



Annual Report



October 2013



COVER PHOTO: Dillard Mill State Historic Site in early morning light, 2012, by Phil Kamp and printed with permission. The mill and surrounding property is owned by the L-A-D Foundation and, since 1975, has been leased to the Missouri Department of Natural Resources to operate as a Missouri State Park.

ANNUAL REPORT

of the L-A-D Foundation October 2013

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L-A-D Foundation

“Incorporated in 1962, the L-A-D Foundation is a Missouri private operating foundation dedicated to sustainable forest management, protection of exemplary natural and cultural areas in Missouri, and providing support and advocacy for projects and policies that have a positive influence in the Missouri Ozark region.”

Leo Drey began acquisition of forest land in the Missouri Ozarks in 1951. The name Pioneer Forest was inspired by Pioneer Cooperage Company of St. Louis, the company that originally owned much of the land that was purchased in 1946 by National Distillers Products Corporation of New York, and was renamed the Seton Porter Forest. Then in 1954, Leo Drey purchased the National Distillers land and added it to the forest land he already owned, and renamed it all Pioneer Forest. In 1962, Leo Drey founded the L-A-D Foundation primarily to hold and protect areas of outstanding natural or cultural resource value in the Missouri Ozarks. In 2004, Leo Drey donated Pioneer Forest, as a limited liability corporation, to the L-A-D Foundation to be managed, as it had been for 50 years, as an exemplary model of conservative single-tree selection forestry.

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Brandon Kuhn, Chief Forester

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Danny Skaggs
Mike Adams
Tim Dyer
Matthew Skaggs

St. Louis Office Manager:

Cher Lowther

From the President

It has been another meaningful and eventful year for the L-A-D Foundation. One key transition has been the retirement of our highly respected Pioneer Forest Manager Terry Cunningham. After more than 40 years of service, Terry was honored and celebrated in April during our annual community dinner at Pioneer headquarters in Salem. We all are gratified that Terry will serve the Foundation as a member of our Advisory Council, joining retired Forest Manager Clint Trammel in that role. Again, congratulations and thanks to Terry.

Equally important in this transition have been the promotions of Jason Green to Pioneer Forest Manager and Brandon Kuhn to Chief Forester. Both graduates of the University of Missouri, these two professional foresters have proven their skill and talent, and we are fortunate to have them fill these critical positions. Congratulations, Jason and Brandon. Also, welcome to Cher Lowther, our new Office Manager in St. Louis.

During the year we completed our 13th Comprehensive Forest Inventory (CFI), a survey conducted every 5 years, which Pioneer Cooperage Company began in 1952, and which Leo adopted when he renamed all of his lands Pioneer Forest. This year's CFI showed that under our system of conservative single tree selection forestry, Pioneer Forest continues to grow, adding more volume, despite substantial harvests and a massive windstorm in 2009.

Our grant program continues to make investments in Ozark community and resource health, including a cleanup of Goodwin Pit Cave, which drains to Ha Ha Tonka Spring at Ha Ha Tonka State Park. Closer to the Forest, we supported the Salem Arts Council with an exhibit about the history of the Current River. These modest grants are a big part of our work.

In our long term efforts to strengthen the resources of our own properties, staff negotiated a small but critical addition to our Ball Mill Resurgence tract along Blue Spring Branch in Perry County. This addition provides better protection of the streamside and bottomlands along that important stream.

Another key property interest that was conveyed to L-A-D by the Drey family in 2012 was the access rights to the Dennig Road at Greer Spring. The lands underneath the road and surrounding Greer Spring are all part of the Eleven Point Scenic River, and we are working with the Mark Twain National Forest to ensure that the resources of the spring valley remain unspoiled.

Pioneer Forest has moved forward in partnership with other groups and agencies in restoring the Ozark heritage of shortleaf pine landscapes. Most of Pioneer is primarily natural oak habitat, but we also have several outstanding remnants of original "piney woods," and we are working to manage those to help re-establish this important Ozark habitat.

Finally, we are pleased to report that the Open Space Council of St. Louis has recognized Leo and Kay Drey with its Lifetime Achievement Award. Well done, as always, Leo and Kay.



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Pioneer Forest Management

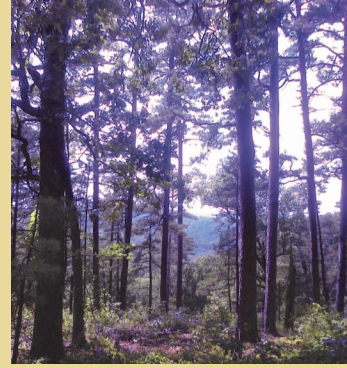
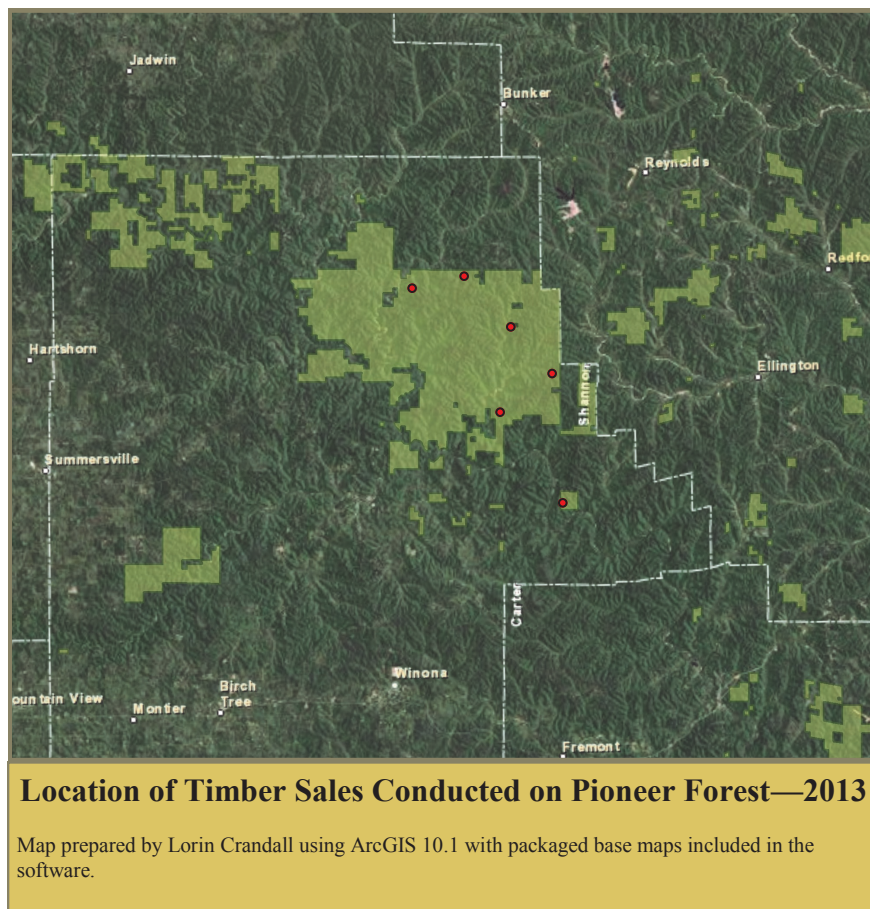


PHOTO BY: Pioneer Forest Staff

TIMBER SALES

Over the past year, we have been marking and administering six timber sales. This year our cut was just over 2.3 million feet of sawtimber, 4.8 million feet of blocking, and 1.6 million feet of pulpwood. Most of our timber-cutting crews continue to work in the Roger Pryor Pioneer Backcountry. We have added a few small salvage sales to clean up dead and dying trees. Timber markets appear to be relatively stable, and prices for standing timber have not changed. Improvements in housing and manufacturing markets may increase demand and prices for timber.



DROUGHT OF 2012 AND SALVAGE OPERATIONS

The summer of 2012 was one of the hottest and driest on record for much of the nation. The Missouri Ozarks suffered intense heat and little rainfall for most of the summer. This, of course, severely affected some areas of the forest, particularly trees of the white oak group. Many white oaks on lower slopes were hit by a late frost and then immediately afterwards by the drought, stressing trees more than they were able to withstand. Adding to that, many had already been infected with hypoxylon canker, a fungal disease, resulting in the sudden death of trees that otherwise appeared to be healthy.

BACKCOUNTRY ISSUES

One of our ongoing issues within the Roger Pryor Pioneer Backcountry is dealing with an increased number of ATV riders within the creeks, and on log hauling roads and skid trails. We have benefitted from the increased presence of enforcement, particularly provided by MDC Shannon County Conservation Agent Brad Hadley. Missouri Department of Natural Resources assigned a Backcountry Park Ranger several days a month. We are taking steps with our logging crews to close skid trails and haul roads with water bars and piles of tree tops to discourage and ultimately eliminate inappropriate ATV use.

BOUNDARY LINE MAINTENANCE

Pioneer Forest has approximately 575 miles of boundary line. This number has slightly decreased as a result of ongoing consolidation efforts. However, over the last four years, other factors, including the 2009 windstorm, salvage efforts, and attention to the CFI, have made the maintenance of these lines more difficult. Refreshing our boundary lines (approximately 100 miles each winter) is a top priority for Pioneer staff in the coming years.

INTERNSHIP

Dusty Smith of Summersville began working with us in January as an intern. His Forestry Technician program at Three Rivers Community College required an internship with a forestry related organization. Dusty's work ethic and maturity as a forest technician impressed us so much that we have kept him as a paid intern. He has become proficient with our CFI system, timber marking, timber sale administration, and is becoming increasingly familiar with the property of Pioneer Forest.

