meeting standard</b>                           | <b>Mile</b>            | <b>294</b>          | <b>329</b>          | <b>179</b>          | <b>97.4</b>         | <b>92</b>           |
| <b>Miles of system trail improved to standard</b>                          | <b>Mile</b>            | <b>19</b>           | <b>18</b>           | <b>17</b>           | <b>11</b>           | <b>3</b>            |
| <b>Miles of system trail receiving maintenance to standard</b>             | <b>Mile</b>            | <b>275</b>          | <b>200</b>          | <b>183</b>          | <b>98.7</b>         | <b>89</b>           |
| <b>Number of interpretive and conservation education plans implemented</b> | <b>Plan</b>            | <b>1</b>            | <b>1</b>            | <b>1</b>            | <b>1</b>            | <b>1</b>            |
| <b>Priority Heritage</b>   | <b>Asset</b>           | <b>3</b>            | <b>4</b>            | <b>5</b>            | <b>6</b>            | <b>N/A</b>          |

| <b>Specific National Objective (Target)</b>   | <b>Unit of Measure</b>   | <b>FY09 Accompl.</b> | <b>FY10 Accompl.</b>   | <b>FY11 Accompl.</b>   | <b>FY12 Accompl.</b>   | <b>FY13 Accompl.</b>   |
|---|--------------------------|----------------------|------------------------|------------------------|------------------------|------------------------|
| assets managed to standard  |                          |                      |                        |                        |                        |                        |
| Heritage program managed to standard  | Program                  | N/A                  | N/A                    | N/A                    | N/A                    | 1                      |
| Recreation site capacity (number of People At One Time) operated to standard              | PAOT (Core) (Integrated) | 2,525,000<br>---     | 2,525,000<br>3,130,661 | 2,600,000<br>3,288,379 | 1,482,105<br>3,288,379 | 1,300,449<br>3,075,212 |
| Number of wildlife interpretation and education products                                  | Product                  | 42                   | 42                     | 42                     | 128                    | ---                    |
| Acres of inland lake habitat enhanced   | Acre                     | 112                  | 107                    | 266                    | 1,843                  | 2,371                  |
| Acres of inventory data collected or acquired meeting corporate standards                 | Acre                     | 117,470              | 52,785                 | 9,878                  | 7,850                  | 6,000                  |
| Acres of non-threatened/endangered terrestrial habitat enhanced                           | Acre                     | 5,343                | 7,889                  | 4,443                  | 17,811                 | 14,688                 |
| Soil and water resource acres improved  | Acre                     | 20                   | 92                     | 37                     | 6,592                  | 6,593                  |
| Volume of Regular Timber Sold   | ccf                      | 3,037                | 1,665                  | 6,513                  | 7,615                  | 2,949<br>plus 3,829*   |
| Number of forest special products permits issued  | Permit                   | 22                   | 15                     | 44                     | 31                     | 33                     |
| Annual monitoring requirements completed  | Number                   | 12                   | 12                     | 13                     | 13                     | 10                     |
| Landscape scale or Ecosystem assessments completed  | Assessment               | 1                    | 1                      | 1                      | 1                      | 1                      |
| Highest priority acres treated annually for noxious weeds and invasive plants on NF lands | Acre                     | 494                  | 498                    | 771                    | 432                    | 808                    |
| Land use authorizations administered to standard  | Authorization            | 22                   | 42                     | 32                     | 43                     | 38                     |
| Total Acres Treated with Fire   | Acre                     | 4,984                | 10,866                 | 4,681                  | 8,097                  | 5793                   |
| HF Acres Treated  | Acre                     | 64                   | 6900                   | 2,600                  | 5,172                  | 5,698                  |
| FN Other Acres Treated  | Acre                     | 54                   | 3966                   | 2,081                  | 3,125                  | ---                    |
| Number of land use  | Application              | 5                    | 16                     | 12                     | 10                     | 9                      |



| Specific National Objective (Target)                           | Unit of Measure | FY09 Accomp. | FY10 Accomp. | FY11 Accomp. | FY12 Accomp. | FY13 Accomp. |
|--|-----------------|--------------|--------------|--------------|--------------|--------------|
| proposals and applications processed                           |                 |              |              |              |              |              |
| Recreation Special use Authorizations Administered to Standard | Authorization   | 321          | 303          | 259          | 250          | 200          |
| Threatened & Endangered (T&E) and non-T&E Habitat Enhanced     | Acre            | 6,539        | 900          | 9,848        | 17,806       | 14,688       |
| Stewardship  | Acre            | 4,427        | 4,402        | 4,984        | 3,783        | 5,010        |
|  |                 |              |              |              |              |              |

\*Due to accounting system, 3,829 ccf sold in FY13 was accounted in FY14.