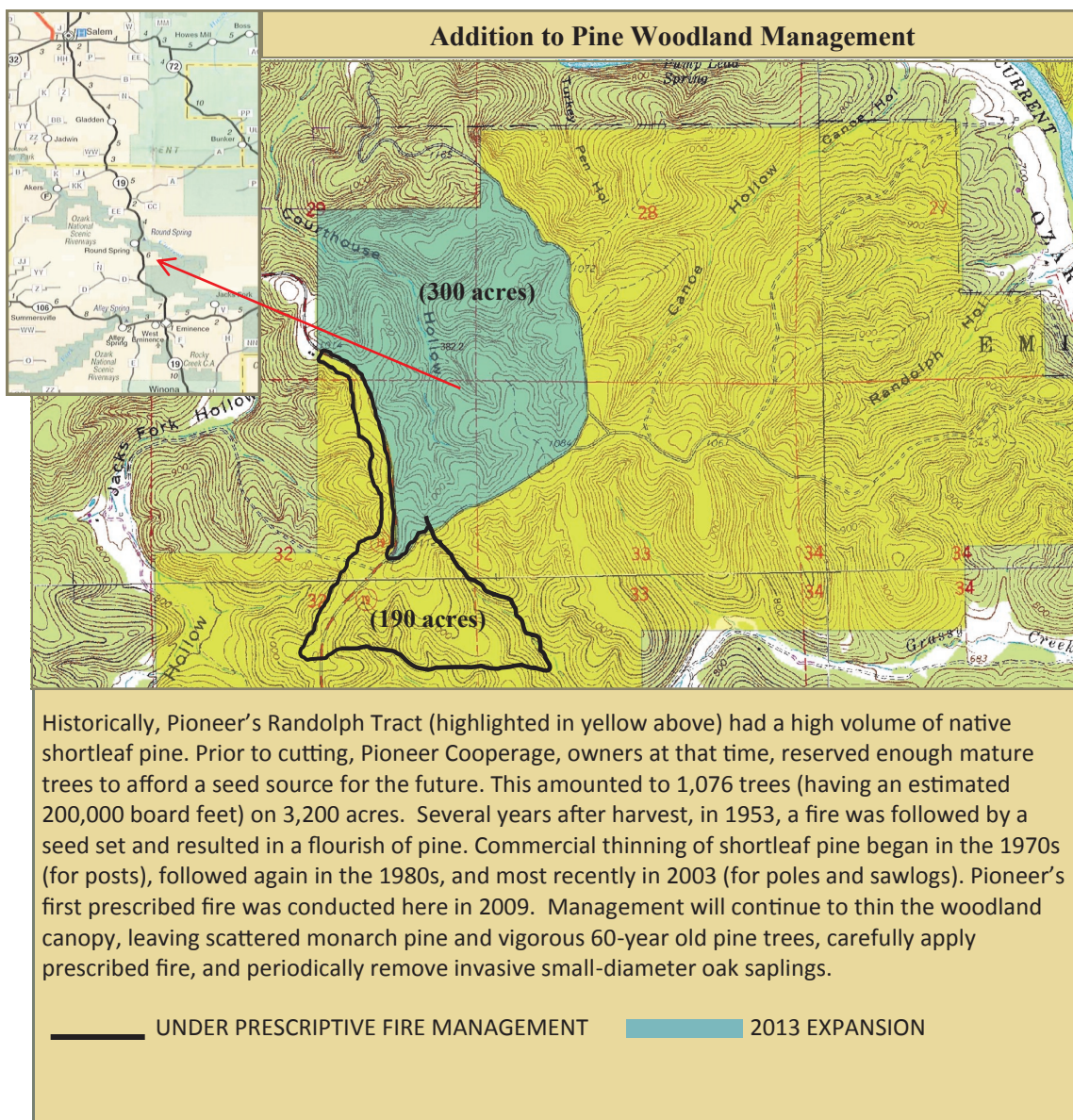


SHORTLEAF PINE WOODLAND MANAGEMENT AT PIONEER'S RANDOLPH TRACT

An estimated six million acres of shortleaf pine woodland existed in the southern Missouri Ozarks prior to settlement. As logging began in the 1800s, there was a strong demand for shortleaf pine. Rapid spread of logging left little of this native Missouri landscape intact. Pioneer Forest lands are rugged with steep hillsides that are more suitable to oak forests, but several areas are part of Missouri's original piney woodlands, including some of today's very best sites.

Prescribed fire has always been critical in maintaining the pine ecosystem. Fire helps to thin woody vegetation to promote canopy tree growth, reduces dangerously high levels of fuel accumulation in order to help reduce wildfire risk, stimulates a diverse understory of forbs and grasses, and prepares the seed bed for future pine establishment.

Over the past 15 years a number of agencies and organizations have collaborated in an effort to restore at least 15% of the most important remnants of Missouri's shortleaf pine woodlands. We began our efforts several years ago within Pioneer's Randolph Tract and at the adjacent Virgin Pine tract, totaling about 190 acres in Shannon County. More recent analysis has suggested an adjoining 300 acres dominated by pine as suitable for prescriptive thinning and fire management.





Virgin Pine Walk one-and-a-half years after prescribed fire.
PHOTO BY: Neal Humke

We have had much support with our prescribed fire efforts from many, including the Missouri Department of Conservation, AmeriCorps, University of Missouri Forestry Department, University of Missouri's Student Association of Fire Ecology, and the Missouri Department of Transportation. AmeriCorps crews also have played a key role in constructing the needed fire breaks prior to burning.

Most recently, we have entered into a cost-share agreement with the U.S. Forest Service Northern Research Station to thin competing understory woody stems, and are seeking other funding to add equipment and seasonal firefighters for future management.

The presence of exotic invasive plant species (Korean lespedeza, crown vetch, and spotted knapweed) threatens our restoration goal for the shortleaf pine. Mapping and spot herbicide spraying was initiated this year to better manage these problems.

All of the Pioneer shortleaf pine woodland areas are where the native red-cockaded woodpecker had been regularly observed, but then was last recorded in Missouri in June of 1946. The Virgin Pine area is an especially well-known Missouri landmark. Improving our stewardship in this larger landscape is a significant and worthwhile goal.



L-A-D Foundation

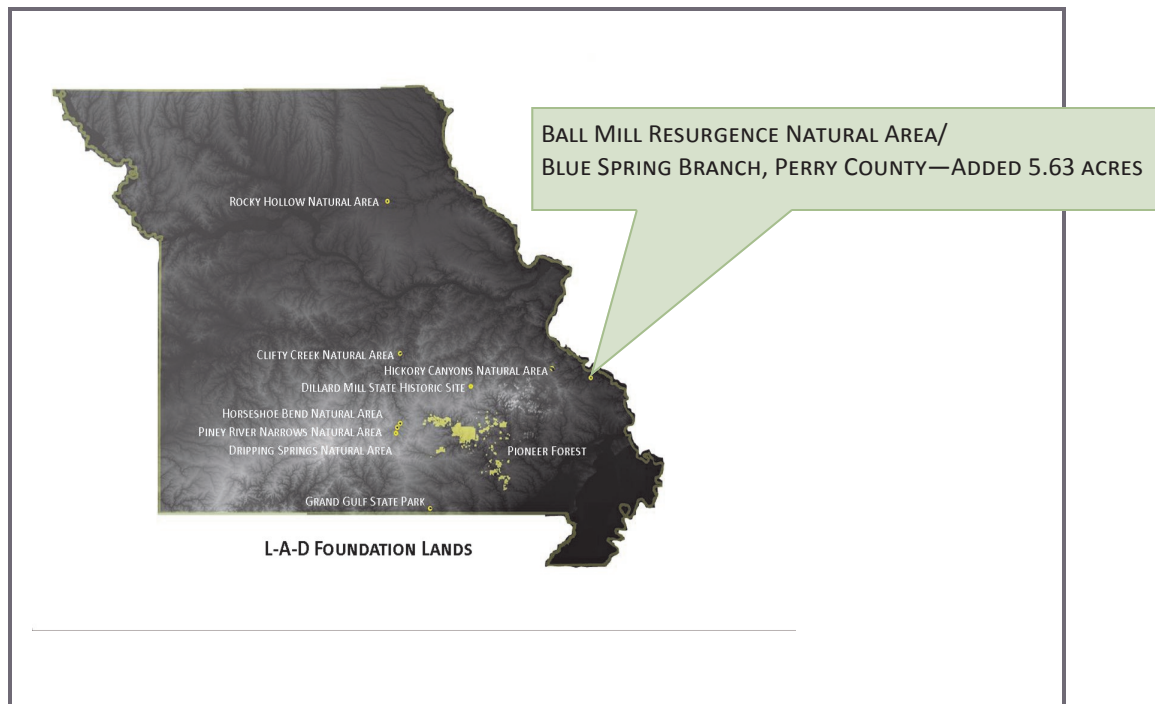
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Land Consolidation



Page from Leo Drey's Land Book

ACQUISITION/TRADE - BUEHLER TRACT



In October of 2012, the L-A-D Foundation closed on a small but important transaction with our neighbor, Steve Buehler. The result is a net increase of 5.63 acres of stream frontage along Blue Spring Branch. Our boundary line now follows the creek.

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Research



PHOTO BY: Denise Vaughn

CONTINUOUS FOREST INVENTORY

We have completed the Continuous Forest Inventory (CFI) of 2012-2013. Even with the effects of the wind storm of 2009, Pioneer Forest increased its 3,985 board feet per acre (bf/acre) to 4,122 bf/acre. Thus far, Pioneer has increased its volume for every year of the inventory. These measurements were first recorded in 1952.

This 13th CFI began in October of 2012. The CFI measurement was designed to show major changes and trends within Pioneer Forest and continues to be the most important data for planning future harvests.

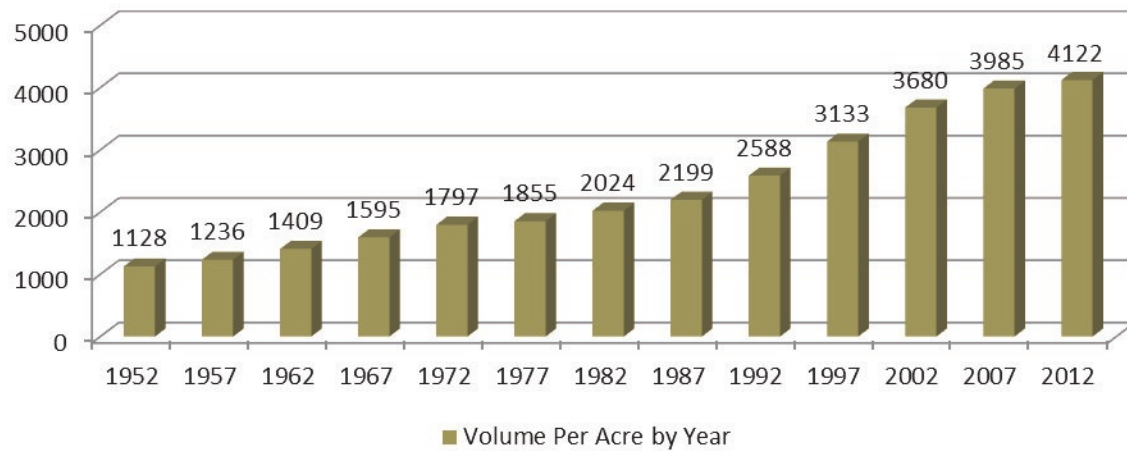
Of particular interest this year was how the 2009 windstorm and subsequent salvage of 30 million board feet affected the forest. The following conditions are to be considered:

1. Plots are assumed to be randomly located across the forest.
2. Acreage between plots has no probability of being sampled (therefore storm-damaged areas may or may not be sampled).
3. The results describe average growth, average bf/acre, and overall trends of the forest.
4. Most plots were unaffected by the storm (22 plots suffered severe storm damage, representing 5% of the total, and 416 plots were outside of major storm damage).
5. Most of the forest was unaffected by the storm. (Approximately 7,000 acres were severely affected, representing approximately 5% of the total landholding of 140,000 acres.)

Volume per Acre

Volume per acre in 2012 is the highest measured since the inventory began. Compared to 2007, there was a modest increase in standing volume from 3,985 bf/ acre to 4,122. This is an increase of 137 bf/ acre or a 3.4% increase in volume per acre.

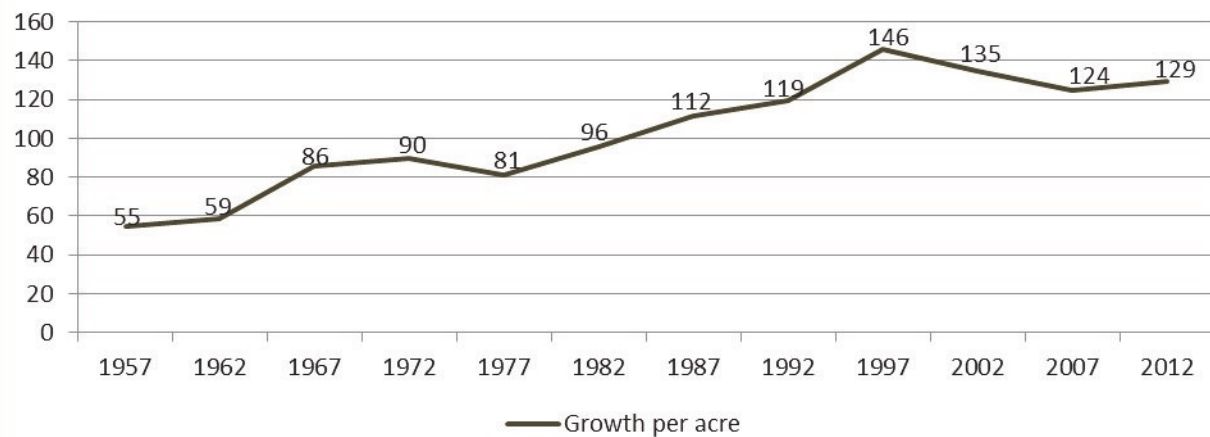
Volume Per Acre by Year



Annual Growth Per Acre

The forest continues to grow, but its rate of increase has slowed. Growth peaked in 1997 at 146 bf/acre per year, but then in 2002 and 2007 dropped to 135 and 124 bf/ acre per year, respectively. Average annual growth for 2012 was 129 bf/acre per year. Foresters do not yet fully understand the maximum growth potential of Ozark forests, but expect that growth will oscillate around the average, and may already have begun to do so.

Growth Per Acre



Stand Density and Species Composition

The forest continues to show an increase in trees in the sawlog class. The forest had 38 sawlog trees per acre in 2007, and there are 39 sawlog trees per acre from this most recent measurement.

BLACK BEAR SURVEY ON PIONEER FOREST

During the summers of 2011 and 2012, Pioneer Forest's Dan Skaggs assisted the Missouri Department of Conservation staff in their ongoing research work on black bears on Pioneer Forest. This effort recorded basic information on sex and weight, and sampled blood and hair. Travel of collared bears was also recorded.

Genetic testing has been underway to trace Missouri bears back to their original population. Most Missouri bears can be traced to an Arkansas population that came from Minnesota and Manitoba, Canada during the 1960s; some, however, have not been traced.

Further follow-up work with Pioneer's female black bears is planned later this year to learn more about this population, their numbers, locations, and reproductive capability. The expectation is that within the next several years, as more is learned and as the population grows, a hunting season will be established to help manage Missouri bears.



Missouri Department of Conservation Wildlife Biologist Jeff Beringer on Pioneer Forest with pre-season 500 lb. black bear.
PHOTO BY: Pioneer Forest staff

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Education and Outreach



PHOTO BY: Hank Dorst

COMMUNITY DINNER

In June of 2007, the L-A-D Foundation hosted its first dinner at the Pioneer Forest campus in Salem. These have continued each year since. Board and staff invite neighbors, organization leaders, county officials, federal and state agency staff, and others with whom we work. Preparations are made by staff with assistance from various vendors. This year, our dinner was prepared by Maria Lewis' Olig's BBQ in Licking. Joleen Senter-Durham and Brian Durham, owners of Piney River Brewing Company in Texas County, offered samples of two of their beverages to our dinner guests. Rain poured all day until shortly before the event. In spite of threatening weather, attendance was estimated at 150; many were present to help honor the retirement of Forest Manager Terry Cunningham.



Logger Ron Tuttle and L-A-D Board President John Karel.



Steve Bost, Ozark Chinquapin Foundation.



Top: Terry Cunningham is recognized by Key Drey for 40 years of dedication to Pioneer Forest.
Below: From the left are, Terry Cunningham, Department of Natural Resources Director Sara Parker-Pauley, and Denny Bopp, Deputy Director, Division of State Parks.
PHOTOS BY: Rindy O'Brien

VISITS TO FOUNDATION LANDS

Throughout the past year, various groups and individuals have toured Pioneer Forest and other Foundation lands. These included:

- October 18, 2012, Ozark National Scenic Riverways staff visited Pioneer Forest offices to discuss resource management issues.
- December 5, Kyle Hemken, Salem High School, a student, shadowed Chief Forester Jason Green for a day.
- February 20, 2013, Kelly Jewell of The Forest Trust, an international non-profit, met with Neal Humke, the Foundation's Land Stewardship Coordinator, to discuss their interest in tracking global forest products.
- February 23-24, Ozark Trail Association volunteers worked on Pioneer's Blair Creek section of the Ozark Trail.
- May 29, Ben Knapp, Silviculturist, University of Missouri, joined Jason Green on a short tour of Pioneer Forest and its uneven-aged system of single tree selection.
- May 31, Dave Larsen - Professor, University of Missouri, and Kevin O'Hara - Professor, University of California-Berkeley: Dr. O'Hara did research in the areas of stand dynamics, silviculture, and forest management. Terry Cunningham led this tour and introduced Kevin to Pioneer Forest and its uneven-aged system.
- May 31, University of Southern Illinois-Carbondale: Jason Green led a group of forestry students on a tour of Pioneer Forest. They visited an active timber sale to see the logging crew in action and how Pioneer foresters select each tree individually. The foresters also discussed the criteria involved in making those decisions.
- June 1, National Trails Day. The Ozark Trail Association board toured the Virgin Pine Walk.
- June 13, University of Missouri: Jason Green led a class of 20 forestry students along with their professor Ben Knapp on a tour of Pioneer Forest. They discussed silviculture, timber marking, timber sale administration, and timber harvesting techniques.
- June 24-25, Ed Loewenstein-Auburn University, Alabama: Dr. Loewenstein, who did his Ph.D. research on Pioneer Forest, brought two graduate students and one professor to Pioneer to learn about the silviculture and stand dynamics in the Missouri Ozarks. Attendees were Dr. Matthew Smidt (Auburn University), Ferhat Kara (Ph.D. candidate from Turkey), and Barbara Furtado (visiting scholar from Brazil).

WEBSITE IMPROVEMENTS UNDERWAY

The L-A-D Foundation began a re-design of its website. Accessing information will be more user-friendly, simplified for access from any mobile device, and allow for viewing and storage of on-line articles and research papers.

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Recreation and Natural Areas



PHOTO BY: Adam Rothermich

The L-A-D Foundation owns more than 146,000 acres in southeast Missouri. Most of that is Pioneer Forest within the Current River watershed. The Foundation's southernmost property is Grand Gulf State Park in Oregon County, and its northernmost property is Rocky Hollow Natural Area in Monroe County.

Along with protecting the important natural and cultural resources on these lands, we seek opportunities for public recreation activities. Private motorized vehicles are prohibited on Foundation lands, but may be used on state and county roads, which provide ample access to trailheads, streams, and hunting sites. We have several long-distance trail routes for hiking and backpacking, and certain trails designated for equestrian use. Other trails provide opportunities for walks through a shortleaf pine woodland near Round Spring or to see Cave Spring on the Current River. Water trails on the Current and Jacks Fork rivers pass more than 30 miles of the Foundation's river corridor lands within the Ozark National Scenic Riverways. Enjoyment of these lands includes general sightseeing, such as fall color drives on county roads; seasonal harvest of nuts, wild berries, mushrooms and fruits for personal use; and other traditional uses, such as camping, swimming, and photography.

In April of this year, Missouri was recognized as the Best Trails State at the American Trails International Trails Symposium in Arizona. Trails on L-A-D Foundation's lands now include more than 73 miles, counting those that are planned or under construction, and represent a significant component of this nationally recognized resource:

- **Ball Mill Resurgence Trail**, Perry County: A short one-mile trail loops from a small parking lot into the Blue Spring Branch valley and the resurgence. Parking is being planned at our Riney Tract along with a trail to access Blue Spring Branch.
- **Blair Creek Section, Ozark Trail**, Shannon County: The 13-mile route through Pioneer Forest was the very first section of the well-known Ozark Trail to be completed, in the late 1970s. This trail, and our Laxton Hollow and Brushy Creek trails, all connect through the Himont Trailhead.
- **Brushy Creek Trail**, Shannon County: A 19-mile, nested loop trail provides access to the interior of our Backcountry. Missouri Department of Natural Resources staff conducted maintenance, construction, and signing this past winter. Volunteer efforts to complete needed maintenance are being planned for this winter.