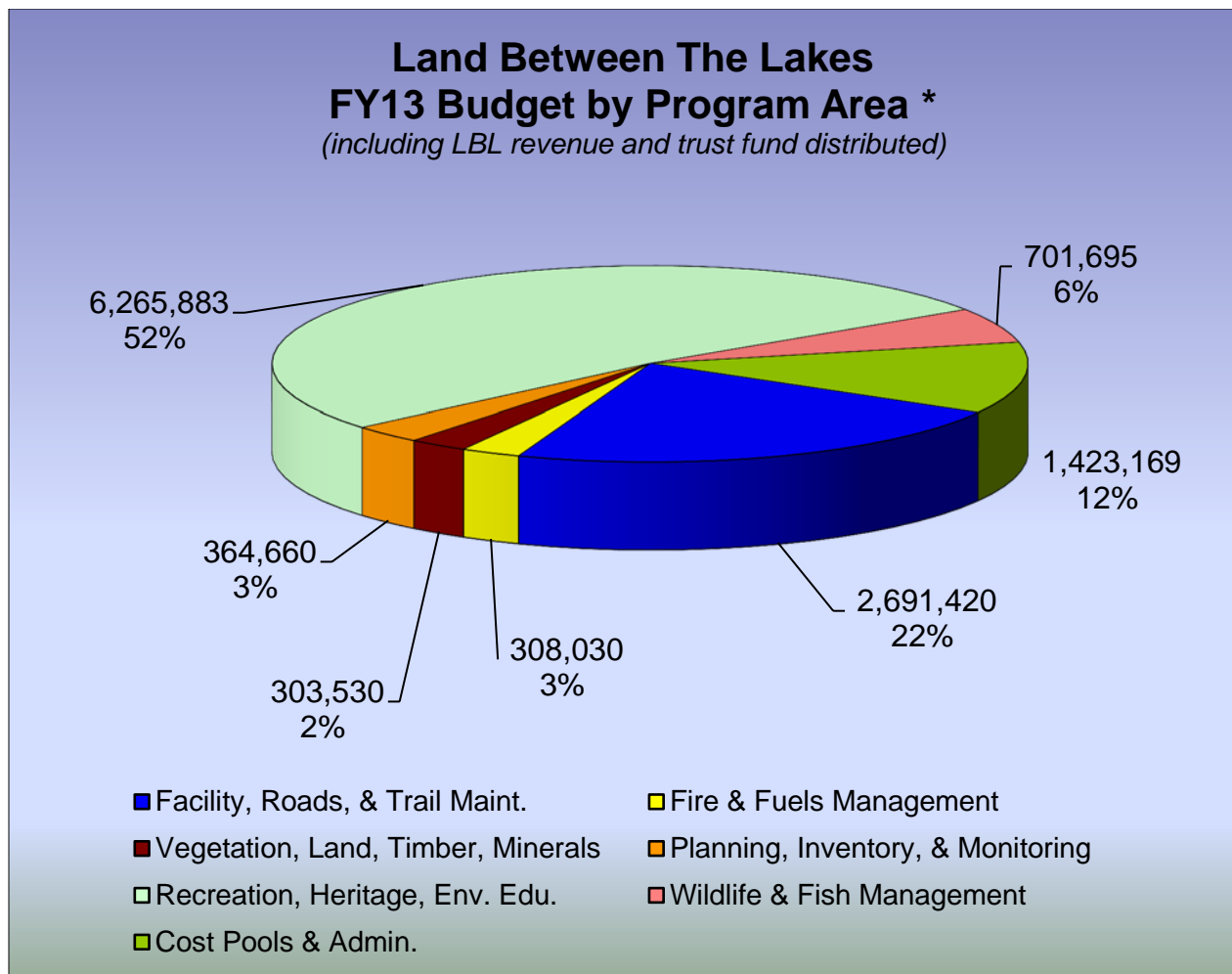


Figure 8.1 FY13 Budget for LBL

LBL's annual operating budget in FY13 was approximately \$13.6 million: \$8.9 million in federal appropriations and \$4.7 million in revenue. More than half of the budget was applied to the Recreation, Environmental Education, and Heritage programs at LBL. Approximately 22 percent was allocated to facilities, roads, and trails maintenance to support and provide this array of opportunities (see Figure 8.1.) The appropriated budget for LBL has been essentially flat since 2000 (about 1 percent increase).

Taking into account inflation and rising operational costs, along with a Facility Maintenance budget cut by over 43 percent from FY11 to FY12 and then again by 61.3 percent from FY12 to FY13, LBL's ability to reduce the deferred maintenance across the property has decreased. LBL has been able to absorb these rising costs but it has not been able to substantially invest in facilities without other sources of funding.

The prediction of lower budgets for federal agencies in the next few years, particularly related to maintenance functions, is cause for concern and will require the involvement and creativity of the public and LBL staff. Some reduction in services seems inevitable. In FY12, we assigned a Budget Reduction team to establish and implement a plan to decrease costs and increase revenue. We will continue to implement this plan into FY14.

In FY13, volunteers provided 88,495 hours service and the Public Land Corps Program (apprentice & intern program) provided 27,873 hours service. The total 116,368 hours, or 56 people years, provides \$2,576,388 value to Land Between The Lakes.

Partnership with the Friends of LBL provides an additional in-kind assistance valued at \$985,262 (plus direct cash contributions of another \$350,000). When volunteer hours are combined with all other in-kind assistance and cash contributions from partners, the value of total savings to the taxpayer in FY13 was over \$3.9 million.

## E. Action Plan

LBL monitoring results did not establish the need for any major actions or changes at this time. There are a number of minor actions listed below implement several program initiatives outlined in desired condition in the Area Plan or have some level of public expectation. These action items are drawn from the prior year's M&E Reports and have been updated. LBL staff completed two items during FY13. In addition, this report indicates no need for any additional Area Plan amendments.