- **Cave Spring Trail**, Shannon County: A 4.6-mile, moderately difficult round-trip hike connects Devil's Well and Cave Spring. This trail crosses Pioneer and National Park Service lands with access at Devil's Well.
- **Clifty Creek Natural Area Trail**, Maries County: A 2.5-mile walk with scenic overlooks across the Clifty Creek valley, just before it empties into the Gasconade River.
- **Current River Trail** (under construction), Shannon County: A 12-mile hiking route will connect Round Spring on the west side of Roger Pryor Pioneer Backcountry with the Brushy Creek Trail farther east. This project is a combined effort of the National Park Service, Pioneer Forest, and the Missouri Department of Natural Resources, along with volunteers from the Ozark Trail Association and the Sierra Club.
- **Dillard Mill State Historic Site Trail**, Crawford County: A 1.5-mile trail winds through a hillside of oak, hickory, and pine, with benches for visitors to stop and enjoy the sights and sounds of the Huzzah Creek valley.
- **Equestrian Trail, Roger Pryor Pioneer Backcountry**, Shannon County: This 11.7-mile trail provides equestrians a route through the Backcountry, connecting Mark Twain National Forest and Missouri Department of Conservation lands. Volunteers from the Show Me Missouri Backcountry Horsemen have worked to establish this route, using Pioneer's woods trails, and will monitor its use and provide maintenance.
- **Grand Gulf State Park Trails**, Oregon County: From the parking lot, several short paths top the gulf and overlook the collapsed cave system. A short boardwalk/stairway (0.25 mile) leads to a viewing platform at the bottom of the gulf. A short loop trail (0.80 mile) takes visitors across the natural bridge, alongside the gulf, and then through an interesting and old oak woodland on the plateau which shows ample signs of past wind and ice storms.
- **Hickory Canyons Natural Area Trails**, Ste. Genevieve County: Two trails - one is an easy quarter-mile walk to a waterfall, and a second is a one-mile loop through the La Motte sandstone canyon.
- **Horseshoe Bend Natural Area Trail**, Texas County: A mile route leads from a small parking area across a scenic ridge that overlooks the Big Piney River and proceeds to the river bottom.
- **Laxton Hollow Trail**, Shannon County: A 2-mile route begins at the Himont Trailhead and leads to Laxton Spring, before connecting with the Ozark Trail at Blair Creek.
- **Pioneer Forest Interpretive Drive**, Shannon County: A 2-mile interpretive drive through Pioneer Forest shows visitors firsthand the half-century tradition of Pioneer's careful and conservative method of selectively harvesting trees.
- **Virgin Pine Walk**, Shannon County: This one-mile interpretive walk south of Round Spring leads through an old shortleaf pine forest where trees have been aged at more than 200 years.

INFORMATION ABOUT TRAILS ON L-A-D FOUNDATION LANDS

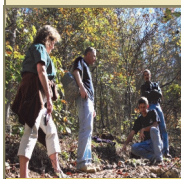
"Trails of Missouri State Parks" is a new 422-page, full-color book that lists trails in 58 state parks and historic sites (The Foundation's Dillard Mill and Grand Gulf are



included along with reference to Roger Pryor Pioneer Backcountry and its 32 miles of trails). Included are written descriptions,

contour maps, and GPS coordinates for trailheads and outstanding features like overlooks. The \$19.95 spiral-bound book is available at mostateparks.com.

The Missouri Conservation Department has compiled information about more than 700 miles of foot, bicycle, and equestrian trails at 146



conservation areas and nature centers. The Foundation's Ball Mill Resurgence, Clifty Creek, and Hickory Canyons Natural Areas are included. This searchable database can be found at mdc.mo.gov/nod/3392.

Volunteer Honored for Work on Pioneer Forest

At its 2013 Annual Meeting the Back Country Horsemen of America presented its Double Diamond Award to **Russell Martin**, Chairman of the Show Me Missouri Chapter for its Roger Pryor Pioneer Backcountry Trail Project.

NATURAL AREAS UNDER LEASE FOR MANAGEMENT WITH THE MISSOURI DEPARTMENT OF CONSERVATION



Seven L-A-D Foundation properties are leased to the Missouri Department of Conservation (MDC) for management: Ball Mill Resurgence Natural Area/Blue Spring Branch (Perry County), Clifty Creek (Maries County), Dripping Springs (Texas County), Hickory Canyons (Ste. Genevieve County), Horseshoe Bend (Texas County), Piney River Narrows (Texas County), and Rocky Hollow Natural Area (Monroe County). MDC, L-A-D Foundation Stewardship Committee, and staff continue to discuss management priorities and have been especially active at the following areas during the past year:

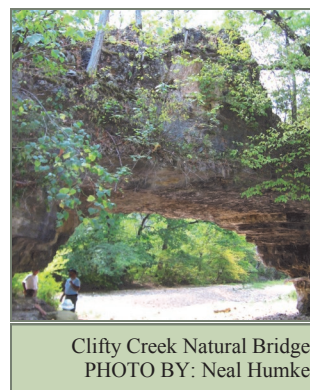
Ball Mill Resurgence Natural Area/Blue Spring Branch: Last fall the Foundation and neighbor Steve Beuhler agreed to an acquisition/trade contract to re-configure our boundary line by adding Foundation-owned frontage along Blue Spring Branch. With recent purchases, MDC staff and the Foundation have agreed to revise the management plan to include all of the leased 276.54-acre area.

The former fields of the Shafer property have now been reseeded with native grass and forbs. The Riney Tract has been a major focus with removal of the old house and fencing, and prescriptive management on a rocky hillside glade. Planning is underway to provide a small parking area, an area sign, a loop trail and restorative management for the hills and bottoms of this interesting part of Blue Spring Branch.

Clifty Creek Natural Area: The area management plan was completed last fall and, following review and comment, the final document was signed in January.

Hickory Canyons Natural Area: Re-marking boundary lines and maintaining an administrative right-of-way from the west side of property are underway.

Piney River Narrows Natural Area: Management includes adjacent L-A-D Foundation-owned lands outside the natural area. The management plan includes consideration of commercially thinning an approximately 10-acre shortleaf pine plantation which was established in the early 1970's. MDC staff and Neal Humke, our Land Stewardship Coordinator, are investigating various aspects of a potential sale (access, markets, and possible contractors). A trail originating from a public parking site on the west side of the property (across Foundation land to the West Piney Creek) is also being investigated.



Clifty Creek Natural Bridge
PHOTO BY: Neal Humke

Several small eastern red cedar were selected for removal from a small glade in order to favor the rare plant *Perideridia americana*, commonly known as wild dill or eastern yampah. The plant is listed on the Missouri Species and Communities of Conservation Concern Checklist.

Rocky Hollow Natural Area. Work to update the area management plan began in March. A field trip was conducted to review site conditions and discuss management issues. Extending an existing trail to form a loop through the south part of the area is also being considered.

OTHER NATURAL AREA EFFORTS CONDUCTED IN COOPERATION WITH MISSOURI DEPARTMENT OF CONSERVATION.

Pioneer Forest manages four other Missouri Natural Areas on its lands (Current River Natural Area, Shannon County; Lily Pond Natural Area, Reynolds County; Pioneer Natural Area, Shannon County; and the Triple Sink portion of Sunklands Natural Area in Shannon County). Conservation Department staff and Pioneer staff often visit these areas, and the MDC staff inspects and prepares Annual Status Reports every three years to review site conditions, use, and the results of management. They report on any issues that need to be resolved.

AREAS UNDER MANAGEMENT AGREEMENT WITH THE MISSOURI DEPARTMENT OF NATURAL RESOURCES

The L-A-D Foundation leases Dillard Mill State Historic Site in Crawford County, Grand Gulf State Park in Oregon County, and the Roger Pryor Pioneer Backcountry in Shannon County to the Missouri Department of Natural Resources as part of the Missouri State Parks System. Last fall the Foundation's Stewardship Committee met with DNR Division of State Parks staff in Jefferson City to discuss each of these areas.

Dillard Mill State Historic Site: Revision to the Conceptual Development Plan for the site has been approved. Work completed on site included replacing of the tin on the mill roof, installation of new wayside interpretive panels, and repairs to the office building and to the Old Mill Lodge that serves as the site administrator's residence.

Grand Gulf State Park: The park's 2012 public meeting drew 67 people. The trail across the natural bridge has been extended into a loop trail. This better accommodates use and introduces the new experience of the adjacent mature oak woodland, and provides more interpretive opportunities.

Roger Pryor Pioneer Backcountry: The lease of this nearly 57,000-acre area of Pioneer Forest has been under review by the Division of State Parks regarding staff, maintenance, law enforcement, and resource protection. The Division acknowledged the importance of the backcountry and the Division's commitment to continue its lease and to take steps toward improvement of its site management. Maintenance staff from Johnson's Shut-Ins State Park spent several days each winter month on-site — improving trails, signing, and completing new trail construction. At the beginning of this summer the Division's law enforcement staff met with Pioneer Forest staff to begin monthly patrols and determine how best to provide a presence during the holidays, in order to protect the Backcountry's unique resources more effectively.

The National Park Service, Ozark National Scenic Riverways, opened a 30-day "scoping period" in July for public comment on their portion of the proposed Current River Trail. Public input is preliminary to an upcoming Environmental Assessment to provide details for completing this pedestrian route through the park. The cooperative effort also includes the Ozark Trail Association, Missouri Department of Natural Resources, and L-A-D Foundation. This scenic trail would extend from Pioneer's Brushy Creek up-river, through Roger Pryor Pioneer Backcountry, to Round Spring, and on to the Current River State Park.

OTHER PIONEER FOREST SITES WHICH ARE MANAGED TO PROTECT NATURAL AND CULTURAL RESOURCES



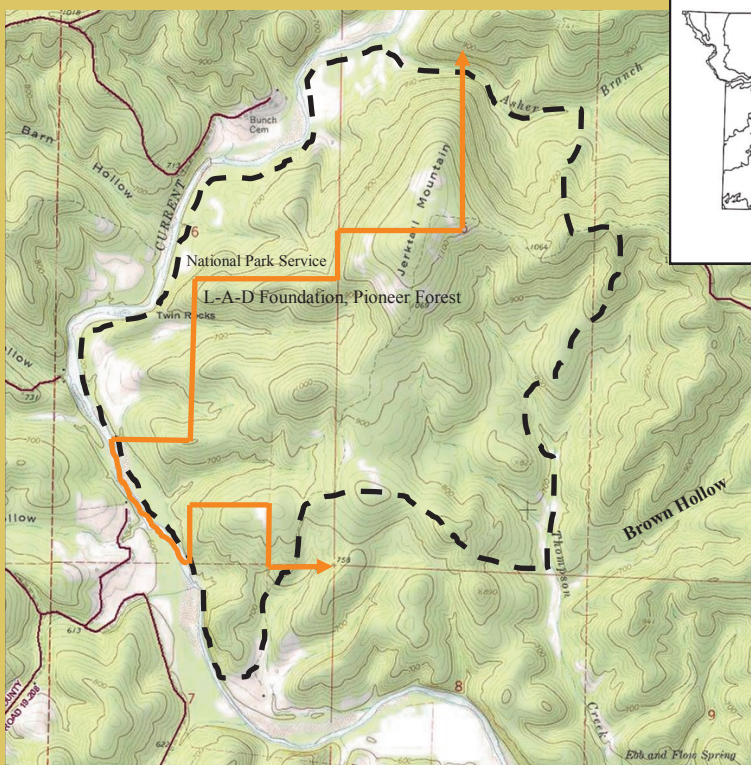
Bluff School, Shannon County: With local community support, we have completed a series of steps to stabilize the one-room school building estimated to have been built in 1920. In 2004, we stabilized the building's foundation and completed simple repairs to replace missing flooring, siding, and ceiling boards. In 2007, we finished painting inside and out and constructed hinged window frames to keep weather out. In the spring of 2008, the Foundation, Big Creek Trail Ride, and members of the Show Me Missouri Backcountry Horsemen hosted a brunch and were joined by neighbors, friends, and a former student who also was a teacher at the school. In April of this year, two of our contractors joined volunteers from Show Me Missouri Backcountry Horsemen, and Brett Howell, our neighbor and owner of Big Creek Trail Ride, to replace the roof.

Virgin Pine, Shannon County: This 41-acre area, two miles south of Round Spring, lies along either side of Highway 19. Sixteen acres were intentionally burned in March 2013. Additional firelines are being established to delineate 10-12 small patch burn sites. The goal is to use prescribed periodic fire in order to maintain the shortleaf pine, re-establish the native understory vegetation, and control the non-pine woody underbrush. Management here is being conducted in conjunction with shortleaf pine management on Pioneer's adjacent Randolph tract.



Left: Prescribed Fire Crew on Virgin Pine Area with members of AmeriCorps, Pioneer Forest/L-A-D staff, University of Missouri, Missouri Department of Conservation, Missouri Department of Transportation staff, and volunteers. Right: Ignition during prescribed fire, Virgin Pine.
PHOTOS BY: Neal Humke

L-A-D Foundation, Pioneer Forest/National Park Service, Ozark National Scenic Riverways Jerktail Mountain Project Area within the Current River Hills section of the Ozark Highlands



(inset ecoregion map taken from Nigh and Schroeder 2002; this map was prepared using National Geographic TOPO! Software)

--- Proposed Special Management Boundary — Ownership Boundary

Jerktail Mountain: The Foundation's May 2011 purchase of 242 acres atop Jerktail Mountain provided an important link between Pioneer Forest and the National Park Service's Ozark National Scenic Riverways lands. It has enabled a productive partnership to manage a significant Eminence Igneous Glade/Oak Forest Knob, one of only twenty such prominent knobs within the Current River Hills region.

Planning has been underway during this past year for an approximately 1800-acre management unit with drought-tolerant species more typical of areas farther south and west of the Ozarks. Our conservation goals are to improve natural community health and quality in favor of igneous glade species. Restoring periodic prescribed fire will be a key, and designs for a fireline are underway. L-A-D Foundation is seeking outside funding for the project in partnership with the National Park Service, US Forest Service, Central Hardwoods Joint Venture, and the Northern Institute of Applied Climate Science.



PHOTO BY: Greg Iffrig

Impacts from equestrian use in the Backcountry near Jerktail Mountain are an ongoing concern. Some riders are leaving the established horse trails and venturing up Thompson Hollow and onto Jerktail Mountain. At risk is the potential degradation of the stream, glade, woodland, and forest communities. Neal Humke, the Foundation's Land

Stewardship Coordinator, has made contact with many people to educate them about our land ownership and its management. An illegally constructed horse trail was closed near Jerktail Mountain, and signs have been placed at access points along county roads to encourage riders to keep to the designated trails.

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Grantmaking and Community Support



PHOTO BY: Greg Iffrig

FOUNDATION GRANT PROGRAM

Since 1962, the L-A-D Foundation has given more than 76 grants totaling more than \$400,000 to a variety of non-profit organizations with projects that serve the Missouri Ozark region. The Foundation distributes submission guidelines annually to a targeted list of more than 100 organizations and individuals and posts its information on its website—www.ladfoundation.org.

2013 Grant Program: In April 2013, the Grants Committee received 20 letters of inquiry. The letters came from both previous and first-time applicants. Finalists were asked to submit full proposals by August 12, 2013. The Foundation's Grants Committee reviewed these proposals, making selections and presenting recommendations for funding to the Board for approval at its October Board meeting. Grant funds are awarded in November and are presented in person by a Board or staff member to each of the recipients.

2012 Grant Recipients: In the fall of 2012, eleven grants were awarded to the following organizations:

- **Discovery Ministries** – expanding an outdoor experiential education program in Shannon County
- **Mark Twain Forest Watchers** – providing Missouri Public Forest Management monitoring
- **Missouri Caves and Karst Conservancy** – clean-up of a trash-filled pit in the watershed of Ha Ha Tonka Spring in Camden County
- **Missouri Coalition for the Environment** – producing digital maps of the Ozark National Scenic Riverways and tributaries
- **Ozark Trail Association** – trail maintenance and construction of a trailhead parking area
- **Rotary Club of Mountain View** – providing a kiosk for educational and interpretive information in the new Mountain View Nature Park and Outdoor Classroom in Howell County
- **Salem Arts Council** – production costs of Current River exhibit
- **Sierra Club, Missouri Chapter** – support to its Ozark National Scenic Riverways protection project

- **Tumbling Creek Cave Foundation** – restoration and repurpose of an historic springhouse as a focal point for conservation and land stewardship tours in Taney County
- **Van Buren Area Chamber of Commerce** – purchase of a trail kiosk showing a comprehensive trail map at Riverfront Park along the Current River in Carter County



Young hikers learn appreciation for the outdoors through a grant to Discovery Ministries. PHOTO BY: Jeremy Pincosy.



Volunteers work tirelessly to rid Goodwin Pit of years of accumulated dumped trash. PHOTOS BY: Bryan McAllister.



Salem Arts Council Exhibit on Current River

The work of the Salem Arts Council brings many in the community together to learn about and celebrate the arts and culture of Salem and Dent County. In November 2012 the L-A-D Foundation awarded the Council \$1,500 for the collection and preparation of artifacts, photographs, and other materials in a month-long display on the Current River at the Ozark Natural and Cultural Resources Center.

The exhibit included the Civil War and the influence of the river on rural life, and focused on the 50-year history of local, state, and national efforts to preserve the Current River; the beginning of the national park – Ozark National Scenic Riverways in 1964; and highlights of the people living along and working within the Current River valley. Various committees researched and gathered artifacts and information which were on display during the month of July. The involvement of Missouri Governor Herbert Hadley (1909 - 913), artist Thomas Hart Benton, and Leo Drey, owner of Pioneer Forest, were noted.



PHOTOS BY Greg Iffrig

COMMUNITY SUPPORT

Throughout the past year, Pioneer Forest contributed financial support to various projects and community groups. Recipients include:

High School Scholarships: Pioneer Forest awarded a college scholarship to Cassidy Bland of Eminence, Missouri, who will major in Wildlife Biology at Missouri State University. Kylee Gromer of Bunker, Missouri, received a scholarship to Mineral Area College where she will study Pre-Physical Therapy.

Ozark Chinquapin Foundation: Pioneer supports the efforts to restore the Ozark Chestnut to its native range.

B.E.S.T. School Foundation (Eminence, MO): Pioneer contributed funds to support ongoing scholarship assistance for graduating high school seniors.

Ozark Natural & Cultural Resource Center (Salem, MO): Pioneer supports the center's programming and displays that are open to the public.

Project Prom (Eminence, MO): Pioneer made a donation to support the Eminence High School Prom.

Stream Team 1028 (Jadwin, MO): Pioneer funds aided 141 volunteers who removed many bags of trash and debris during the Current River clean up.

Dent County 4-H: Pioneer helped support the county's local livestock fair.

Relay for Life (Eminence, MO): Pioneer provided funds to this local event that helps support the American Cancer Society.



Above left: Scholarship recipient Cassidy Bland with Pioneer Forest Technicians Tim Dyer, left, and Mike Adams. PHOTO BY: Mike Adams. Above right: Volunteers with Stream Team prepare for a clean up project on Current River. PHOTO BY: Jack Ficker.

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Public Policy Issues



PHOTO BY: Greg Iffrig

PUBLIC RECREATION POLICY

Recreation opportunities on L-A-D Foundation lands, especially Pioneer Forest, were discussed during recent strategic planning discussions. At its October 2012 meeting, the Board referred the matter of developing policy to its Stewardship Committee. The policy provides context for permitted activities, based on the long-term stewardship of the land resource we are obligated to manage. The Board and staff may then consider when and where they may provide specific opportunities.

OUR POLICY READS AS FOLLOWS:

“The L-A-D Foundation owns a variety of lands, most of which are located in southeast Missouri. Some of these are leased to public agencies where recreation use is governed by the regulations of the lease agency and management plans. Most other lands are managed by the Foundation as Pioneer Forest, Missouri’s largest privately-owned conservation forestry operation. Included on these properties are forest reserves, designated Missouri Natural Areas, hiking trails, and more than thirty miles of riverfront along the Current River and within the Ozark National Scenic Riverways.

Suitable public access and enjoyment of these lands has been part of Pioneer Forest’s tradition and philosophy since its founding in the 1950s by Leo Drey. The L-A-D Foundation intends to continue that tradition, and to assist the public in the enjoyment of its lands with this statement of policy.

Philosophy Regarding Recreation: Primitive outdoor recreation on L-A-D properties is encouraged as long as it does not degrade or deteriorate cultural, land, or water resources. The Foundation’s goal is to permit natural resources-based recreation on its property, which instills respect, enjoyment, and understanding of the Missouri Ozark landscape and its sensitive stewardship.

Examples of Opportunities Permitted: The following recreational pursuits are examples of traditional activities which have been enjoyed on Foundation lands: hiking, paddling, caving by permission, hunting, fishing, canoeing, horseback riding on designated trails, swimming, photography, general sightseeing and seasonal harvest of nuts, wild berries, mushrooms, and fruits for personal use. All such activities may be subject to local, state, and federal regulations, and specific sites may have regulations related to particular resources or conditions, such as ongoing forest management operations.”

DENNIG ROAD

In 1988 Leo Drey purchased nearly 7,000 acres at Greer Spring and along the Eleven Point River from the Dennig family. Private use of one piece of the land (including the mill, portion of the spring branch, and house east of Highway 19) was granted to the Dennig family for 25 years. Leo Drey, worked with the Mark Twain National Forest to acquire the tract, donating \$500,000 toward the cost.

The Dennig Family exercised its right to private use of what has become known as the “Dennig Road” to access their cabins along the spring branch. Their use expired in May of 2013 and the right to continue limited access of the road, which Leo Drey donated to the L-A-D Foundation in 2012, took effect.