### Action Items and Status

1. Action: Collaborate with the public to review, identify, and determine backcountry or boat ramp facilities that are obsolete, excessively expensive to maintain, and can be consolidated to fewer but better-maintained facilities meeting today's public service needs. (FY05/06)

Responsibility: Customer Service Department Staff

Completion Date: September 2013

Status: This effort began in 2010. Public input was gathered during FY07, crafted during FY08; a proposal was circulated to the public for comment in 2009. A second set of proposed changes were circulated to the public July – September 2010. LT approved recommendations in 2011. The original item is complete. Potential budget cuts in facility maintenance may require additional actions and considerations. A public involvement process, building on the work done for this action item is needed, well ahead of potential decisions. Decisions were made in FY12; implementation began in FY13 with some facility closures, changes in maintenance level, and increasing fees. This item is now complete.

2. Action: Develop a Programmatic Agreement with both State SHPOs. Concurrently a Heritage Implementation Plan will be completed. (FY09)

Responsibility: Customer Service Department Staff

Completion Date: Ongoing

Status: These two documents were anticipated to be complete during FY09; and will now be complete in FY13. The draft reports were made available to the public during FY10.

Revisions to the draft were made as a result of a meeting with the consulting parties that was held during late summer FY11. FY12, Agreements are expected with KY and TN separately due to different concerns with the State Officials. The two Programmatic Agreements are being reviewed by the Advisory Council on Historic Preservation. Decision was expected 2<sup>nd</sup> quarter of FY13. During FY13, the two state programmatic agreements were modified to be one agreement for all of LBL and comments were requested and received from the public, tribes and signatories. The agreement is expected to be signed in FY14.