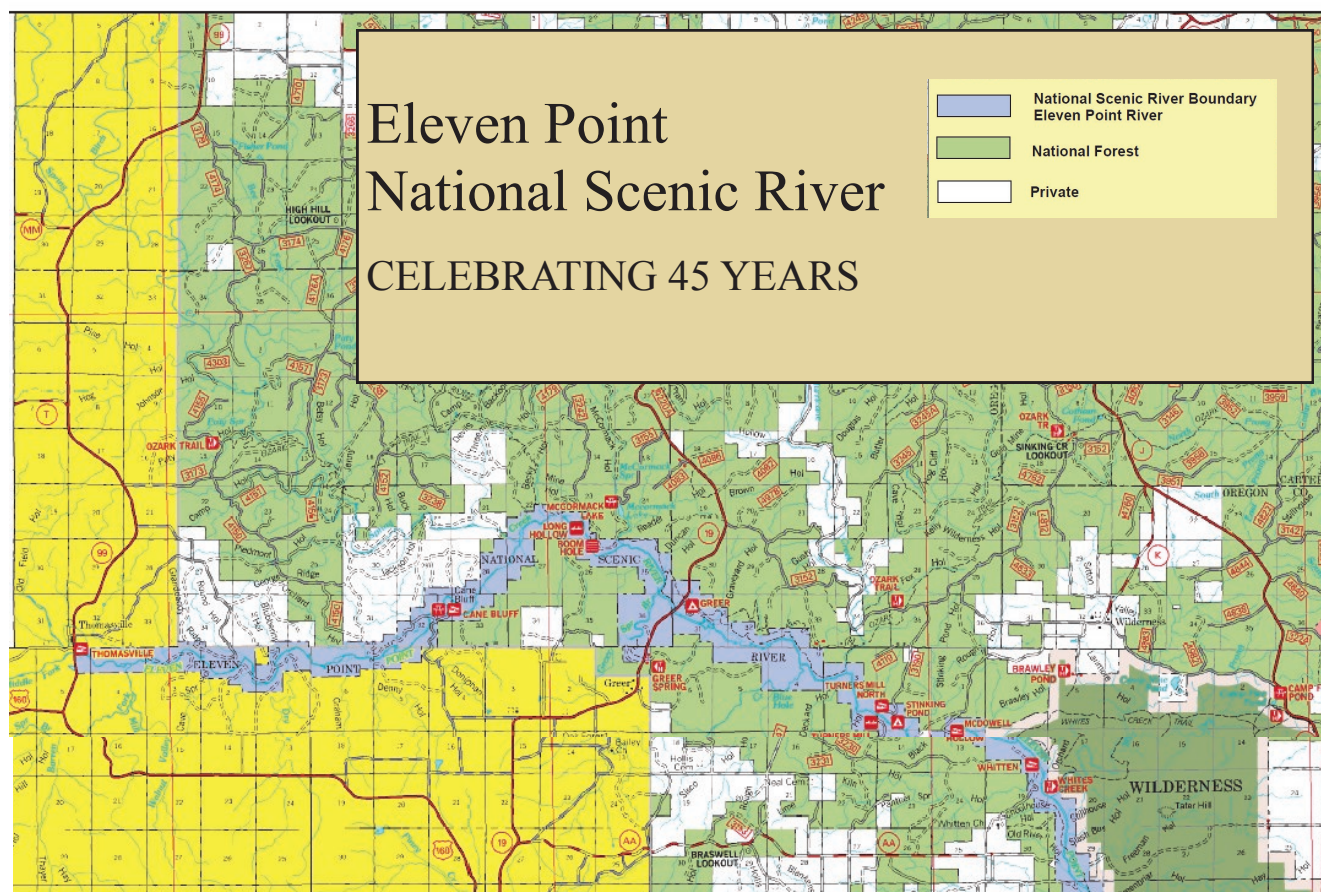
The Foundation Stewardship Committee was assigned to review the matter and recommend future management in order to ensure the long-term integrity of the natural and cultural resources found within the spring valley. Their recommendations were adopted:

- L-A-D Foundation and Forest Service officials will develop a written agreement defining respective responsibilities for access, use, and maintenance of the road.
- The length of the road will be annually inspected for its condition and use, and to see that a gate and sign are in place and maintained at Highway 19.
- Pedestrian use of the road is encouraged as recommended by the Forest Service.
- Other public uses may be considered and agreed to in advance.
- L-A-D Foundation and Forest Service officials will meet at least once each year to discuss the condition of the road and adjacent resources.
- Further investigation of the cultural and natural resource values of the Greer Spring area is encouraged.

President John Karel and Board members Dorothy Ellis and Leon Cambre, along with staff Greg Iffrig and Jason Green, joined other agency staff and community members at an on-site meeting called by the Forest Service to review Greer Mill and the Dennig Road, and to see the cabins and use area along Greer Spring Branch. Forest Service officials from both the regional and the Mark Twain offices were there to review this remarkable site along the Eleven Point National Scenic River. Most notable was that the brush and thick vegetation that had grown up around Greer Mill had been cleared away, and for the first time in many years, the mill could be clearly seen from Highway 19. Mark Twain staff discussed the need to thoroughly assess the present condition and the repair needs of the mill, and options to protect its structural integrity. Contracting for such a study could begin this year.



PHOTO BY: Greg Iffrig

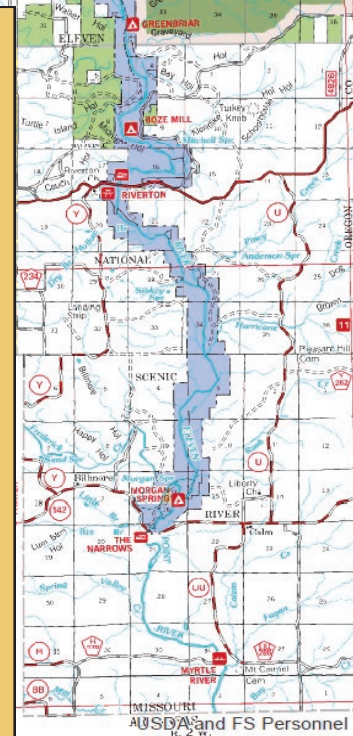


In 1968, when Congress established the National Wild and Scenic Rivers System, they also named 44 miles of the Eleven Point River between Thomasville and Highway 142 as a National Scenic River, one of eight included in the original legislation.

Some of the lands are privately owned with a scenic easement granted to the U. S. Forest Service, and the rest are part of the Mark Twain National Forest. The largest and most important piece of privately-owned property is nearly 7,000 acres at Greer Spring, which had been owned by the Dennig family since 1920. When the family decided to sell in 1988, a threat to the resource spurred Leo Drey to a remarkable conservation rescue. He acquired the entire property, ultimately protecting Greer Mill, Greer Spring (Missouri's second largest), and miles of frontage on the Eleven Point River.

That purchase filled a sizeable gap in the scenic river; many consider it the heart of the Eleven Point.

MAP PREPARED BY KEITH HOLLAND, MARK TWAIN NATIONAL FOREST, AND REPRODUCED HERE WITH PERMISSION.



L-A-D Foundation

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Administrative Issues



PHOTO BY: Greg Iffrig

RE-STATEMENT OF LEASE AGREEMENT WITH MDC

Since 1987, the L-A-D Foundation has leased seven of its natural areas and adjoining lands to the Missouri Department of Conservation for day-to-day local oversight of property and law enforcement. The individual areas are: Ball Mill Resurgence in Perry County, Clifty Creek in Maries County, Hickory Canyons in Ste. Genevieve County, Horseshoe Bend, Piney River Narrows, and Dripping Springs in Texas County, and Rocky Hollow in Monroe County. The agreement also provided for individualized management plans.

Revisions to the basic agreement were made in 1988, 1991, and again in 2008. The Foundation recently completed two additions along Blue Spring Branch in Perry County. These lands include numerous karst features, along with important stream frontage and improved boundaries. With these lands undergoing restorative treatment, and to accommodate public access, the latest revision to our lease agreement was approved this past year by both organizations and was finalized on January 2, 2013.

FOREST STEWARDSHIP COUNCIL (FSC) CERTIFICATION

In 2002 Pioneer began efforts to certify all our lands so that consumers purchasing products made from Pioneer wood would have assurance that Pioneer's forest management complied with forest certification standards. We decided to conclude our contractual involvement with the Forest Stewardship Council in 2013.

Pioneer and the L-A-D Foundation Board continue to embrace the concept of certification as integral to good stewardship of forest lands, but following ten years of participation, staff noted that the increasing cost to maintain certification did not add value to its forest products. The Foundation reported to the FSC that markets in Missouri and the region were not improving, but that we would maintain our interest and review opportunities to participate in the future.

AUDIT UNDERWAY

The Foundation's Board of Directors reviewed several proposals to conduct an audit of the most recent fiscal year which ended June 30, 2013. Staff members have been involved in preparations and field visits.



PHOTO BY: Pioneer Forest Staff

FOREST MANAGER TERRY CUNNINGHAM RETIRES

Terry Cunningham began his career on Pioneer Forest in 1972 when he worked on Pioneer's Continuous Forest Inventory. He then became Pioneer's District Forester in Van Buren. Later he was chosen to serve as Chief Forester working in Salem, and finally became Pioneer's Forest Manager. After a career of more than 40 years, Terry retired beginning in July.

The Board and staff took several opportunities during this past year to recognize Terry's exceptional service and decades-long commitment to Pioneer Forest. In April, at its annual spring dinner in Salem, the Board's President, John Karel, presented its declaration of appreciation. Terry had lunch with Leo and Kay Drey and the Pioneer staff in May, and marked his last month with visits from colleagues and staff. Recently he accepted the Board's invitation to join its Advisory Council.

PIONEER PROMOTIONS LOOK AHEAD

At least five years ago, the Board and staff considered how to position Pioneer for the future. Pioneer's first crew of the 1950s (Ed Woods, Charlie Kirk, Russ Noah, Rayburn Skaggs, and Paul Corder) transitioned during the 1970s to include Clint Trammel, Terry Cunningham, Dan Skaggs, Steve Wells, Steve Whitaker, and Keith Jones. In 2007, Jason Green joined Pioneer, and in 2009 Pioneer added Brandon Kuhn to its Salem staff. Matthew Skaggs was hired as an additional field technician in 2012.

The Board made a commitment to assist Terry Cunningham in training the new generation of forest staff, in order to pass on Terry's skill, experience, and insights. That commitment proved successful, and in the summer of 2013 Jason was promoted to serve as Pioneer's Forest Manager, and Brandon was promoted to Chief Forester. The field crew is now four with Mike Adams, Tim Dyer, Dan Skaggs, and Matthew Skaggs. Dan Skaggs became the senior forest technician of our field crew and supervises sales and marking.



Jason Green, left, and Brandon Kuhn.
PHOTO BY: Drew Johnson

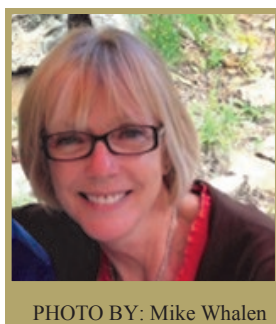


PHOTO BY: Mike Whalen

L-A-D FOUNDATION WELCOMES NEW OFFICE MANAGER

In October of 2012, the Board and staff welcomed Cher Lowther as Office Manager. Cher is a graduate of Webster University and has lived in St. Louis for many years. Her experience in non-profit management, grant-writing, and real estate has allowed her to quickly contribute to the Foundation's work.