3. Action: Implement the Area Plan strategies associated with the State Natural Area in the Devil's Backbone area in Tennessee by completing an EA to promote shortleaf pine regeneration. (FY07)

Responsibility: Environmental Stewardship Department Staff

Completion Date: September, 2013

Status: IDT began preliminary data gathering work on this project in FY08. Alternatives were developed and proposed for comment during FY09. The completion of the EA was put

on hold due to FY09 priorities, but will return as a priority in FY12. A prescribed fire was conducted in April 2010 under a CE decision. The IDT completed field data collection for the EA during FY12. With the completion of the EA and Decision in September of 2013 this item is now complete.

4. Action: Implement the first phase of the Prior Creek project. Offer the Crockett Creek Timber Sale Unit and begin harvest on this unit. Develop EE materials to interpret the Prior Creek project. (FY07)

Responsibility: Environmental Stewardship (timber) and EE (interpretation)

Completion Date: September 30, 2011

Status: Timber sale (Crockett Creek) offered but did not sell in 2008. Crockett Creek timber sale was sold in FY09 and timber was harvested during FY10. EE materials will be developed from monies generated by the timber harvest.

5. Action: Provide support to the Highway 68/80 improvement project. Implement mitigation items described in the decision documents. (FY07)

Responsibility: Customer Service (trail) and Environmental Stewardship (support)

Completion Date: Mitigations FY11.

Status: Support to highway improvement continued into FY12. Waiting on funding for remaining mitigation items, expect payment in 2<sup>nd</sup> quarter of FY13. Received funding for the mitigation items during FY13 and began implementation and planning of these items.

7. Action: Complete proposals for demonstration and restoration of the ecological landscape of approximately 340,000 acres in western Kentucky and Tennessee that is inclusive of Land Between The Lakes National Recreation area (LBL) and consistent with the Area Plan. Terrestrially, this means, restoring the canebrakes, riparian areas, warm season grasslands, oak-grasslands, oak-hickory barrens, savannahs and woodlands, oak-hickory forests, shortleaf pine forests, and mesophytic forests mosaic that once moved within this landscape. Aquatic restoration would include wetland restoration/mitigation, addressing historic stream channelization, head cutting, aquatic organism passage and restoring historical flows to the channels by the creation of grasslands, barrens, savannahs and woodlands on a landscape scale. (FY10)

Responsibility: Environmental Stewardship Department Staff

Completion Date: September 30, 2013

Status: A proposal for the Collaborative Forest Landscape Restoration Project (CFLRP) was completed in FY10 and was revised during FY11 and remains unfunded. Assessment of watershed condition class was completed during FY11. Funding will be pursued, and the proposal updated, as new information is received. Central Hardwoods Joint Venture (CHJV) partnered with LBL to model habitat needs for upland birds during FY12. The proposal remains unfunded in FY13. CHJV completed the model of the effects of treatment on grassland birds, moving toward landscape level projects. The area modeled may be the location we conduct the next environmental assessment.

8. Action: Complete an Economic Impact Study to understand the economic impact specific visitor groups have on the outlying communities (Day use vs. overnight), and compare

groups within uses (example: Nature Station vs. Homeplace -- Wranglers Campground vs. Hillman Ferry Campground) (FY10).

Responsibility: Business Performance Department Staff

Completion Date: September 30, 2014

Status: In FY12 the LBL Business Plan was completed which serves as a step toward the completion of the Economic Impact Study. The Economic Impact Study was on schedule to be completed during FY13, but was dependent on the successful transition of the new Forest Service financial system (FMMI). The transition to FMMI caused delays in the Economic Impact Study. FMMI transition was delayed therefore this action item is incomplete.

9. Implement the Area Plan and recommendations from the 2009 Ice Storm Assessment by completing an EA to improve habitat and recreation in the Pisgah Creek area. (FY12)

Responsibility: Environmental Stewardship Department

Completion Date: December 2014 (Decision Date)

Status: The project team began developing proposed actions to be evaluated in the EA during FY12. Field data was collected during FY13. The environmental assessment for the Pisgah area is underway.

Completion Date: September 30, 2014



## F. Appendices

### Appendix 1

The following section is excerpted directly from Section 2 of the Area Plan. It clearly articulates both the reasons to develop this report and the methodologies being employed.