Appendices



L-A-D FOUNDATION LANDS

	<u>COUNTY</u>	<u>SPECIAL DESIGNATION</u>	<u>SIZE</u>
PIONEER FOREST (including each of the following special areas)			142,259.25 ACRES
Blair Creek Hanging Fen	Shannon	Forest reserve ¹ , 2011, 25 acres	
Bluff School, Medlock Cave	Shannon	Forest reserve, 1995, 51 acres	
Cunningham Sink	Shannon	Forest reserve, 2011, 24 acres	
Current River NA	Shannon	SAF Natural Area ² , 1955 and State Natural Area ³ , 1977, 10 acres; Addition, Natural Area, 2005, 255 acres; Total area 265 acres	
Fishtrap Hollow and Marshy Spring Hollow Fens	Shannon	Forest reserve, 1995, 45 acres	
Laxton Hollow	Shannon	Forest reserve, 1995, 145 acres	
Leatherwood Creek	Shannon	Forest reserve, 1995, 1003 acres	
Lily Pond NA	Reynolds	State Natural Area, 1975, 8 acres	
Old Schoolhouse Hollow Fens	Shannon	Forest reserve, 1995, 140 acres	
Pioneer Forest NA	Shannon	SAF Natural Area, 1964 and State Natural Area, 1977, 20 acres	
Sinkhole Ponds Complex	Reynolds	Forest reserve, 1995, 45 acres	
Sutton School Hollow Fens	Shannon	Forest reserve, 1995, 75 acres	
Triple Sink/ Sunklands NA ⁴	Shannon	State Natural Area, 1980, 23 acres; Addition of 19 acres included as part of Sunklands Natural Area in 1999; total area 42 acres	
Tufa Creek	Shannon	Forest reserve, 2011, 116 acres	
RIVERWAYS CORRIDOR LANDS			1123.55 ACRES
Scenic Easements	Shannon, Carter	National Park Service, Ozark National Scenic Riverways, 1970, 951 acres	
Cave Spring	Shannon	Adjacent to the Current River, 172.55 acres	
LANDS LEASED TO THE MISSOURI DEPARTMENT OF CONSERVATION (MDC)			2184.58 ACRES
Ball Mill Resurgence ⁵	Perry	State Natural Area, 1979, 19.61 acres of 279.81 acres leased to MDC; total area 283.08 acres	
Clifty Creek	Maries	State Natural Area, 1971, 230 acres	
Dripping Springs	Texas	State Natural Area, 1973, 8.59 acres	
Hickory Canyons	Ste. Genevieve	State Natural Area, 1973, 420 acres; Addition of 560.91 acres in 1979; total area 980.91	
Horseshoe Bend ⁶	Texas	State Natural Area, 1973, 69 acres of 222 acres leased to MDC; total area 233 acres	

Piney River Narrows	Texas	State Natural Area, 1971, 50 acres of 258 acres leased to MDC	
Rocky Hollow	Monroe	State Natural Area, 1973, 188 acres; National Register of Historic Places, 1974; total area of 191 acres leased to MDC	
	<u>COUNTY</u>	<u>SPECIAL DESIGNATION</u>	<u>SIZE</u>
LANDS LEASED TO MISSOURI DEPARTMENT OF NATURAL RESOURCES			289 ACRES ⁷
Dillard Mill	Crawford	State Historic Site, 1977, 130 acres	
Grand Gulf State Park	Oregon	National Natural Landmark ⁸ , 1971 and State Park, 1984, 159 acres State Natural Area, 1986, 60 acre-portion	
Roger Pryor Pioneer Backcountry	Shannon	Lease to Missouri State Parks, 2005, a 56,675 acre portion of Pioneer Forest	
OTHER			267.42 ACRES
Lower Rock Creek	Madison	Recreation land, 226 acres	
Virgin Pine	Shannon	Scenic remnant corridor, 41.42 acres	
TOTAL LAND OWNERSHIP			146,123.8 ACRES
<p>¹The concept for Forest Reserves was discussed by Pioneer Forest staff in 1994. In 1995, the management plan for each of these areas was described along with boundaries, and following Leo Drey's agreement and the endorsement of the Foundation Board, the program was adopted. Additions were made in 2011.</p> <p>²The Society of American Foresters Committee on Natural Areas was organized in 1947.</p> <p>³The Missouri Natural Areas System began in 1971 with the first areas owned or leased by the Missouri Department of Conservation. Beginning in 1977, the Missouri Natural Areas Committee was established by agreement of the Missouri Department of Conservation and the Missouri Department of Natural Resources to review and approve natural areas throughout the state under a variety of public and private ownerships.</p> <p>⁴Originally designated as a Missouri Natural Area in 1980 under the ownership of the Frank B. Powell Lumber Company; acquired by the L-A-D Foundation in 2006.</p> <p>⁵The total area of Ball Mill includes 3.27 acres owned by the Foundation and not leased by MDC.</p> <p>⁶The total area of Horseshoe Bend includes 11 acres owned by the Foundation and not leased.</p> <p>⁷State Historic Sites and State Parks are managed by the Division of State Parks, Missouri Department of Natural Resources. The Roger Pryor Pioneer Backcountry is included in the Pioneer Forest acreage ("Total Land Ownership").</p> <p>⁸The National Natural Landmarks program is administered by the National Park Service. Grand Gulf is among fewer than 600 sites designated in the United States as a National Natural Landmark.</p>			

GLOSSARY OF TERMS

Acre – A unit of land area measurement equal to 43,560 square feet.

Advanced regeneration – Seedlings or saplings that develop or are present in the understory.

Age class – An aggregation of trees essentially the same age. Age class is often used synonymously with “size class.” Age intervals of 10 years are commonly considered to be the same age class.

Aquatic habitat – A local environment in or near water that provides food, a place to reproduce, and shelter for water-dependent species.

Aquatic invertebrate taxa – Includes a range of organisms such as snails, crustaceans, insect larvae, leeches, and aquatic worms.

Aspect – The cardinal direction that a slope faces (north, south, east, west).

Avifauna – Avian wildlife, birds.

Basal area – The area (in square feet) of the cross section of a tree stem, including the bark, generally at breast height (4.5 feet above the ground). In the aggregate, it is the total cross-sectional area per acre of all trees at breast height.

Biological diversity – The conditions of having a variety of biotic characteristics and traits (e.g., genus, species, and community types), life history stages, structural forms (e.g., stratification, zonation, and the physical structures of plants), biotic patterns (e.g., reproductive activity, food web, social, and interactive), and functions (e.g., nutrient cycling, hydrological cycling, and provision of habitat). Also termed “biodiversity.”

Biotic index – A range of values used to observe and compare biotic changes in response to pollution or habitat change.

Board foot – A unit for measuring wood volume. It is commonly used to express the amount of wood in a tree, sawlog, or piece of lumber. A piece of wood one foot wide by one foot long by one inch thick equals one board foot (bf).

Blocking –

Bolt – A short log or a squared timber cut from a log, usually less than 8 feet in length.

Buffer strip – A strip of vegetation left unmanaged or is managed to reduce the impact a treatment or action on one area would have on an adjacent area.

Canopy – The more or less continuous cover of branches and foliage formed collectively by the tops, or crowns, of adjacent trees.

Canopy closure – The progressive reduction of space between tree crowns as they spread laterally.

CFI – Continuous Forest Inventory, an inventory repeated with regular frequency, over a long time period, to locate and estimate quantities by species, product, size, quality, and other characteristics.

Chrono-sequence – Forest stands covering a range of ages and management-related disturbances.

Clear-cut – A harvest method used in the even-aged silvicultural system. The removal of all merchantable and non-merchantable trees greater than 1.0 inch in diameter in one harvest cut. Pioneer Forest management does not include the use of clear-cutting.

Community – An assemblage of plants, animals, bacteria, and fungi that live in an environment and interact with one another, forming a distinctive living system with its own composition, structure, environmental relations, development, and function.

Conservative species – Plants most often associated with a specific habitat or natural community. For example, a weedy plant species can be found along roadsides, disturbed woodlands, and old fields, whereas a lead plant is only found in prairies and open glades. This may be better understood by comparing birds such as the common American Robin to the uncommon and more conservative Swainsons Warbler.

Cord – A unit of gross volume measurement for stacked roundwood based on external dimensions, generally a 4 by 4 by 8-foot stack (128 cubic feet of stacked wood).

Cross-tie – A transverse timber forming a foundation or support.

Cull – A tree or log of merchantable size that, because of defect, has no merchantable value. A cull may be highly valuable as a den tree.

Customary rights – Rights that result from long habitual or customary actions that have, by such repetition and by uninterrupted acquiescence, acquired the force of law within a geographical or sociological unit.

Cutting cycle – The planned interval between partial harvests in an uneven-aged stand.

Dendrochronology – The study of tree rings and tree ring patterns influenced by environmental factors such as climate and fire. Analyzing annual growth increments helps us to understand the age of a tree or a forest canopy and to compare responses to change between species and within a forest or a region.

Den tree – A living tree with a cavity large enough to shelter wildlife. Also called a cavity tree.

Diameter breast height (d.b.h.) – Diameter of a tree measured on the uphill side of the tree at 4.5 feet (breast height) above ground line.

Disturbance regimes – Any of a variety of events, such as wind, floods, and/or fires, that cause a significant change in the local or regional environment and the associated plants or animals.

Down woody debris – Woody portions of trees that have fallen and are lying on the ground. Down woody debris includes twigs, branches, logs, stumps, and whole trees that have fallen. Also referred to as either fine or course woody debris.

Duff – Partly decayed organic matter on the forest floor.

Ecosystem – A conceptual unit comprised of organisms interacting with each other and their environment, having the major attributes of structure, function, complexity, interaction and interdependency, and temporal change with no inherent definition of spatial dimension.

Endangered species – Any species in danger of extinction throughout all or a significant part of its range. Endangered species may be state or federally listed.

Erosion – The displacement of soil from one place to another by any means, including wind, water, gravity, logging, road building, and fire.

Even-aged management – A system of forest management in which stands of trees are maintained or cut with relatively minor differences in age, usually less than 10% of the rotation.

Even-aged silvicultural system – The application of a combination of actions that results in the creation of stands of trees of essentially the same age that are growing together. Managed even-aged forests are characterized by a distribution of blocks of single-age stands (and therefore, tree size) throughout the forest area. The difference in age between trees forming the main canopy level of a stand usually does not exceed 20% of the age of the stand at harvest rotation age. Regeneration in a particular stand is obtained during a short period at or near the time a stand has reached the desired age or size and is harvested. Clear-cut, shelterwood, or seed tree cutting methods produce even-aged stands.

Exotic species – Species that would not occur naturally in the location where they are found.

Federally listed – Animals or plants formally added to the federal lists of endangered or threatened wildlife or plants by the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service. In legal terms, this also includes species formally proposed for addition to these lists.