#### Monitoring and Evaluation

Monitoring constitutes an important link between the goals of the Area Plan and annual program accomplishments. The planning process has identified key monitoring questions that address each of the priority goals and objectives; they are listed in Part 1 of the document (*2004 Area Plan*) under Area Wide Goals. The monitoring program will focus on some risks mentioned previously while addressing suitable uses, use strategies, and design criteria.

Monitoring will track the wide variety of components of the Area Plan. Roles and contributions identified include the LBL interdisciplinary program specialist who will complete data gathering and evaluation of the Area Plan's implementation. Additionally, both the general public and stakeholders will be involved to capture the perceptions of how successfully LBL achieves the area wide goals and objectives. Monitoring will track how well implementation of the Area Plan's goals and objectives is bringing the conditions of LBL to the desired conditions specified by the Area Plan.

Because this Area Plan also supports the FS National Strategic Goals, the monitoring program will also weigh the Area Plan's progress and achievements in supporting these national goals. However, as these national goals are likely to change over time as national issues and special initiatives dictate, they were not included as formal goals of the Area Plan. This monitoring program, therefore, will include a comparison of this Area Plan's goals, annual LBL program accomplishments, and current or future national goals as part of the monitoring process.

By applying the evaluation questions and measures for each area goal, results and trends will provide a clearer picture of progress toward the vision. The evaluation of monitoring information will measure how close LBL is to reaching desired conditions identified in the Area Plan, including goals, objectives, and susceptibility to emerging issues.

An important concept incorporated in this Area Plan is the continuing use of some evaluation factors used in the analyses of the Environmental Impact Statement (EIS) alternatives. This approach allows for those EIS evaluation factors to serve as benchmarks from which original assumptions can be tested, and progress toward desired conditions can be measured.

Evaluations will serve as the springboard from which the resource specialist can identify changes needed in the Area Plan or its implementation, or research needed to clarify and address management issues. Results will also be used to help set shorter-term (three-to-five-year) strategic direction, as well as annual work plans. Existing strategies will be updated as needed, based on these evaluations. Results will be in the Area Plan M&E annual report. The Monitoring Summary Table in the Appendix (*of the Area Plan*) includes a complete list of questions, measures, method of collection, frequency, and responsible staff.

Note: items in italics are clarifications to the original section in the Area Plan, intended to aid the reader.

## Appendix 2

### Friends of LBL Partners in support of our Environmental Education mission:

#### **State Parks:**

- Kentucky Dam Village
- Lake Barkley State Resort Park
- Paris Landing State Park
- Kenlake State Resort Park

#### **Conservation Organizations:**

- Ducks Unlimited
- National Wild Turkey Federation
- Monarch Watch
- North American Butterfly Association
- North American Bluebird Society
- Purple Martin Conservation Association
- National Audubon Society
- National Wildlife Federation
- Frogwatch AZA
- Operation Rubythroat
- Red Wolf Coalition
- Living Lands & Waters
- Kentucky Waterwatch
- Cumberland River Compact
- Kentucky Bowfishermen

#### **Universities & Colleges:**

- Murray State University
- University of Kentucky Extension
- Purdue University
- Austin Peay State University
- Southern Illinois University
- University of Tennessee, Martin

#### **Federal Agencies:**

- Natural Resource & Conservation Service
- Tennessee National Wildlife Refuge
- Clarks River National Wildlife Refuge
- US Fish & Wildlife Service
- Monitoring Avian Productivity and Survivorship (MAPS)
- Partners in Flight
- National Park Service

#### **State Agencies & Local Organizations:**

- Kentucky Department of Fish & Wildlife Resources
- Tennessee Wildlife Resources Agency
- Tennessee Aquarium
- Louisville Zoo
- Nashville Zoo
- Chattanooga Nature Center
- Caldwell County Conservation District
- Marshall County Public Library
- Logan County Public Library
- Western Kentucky Amateur Astronomers

#### **Children's Organizations:**

- West Kentucky 4-H
- Boy Scouts of America
- Trigg County High School Environment Club
- Girl Scouts of America
- Joshua Tree Home Educators Association
- Highland Rim (middle TN) Headstart
- Futskilz Soccer Training

#### **Professional Organizations:**

- National Association for Interpretation
- Region 3 of National Association for Interpretation
- Kentucky Association of Environmental Education
- Tennessee Environmental Education Association
- North American Association for Environmental Education