Fluctuating asymmetry (FA) – A measure of developmental stability based on genetic complexity.

Forest – Generally defined as an area with over 60% canopy cover.

Forest structure – The layers of vegetation within a forest. These layers are, in general, seedlings, advanced reproduction, saplings, poles, and overstory. Except for seedlings, each of these layers can be made up of multiple age classes.

Fragipan – Loamy, brittle subsurface soil layer low in porosity and organic matter and low or moderate in clay, but high in silt and fine sand. A fragipan appears to be cemented and restricts roots.

Geo-reference – Spatial information related to geographic data allowing the data to be displayed along with other related geographic data within a geographic context.

GIS/GPS – Geographic Information System, best described as telling us where a particular oak is within the forest, compared to GPS (Geographic Positioning System), which tells us the particular point (x, y, z) where we are within the forest.

Growth –The change in volume for trees measured in one inventory and then re-measured in the next.

Harvest cycle – The time period between harvest entries when using an uneven-aged management system.

Harvest rotation – The time period between harvests when using an even-aged management system.

HCVF – High Conservation Value Forests – Those forests that possess one or more of the following attributes:

1. forest areas containing globally, regionally, or nationally significant concentrations of biodiversity (e.g., endangered species) and/or large landscape-level forests contained within the management unit, where viable populations of most, if not all, naturally occurring species exist in natural patterns of distribution and abundance;
2. forest areas that are in or contain rare, threatened, or endangered species;
3. forest areas that provide basic services of nature in critical situations (e.g., protection of water catchments and control of soil erosion).

High-grading – Harvesting to extract only the most valuable trees from a forest. No consideration is given to regeneration requirements of tree species or future development and health of the trees or forest.

High-quality hardwoods – Hardwood trees or stands that will yield high-value timber products, such as face veneer, knot-free lumber, furniture, or specialty product stock and flooring.

Ingrowth – Trees that during a specified period have grown past an arbitrary lower limit, primarily of diameter or height. Ingrowth is usually expressed as basal area or volume per unit area.

Indicator species – A species whose presence in a certain location or situation at a given population level indicates a particular environmental condition. Population changes are believed to indicate affects of management activities on a number of other species or on water quality.

Karst (topography) – Terrain with distinctive characteristics of relief and drainage arising primarily from a higher degree of rock solubility than is found elsewhere. Some of these characteristics are springs, losing streams, underground drainage and water reservoirs, caves, natural bridges, and sinkholes.

Landscape – A physiographic unit capable of sustaining several populations of a species; a mosaic of landforms and plant communities irrespective of ownership or other artificial boundaries.

Layering – A forest regeneration technique in which portions of a plant, such as a limb, can be used to sprout roots and stems.

LEED – Leadership in Energy and Environmental Design; a certification system developed by the U.S. Green Building Council.

Legacy tree (or forest) – Preserves certain qualities (such as old-growth trees or forests, wildlife habitat, species, community, etc.) that may be lacking on a landscape scale.

Log landing – A place where logs are taken (skidded) to be loaded on trucks for transport to the mill.

Losing stream – A flowing stream that gradually gets smaller or disappears due to the loss of some or all of the flowage into below-ground channels or caverns.

Mature tree – A tree in which growth has reached the culmination of mean annual increment (economic maturity) and/or one in which growth equals loss of biomass, beyond which decline and mortality will eventually occur (biological maturity).

MBF – Thousand board feet.

MMBF – Million board feet.

Native species – Any species of flora or fauna that naturally occurs in a particular area, and that was not introduced by humans.

Natural forest – A forested area in which many of the principal characteristics of the native ecosystems are present.

Natural regeneration – An age class of trees created by natural seeding, sprouting, suckering, or layering.

Neotropical migrants – Bird species that breed in the United States during summer and spend winter in Mexico, Central America, South America, and the Caribbean Basin.

Non-timber forest products – All forest products except timber; other materials obtained from trees, such as resin, bark, and leaves, as well as other non-tree plant or animal products found in a forest.

Old-growth forest – Ecosystems distinguished by old trees and related structural attributes. Old-growth encompasses the latter stages of stand development. These latter stages typically differ from earlier successional stages in a variety of ways that may include tree size; accumulations of large, dead woody materials, especially on the forest floor; number of canopy layers; species composition; and ecosystem functions.

Old-growth stand – A stand of mature trees that is unroaded or lightly roaded, with little evidence of previous logging, usually ranging in size from 15 to 500 or more acres, and of sufficient size and configuration to maintain specific ecological functions.

Overstory – The uppermost layer of foliage that forms a forest canopy.

Plantation – A forested area that lacks most of the principal characteristics of native ecosystems because of human activities, such as planting, sowing, and intensive crop-like management and harvests.

Progeny – Offspring from a parent, in this case, the offspring of tree species within the timber stand.

Regeneration – Seedlings and saplings existing in a stand. This is the process by which a forest is renewed, either artificially by direct seeding or planting, or naturally by self-sown seeds and sprouts.

Resurgence – A sinkhole that acts in the traditional manner of collecting and moving surface water directly to underground reservoirs and then, during especially heavy rainfall, reverses this flow of water to act like a spring.

Riparian area or zone – An area along the bank of a river, stream, lake, or pond identified by the presence of vegetation that requires free or unbound water or is more moist than normally found in the area. The zone may be a narrow strip of vegetation that borders a creek, river, or other body of water. Riparian zones may occupy only a small percentage of a watershed but are extremely important components of the general landscape.

Root-sprung – A condition of storm-damaged trees in which high winds bend a tree to the point where roots are partially pulled from the ground but the tree is not blown down.

Savanna landscape – A landscape characterized by widely spaced trees with an understory of native grasses and shrubs. Savannas are suitable for wildlife species not generally found in closed-canopy landscapes.

Scale – A measure of volume in a tree based on the diameter and height of the tree.

Silviculture – The art and science of producing and tending a forest by manipulating its establishment, composition, and growth to best fulfill the objectives of the owner, that may or may not include the production of timber.

Single-tree selection – A harvest method expressed by the selection of individual trees to be removed from a stand of trees, the basis of uneven-aged management.

Skid trail – A road or trail over which equipment or horses drag logs from the stump to a road or log landing.

Snag – A standing dead tree from which leaves and most of the branches have fallen. A snag may be newly dead and appear to be a leafless tree or may be little more than a tall stump from which all of the limbs and bark have fallen. Snags are used by a variety of wildlife species.

Spatial – Of or relating to space: such as “the spatial distribution of individual trees.”

Stream – A channel with a defined bed and a bank that carries enough water flow at some time during the year to flush out leaves. (1) Ephemeral streams are streams that flow less than 10% of the time, only in direct response to rainfall, with a channel that may be scoured or unscoured and is always above the water table. (2) Intermittent streams are streams that flow seasonally (10% - 90% of the time) in response to a fluctuating water table, with a scoured channel at least three feet wide. (3) Perennial streams are streams that flow year-round (more than 90% of the time), with a scoured channel always below the water line.

Stumpage – The value of standing timber or uncut merchantable timber.

Suckering – The generation of sprouts that grow along the trunk of a tree, usually after a drastic change in growing conditions, such as a heavy harvest, allowing a sudden increase of light to reach the trunk.

Sustainable forest management – The practice of meeting forest resource needs and values of the present without compromising the forest’s value for future generations.

Threatened species – Any species likely to become endangered within the foreseeable future and designated in the Federal Register or is State Listed.

Timber stand improvement (TSI) – A thinning made in timber stands to improve the quality, composition, structure, condition, health, and growth of the remaining trees.

Topographic relief – The three-dimensional quality of the surface of land, more specifically depicting the differences between the lowest and highest elevations within an area or region. (The most-used example would be a topographic map showing contour intervals.)

Topographic roughness – An index value obtained from the measure of a larger region divided by the measure of many small measuring surfaces.

Travertine – A mineral consisting of a massive layered calcium carbonate formed by deposition from spring waters or especially from hot springs.

Tufa – A natural, calcareous deposit associated with springs, lakes, and groundwater.

Understory – The area of the forest at the lowest height level below the forest canopy. Plants in the understory are a mix of saplings of canopy trees together with understory shrubs and trees. In the Ozarks, dogwoods, redbud, and bladdernut are rarely tall and are generally understory trees.

Uneven-aged silvicultural system – The application of a combination of actions that results in the creation of stands in which trees are in at least three age classes. Managed uneven-aged forests are characterized by a distribution of age classes and tree sizes ranging from regeneration to mature trees on each acre throughout the forested area. Regeneration in a particular stand is obtained throughout the harvest cycle and following a harvest and, in oak/hickory stands, is retained until a short time after complete canopy closure. Single-tree selection or small-group selection tree harvest methods produce uneven-aged stands.

Vascular Plant – A plant having specialized tissue for circulating resources (water, minerals, and photosynthetic products) through the plant. These include ferns, club mosses, flowering plants, and conifers.

Vegetative architecture – Stratified vegetation levels consisting of various canopy layers, understory layers, and groundcover.

Veneer – A thin slice of wood removed from a log. The thin slice is laminated onto a lower quality or more stable base often, but not necessarily, of the same species.

Veneer tree – A large (usually more than 18 inches in diameter), knot-free, high-quality tree from which veneer logs are obtained.

Volume – The amount of wood in a tree, stand of trees, or log expressed in some unit of measure, such as board feet, cubic feet, etc.

Water bars – Used to prevent erosion on sloping trails or roads by reducing the velocity of water and the length of its flow; generally constructed at a diagonal across the path.

Watershed – An area of land with a single drainage network. A watershed may be very large, such as the Mississippi River watershed, or smaller, such as the Blair Creek watershed. A watershed may or may not include a perennial stream. Holmes Hollow in Shannon County is an example of a watershed without a perennial stream.

Wetlands – Those areas inundated by surface or ground water often enough to support plants and other aquatic life that require saturated or seasonally saturated soils for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas, such as sloughs, potholes, wet meadows, fens, river overflows, mud flats, and natural ponds.

Woody debris – All woody material, from whatever source, dead and lying on the forest floor.

Woodland – Generally defined as an area with less than 60% canopy cover.

Working forest – That portion of a forest dedicated to the production of forest products.



October 2013. Between 1996 and 2006, the staff of Pioneer Forest prepared an *Annual Report to the Foundation* for the Board of Directors of the L-A-D Foundation. Beginning in 2007, this report was expanded to become the *Annual Report of the L-A-D Foundation*.

Other publications and information about the Foundation or Pioneer Forest are available from the L-A-D Foundation, 705 Olive Street, Suite 724, St. Louis, Missouri 63101 or from Pioneer Forest, P.O. Box 497, Salem, Missouri 65560. Information is also available at www.ladfoundation.org or at www.pioneerforest.org.

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